HP Business Service Management

for the Windows and Linux operating systems

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Using End User Management

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PART II: APPLICATION

Welcome to This Guide

This guide describes how to configure and use HP End User Management (EUM) to monitor your applications in real time from the end-user perspective, and how to produce reports that display the performance and availability of your applications from different angles.

This chapter includes:

How This Guide Is Organized

The guide contains the following parts:

Part I Administration

Describes how to work with EUM Administration including understanding and working with the CI selector, the Script Repository, and working with Global Replace. Also describes how to configure Business Process Monitor (BPM) and Real User Monitor (RUM) applications, business transaction flows, and transactions for monitoring, as well as how to configure alerts in EUM.

Part II Application

Describes how to work with EUM reports and utilities, as well as reports that provide information about the triggered EUM alerts.

Who Should Read This Guide

This guide is intended for the following users of HP Business Service Management:

- HP Business Service Management administrators
- HP Business Service Management application administrators
- HP Business Service Management end users

Readers of this guide should be knowledgeable about navigating and using enterprise applications, and be familiar with HP Business Service Management and enterprise monitoring and management concepts.

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Topic Types

Within this guide, each subject area is organized into topics. A topic contains a distinct module of information for a subject. The topics are generally classified according to the type of information they contain.

This structure is designed to create easier access to specific information by dividing the documentation into the different types of information you may need at different times.

Three main topic types are in use: **Concepts**, **Tasks**, and **Reference**. The topic types are differentiated visually using icons.

Topic Type	Description	Usage
Concepts	Background, descriptive, or conceptual information.	Learn general information about what a feature does.
Tasks	**Instructional Tasks.** Step-by-step guidance to help you work with the application and accomplish your goals. Some task steps include examples, using sample data. Task steps can be with or without numbering: ➤ **Numbered steps.** Tasks that are performed by following each step in consecutive order. ➤ **Non-numbered steps.** A list of self-contained operations that you can perform in any order.	➤ Learn about the overall workflow of a task. ➤ Follow the steps listed in a numbered task to complete a task. ➤ Perform independent operations by completing steps in a non-numbered task.
	Use-case Scenario Tasks. Examples of how to perform a task for a specific situation.	Learn how a task could be performed in a realistic scenario.

Topic Type	Description	Usage
Reference	**General Reference.** Detailed lists and explanations of reference-oriented material.	Look up a specific piece of reference information relevant to a particular context.
	User Interface Reference. Specialized reference topics that describe a particular user interface in detail. Selecting **Help on this page** from the Help menu in the product generally open the user interface topics.	Look up specific information about what to enter or how to use one or more specific user interface elements, such as a window, dialog box, or wizard.
Troubleshooting and Limitations	**Troubleshooting and Limitations.** Specialized reference topics that describe commonly encountered problems and their solutions, and list limitations of a feature or product area.	Increase your awareness of important issues before working with a feature, or if you encounter usability problems in the software.

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Part I

Administration

1

End User Management Administration

This chapter includes:

Concepts

Tasks

Reference

Concepts

End User Management Administration Overview

End User Management (EUM) Administration is a Web-based, centralized solution for configuring and managing the applications and associated entities you want monitored by the end-user data collector—Business Process Monitor (BPM) and Real User Monitor (RUM).

The BPM data collector emulates end users by running the transactions included in a business transaction flow or application from various locations. By collecting performance and availability data from various points throughout your infrastructure, as well as from external locations, it enables you identify performance problems in real time.

The RUM data collector monitors both user and system initiated network traffic between client machines and servers and between servers, collecting network and server performance and availability data in real time. This enables you to pinpoint the cause of delays and quantify the business impact of detected performance issues related to end users.

You use EUM Administration to configure the applications, business transaction flows, and transactions for monitoring by BPM, RUM, or both. By monitoring the same applications, business transaction flows, and transactions with both BPM and RUM, you can obtain an overall picture about your applications from both a real user and synthetic user (BPM) perspective.

Once data on the configured applications, business transaction flows, and transactions has been collected, you can view the data in EUM reports and in Service Health. For details on EUM reports, see "End User Management Reports Overview" on page 673. For details on viewing data in Service Health, see "How to Monitor Your Environment Using Service Health" in *Using Service Health*.

The EUM Administration user interface includes the following tabs:

- **Monitoring.** Enables you to manage the CIs included in a selected Run-time Service Model (RTSM) view and configure them for monitoring. This is the default tab when you access EUM Administration. For concept details, see "Monitoring Applications Overview" on page 23.
- **Script Repository.** Enables you to manage your organization's BPM scripts. For concept details, see "Script Repository Overview" on page 456.
- **Alerts.** Enables you to create and manage EUM alerts. For details, see "Administer EUM Alerts" on page 525.
- **Settings.** Enables you to view the BPMs and RUMs registered in Business Service Management (BSM). Also enables you to view BPM and RUM licenses and configure default settings to be used when you configure applications for BPM and RUM. For concept details, see "Settings Overview" on page 490.

Monitoring Applications Overview

You use the **Monitoring** tab in EUM Administration to view, configure, and manage the applications you want monitored by the end-user data collectors—BPM and RUM. To access the Monitoring tab, select **Admin** > **End User Management** > **Monitoring**. The Monitoring page includes two main display areas. The left pane includes the **Browse** tab and the **Search and Replace** tab. The right pane displays the configuration and settings of a CI selected in the Browse tab, or the results of a search made in the Search and Replace tab. For user interface details, see "Monitoring Tab" on page 83.

This section includes the following topics:

Browse Tab

The **Browse** tab is one of two tabs available in the left pane of the Monitoring tab. In the Browse tab, you can select any view in the Run-time Service Model (RTSM) and manage the EUM related CIs. When you select a view, its CIs are displayed as a hierarchical tree, with only the CIs that are relevant for EUM enabled.

There are a number of predefined views for EUM, and the default view in the Browse tab is the **End User Monitors** view. For details of the End User Monitors and other predefined views, see "Predefined Views for End User Management" on page 25.

Tip: Changing the view in the Browse tab can take some time, depending on the number of CIs in the view. It is a good practice to distribute your applications among a number of small views.

You select a CI by clicking it in the hierarchical tree. You can perform various actions on a selected CI by using the buttons at the top of the Browse tab, or by right-clicking the CI to display a Shortcut menu and clicking the required menu option.

For user interface details, see "Monitoring Page Browse Tab" on page 64.

Search and Replace Tab

In the **Search and Replace** tab you can search for CIs and related entities of a selected type, or that match specific criteria. You can use predefined search queries, or create your own queries. Search results are displayed in the right pane of the Monitoring page.

From the search results, you can select multiple CIs or entities and perform a global replace and other bulk operations on them. Global replace enables you to change property values for all the selected CIs or entities. Bulk operations enable you to add and remove data collectors for the selected CIs or entities. You can also remove the BPM or RUM configuration for the selected CIs or entities. Only the applicable actions for the selected CIs or entities are displayed.

For user interface details, see "Monitoring Page Search and Replace Tab" on page 75.

Right (Display) Pane

When you select a CI in the **Browse** tab (by clicking the CI in the hierarchical tree), its configuration settings and properties are displayed in various tabs (CI Properties, Business Process Monitor, Real User Monitor, Alerts, and Location Offsets) in the main display area in the right pane of the Monitoring page. Only the tabs that are relevant for the selected CIs are displayed. You can update the displayed configuration settings and properties directly in the tabs.

Predefined Views for End User Management

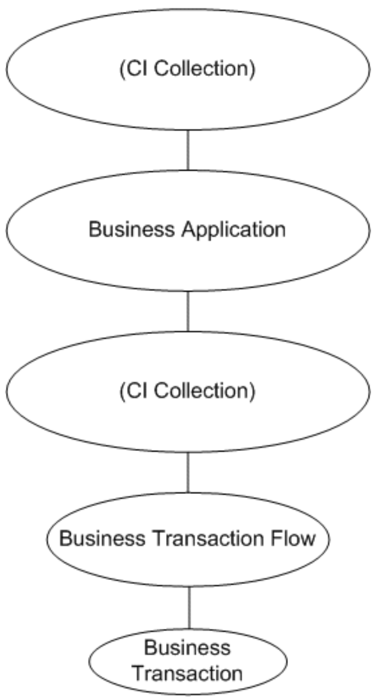
The following are the predefined views for EUM:

- **End User Monitors.** The default view in EUM Administration. The view includes the applications that are actually configured for BPM or RUM, and their related CIs (business transaction flows, CI collections, business transactions, and end-user groups). For an example of this view, and its TQL, see "End User Monitors View" on page 38.
- **Application Management.** The view includes the entire application hierarchy (applications, business transaction flows, CI collections, business transactions, and end-user groups). For an example of this view, and its TQL, see "Application Management View" on page 40.
- **End User Locations.** The view includes the locations that are monitored by BPM or RUM. For an example of this view, and its TQL, see "End User Locations View" on page 43.
- **RUM End Users.** The view includes the end-user groups and subgroups, as well as any CI collections in which they are included. For an example of this view, and its TQL, see "RUM End Users View" on page 44.
- **End User Applications.** The view includes the applications that are configured for BPM or RUM, as well as any CI collections in which they are included. For an example of this view, and its TQL, see "End User Applications View" on page 42.

- **RUM Servers.** The view includes the servers and running software elements monitored by RUM. For an example of this view, and its TQL, see "RUM Servers View" on page 46.
- **Locations.** The view includes all configured locations in the system and shows which are monitored by BPM or RUM. For an example of this view, and its TQL, see "Locations View" on page 47.
- **RUM Clients.** The view includes all the end-user clients monitored by RUM. For an example of this view, and its TQL, see "RUM Clients View" on page 48.

End User Management Monitoring Model

The following graphic shows a typical model for monitoring your applications:



For details on the CI types, see "End User Management CI Types" on page 27.

You can configure applications, business transaction flows, and transactions for monitoring by BPM, RUM, or both.

Tip: It is recommended to use both BPM and RUM to monitor the same applications, business transaction flows, and transactions to obtain an overall picture about your applications.

End User Management CI Types

You use the following CI types to create the EUM model for monitoring applications:

- **BusinessApplication.** An actual application to be monitored.
- **BusinessTransactionFlow.** A logical user flow in an application. For example, in a human resources application you may have a business transaction flow for registering a new employee.
- **BusinessTransaction.** An individual transaction in a business transaction flow. For example, the business transaction flow for registering a new employee may include transactions for logging in to the application, entering the new employee's personal details, marking a check list to ensure that all necessary documents have been received from the new employee, and logging out of the system. For BPM, transactions are created automatically from the transactions included in the scripts assigned to a business transaction flow. For RUM, you manually create transactions.
- **End User Group.** An end-user group or subgroup that accesses the applications monitored by RUM.
- **CiCollection.** A logical group that contains a collection of CIs (BusinessApplication, End User Group, and CiCollection). A BusinessApplication CI can be included in a CiCollection and can also include a CiCollection.

Tip: If you create a CI type that inherits the properties of one of the EUM CI types, you can edit and configure CIs of the created CI type using the same wizards and configuration pages valid for CIs of the original EUM CI type. For example, if you create a CI type called myBusinessApps that inherits its properties from the **BusinessApplication** CI type, you can use the **Business Process Monitor Application Configuration** wizard to configure a CI of the myBusinessApps type for monitoring by BPM.

Global Search and Replace Overview

Global search and replace is a feature that enables you to make changes to application, business transaction flow, transaction, script, event, end-user group, and other configuration settings and properties in EUM. Global search and replace enables you to change and update configurations across the entire monitoring infrastructure. In one action, you can update any combination of settings and properties in the view tree in EUM.

For example, you can update the default threshold settings for all RUM applications, or change the destination port number for all WebTraces.

For user interface details, see "Global Replace Wizard" on page 55.

Bulk Operations Overview

You use the bulk operations feature to carry out various administrative actions on multiple entities in EUM Administration. This enables you to update various configuration settings on a large number of entities at the same time, without having to edit each entity separately. Using the bulk operation feature, you can:

- Add or remove data collectors from applications, business transaction flows, and transaction monitor scripts.
- Update versions of scripts in the Script Repository.
- Manage script parameters.

You search for the applications, business transaction flows, and transaction monitor scripts you want to update in the Search tab of the Monitoring page in EUM Administration. For task details on performing a search and using bulk operations on the entities found, see "How to Search and Manage End User Management Configurations" on page 33.

In the Script Repository, you search for script assignments and carry out bulk operations on the business transaction flows in which the selected scripts are included. For user interface details, see "Search Results Dialog Box" on page 483.

Location Threshold Offsets Overview

You configure thresholds for BPM and RUM transactions, as well as RUM pages and actions, which are used for comparing actual performance and determining the performance status displayed in EUM reports.

You can configure threshold offsets for specific locations for an application. A threshold offset is a percentage value that is added to, or subtracted from, the configured thresholds of the BPM and RUM transactions, and the RUM pages and actions, that are included in the selected application and that are accessed by users from a selected location. This enables you to adjust the thresholds for a selected location to meet specific needs (for example, you may want to increase the thresholds for a location from which communication times are consistently slower than other locations due to infrastructure issues). For user interface details on configuring location threshold offsets, see "Location Offset Page" on page 61.

You can configure thresholds for specific transactions for selected locations that override any location threshold offset configured for that location in the transaction's parent application. For user interface details for BPM transactions, see "Transaction Performance Thresholds Pane" on page 213. For user interface details for RUM transactions, see "Location Aware Thresholds Dialog Box" on page 362.

In end-user management reports, availability and performance status is calculated by comparing actual results with thresholds configured in EUM Administration. By default, the rule used to calculate the status differs for installations of Business Availability Center 8.x that are upgraded to BSM 9.10, and new installations of BSM version 9.00 or later. The rule used for installations of Business Availability Center 8.x that are upgraded to BSM 9.10 does not include location threshold offsets, whereas the rule used for new installations of BSM version 9.00 or later does. You can change the default rule used. For concept details, see "Changing the Default Performance Status Rule" on page 681.

Managing CI Collections in End User Management Administration

You can organize monitoring information in terms of physical location, operational purpose, line-of-business, organizational unit, or any other classification that is applicable to your enterprise.

For example, you could add three CI collections named Europe, America, and Asia representing different locations. Within the America CI collection, you could create four further CI collections named North, East, South, and West. Within each of these CI collections, you can add multiple CI collections, representing different departments in your organization. These CI collections can then be used to organize your organization's applications.

You can add a CI collection directly under the root level of a view, under an application, or into another CI collection.

A CI collection can contain other CI collections, applications, and end-user groups. A CI collection configured under an application can also include business transaction flows. When a CI collection is displayed in a view in the Browse tab, icons indicate the relevant EUM configurations according to the CIs contained in the collection. For example, if a CI collection contains an application that is configured for RUM, an icon indicates that the CI collection has a RUM configuration.

When you create a CI collection, a CI of the CiCollection type is created in the Run-time Service Model (RTSM).

When you delete a CI collection, you also delete all the contents of that collection. For example, if you have a CI collection into which business transaction flows have been added, deleting the CI collection also deletes the business transaction flows from the RTSM.

To help manage the CIs within a CI collection hierarchy, you can cut and paste the following CIs into a CI collection:

- **BusinessApplication.** You can paste an application to a CI collection that is not included under an application.
- **CiCollection.** You can paste a CI collection into another CI collection, but cannot paste a CI collection that is directly under the root entry of the view to a CI collection that is included under an application.

- **End User Group.** You can paste an end-user group to a CI collection that is not included under an application.
- **BusinessTransactionFlow.** You can paste a business transaction flow to a CI collection that is configured under the same application as the business transaction flow.
- **BusinessTransaction**. You can paste a RUM transaction to a CI collection that is configured under the same application as the transaction. You cannot cut and paste a BPM transaction.

For details on adding or editing CI collection in EUM Administration, see "CI Collection Page" on page 51.

EUM Admin Open API Reference

The EUM Admin Open API enables you to perform basic operations on the main BPM entities (applications, business transaction flows, and transactions), without using the EUM Administration user interface in BSM. For example, you can select all the BPM applications and disable them. The API was developed as a RESTful Web service and contains an integrated server side module which is compliant to JAX-RS v1.0 standard. In addition, a java client based on the Apache Wink framework is provided, although using it is not mandatory and you can write your own client.

For details on working with the API, refer to the BSM EUM Administration API documentation. These files are located in the following folder:

<HPBSM root directory>\tools\EumOpenApiClient

Tasks

How to Search and Manage End User Management Configurations

The following steps describe how you can search for different entities configured in EUM and manage them by performing various actions. After carrying out a simple or advanced search, all the steps in this task are optional. You configure and carry out searches in the Monitoring Page Search and Replace tab (**Admin** > **End User Management** > **Monitoring** tab > **Search and Replace** tab). For user interface details, see "Monitoring Page Search and Replace Tab" on page 75.

- "Perform a simple search" on page 34
- "Perform an advanced search" on page 34
- "Perform a global search and replace - optional" on page 34
- "Perform bulk operations - optional" on page 34
- "Export entity property data - optional" on page 35
- "Delete configurations - optional" on page 35

Perform a simple search

Search for entities in EUM by selecting an entity type from a predefined list and/or entering a string to be matched to entity names.

Perform an advanced search

Search for entities in EUM using a query to search for specific entity types and property values. You can select predefined queries, create new queries, or edit values in existing queries. For task details, see "How to Perform an Advanced Search" on page 35.

Perform a global search and replace - optional

Select multiple entities from the search results and use the Global Replace wizard to change settings and property values in the selected entities. For user interface details, see "Global Replace Wizard" on page 55.

Perform bulk operations - optional

Select multiple entities from the search results and perform the following bulk operations on them:

- ➤ Add and remove data collectors for applications, business transaction flows, and transaction monitor scripts.
  - ➤ For user interface details on adding BPMs, see "Add Data Collectors Wizard" on page 140.
  - ➤ For user interface details on removing BPMs, see "Remove Data Collectors Wizard" on page 237.
  - ➤ For user interface details on adding and removing RUM engines, see "Select Engines Dialog Box" on page 433.
- ➤ Update versions of scripts in the Script Repository. For user interface details, see "Update Version Wizard" on page 485.
- ➤ Update script parameters. For user interface details, see "Update Script Parameters Wizard" on page 94.

Export entity property data - optional

Select multiple entities from the search results and export their property data to an Excel file. You can use this data for your needs, such as creating your own configuration reports.

Delete configurations - optional

Select multiple entities from the search results and delete their BPM or RUM configurations.

How to Perform an Advanced Search

The following steps describe how to search for different entities configured in EUM using advanced queries. To perform an advanced search, you must either select an existing query, or create a new one. You configure and carry out searches in the Monitoring Page Search and Replace tab (**Admin** > **End User Management** > **Monitoring** tab > **Search and Replace** tab). For user interface details, see "Monitoring Page Search and Replace Tab" on page 75.

- ➤ "Select an existing query - optional" on page 36
- ➤ "Create a new query - optional" on page 36
- ➤ "Modify the query parameter values - optional" on page 36
- ➤ "Perform the search" on page 36

Select an existing query - optional

Select a predefined query from the Query Repository.

Create a new query - optional

Create a new query using the Search Query Wizard. For user interface details, see "Search Query Wizard" on page 87.

Modify the query parameter values - optional

Modify the values of the parameters used by the query to change the query's search criteria.

Perform the search

Run the search to locate the matching entities and display them in the Search Results pane.

Reference

Predefined Views for End User Management

There are a number of predefined views in EUM, which enable you to configure and manage the applications and related entities that you want to monitor with BPM and RUM. The default view is the **End User Monitors** view.

This section also includes:

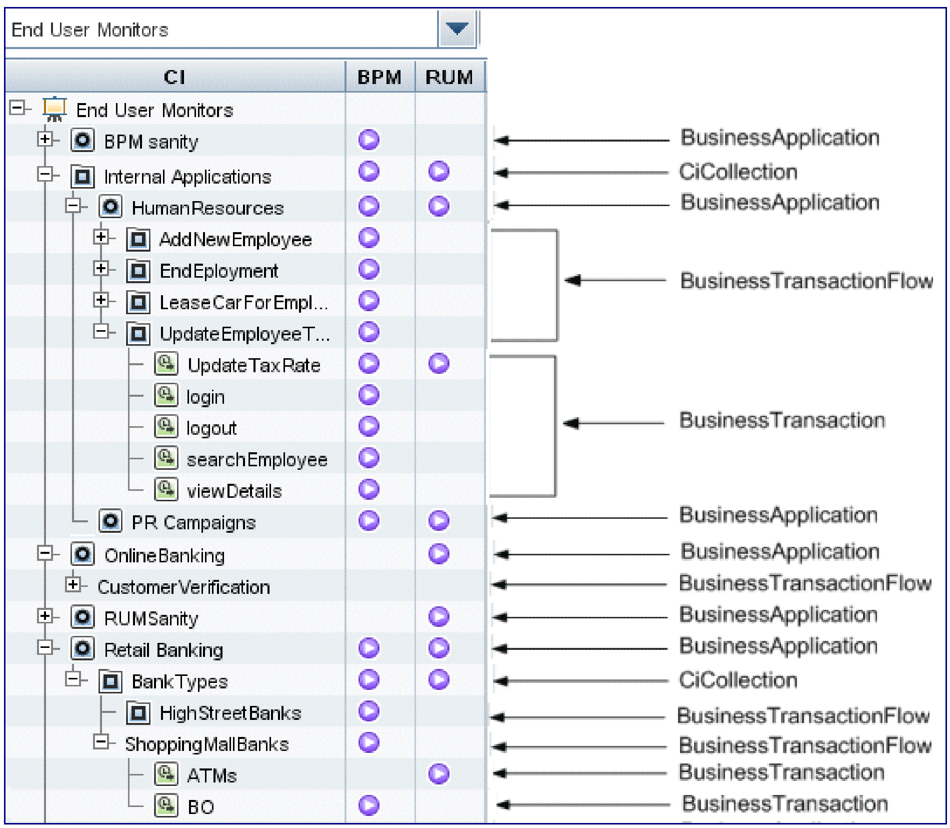
➤ "End User Monitors View" on page 38
➤ "Application Management View" on page 40
➤ "End User Applications View" on page 42
➤ "End User Locations View" on page 43
➤ "RUM End Users View" on page 44
➤ "RUM Servers View" on page 46
➤ "Locations View" on page 47
➤ "RUM Clients View" on page 48

End User Monitors View

The End User Monitors view is the default view in EUM Administration. The view displays only the applications (and their related CIs) that are actually configured for BPM or RUM. That is, an application that has been created, but not configured for either BPM or RUM is not included in the End User Monitors view (although it is included in the Application Management view).

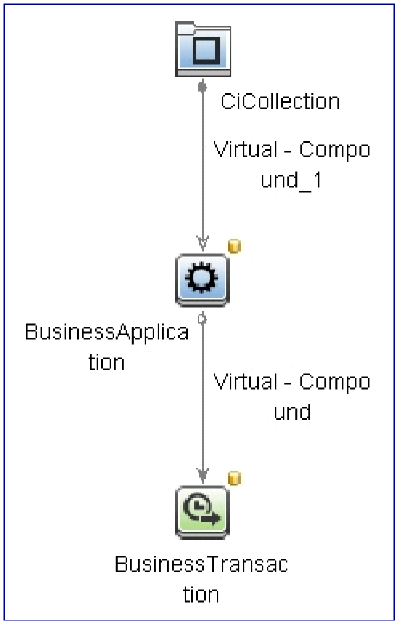
The View's Hierarchical Structure

The End User Monitors view generally contains the following hierarchical structure:



The View's TQL

The TQL for the view is built as follows:



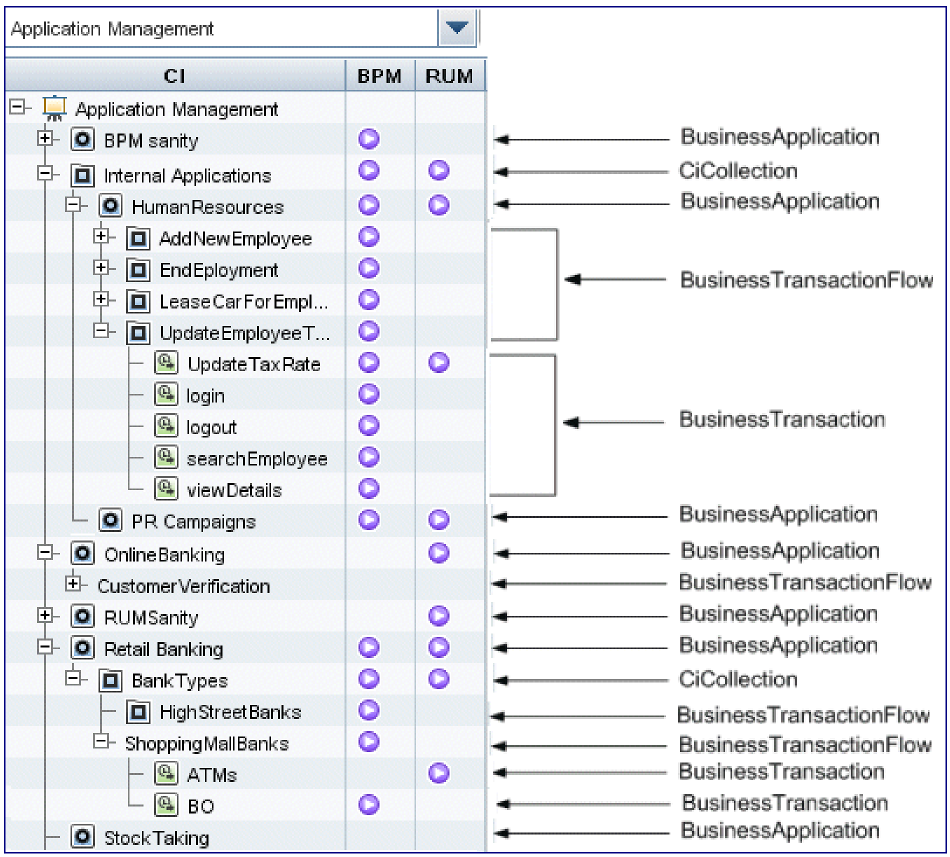
Note: The TQL nodes use the internal names for the CI types (CITs).

Application Management View

The view displays the entire application hierarchy (applications, business transaction flows, CI collections, and business transactions).

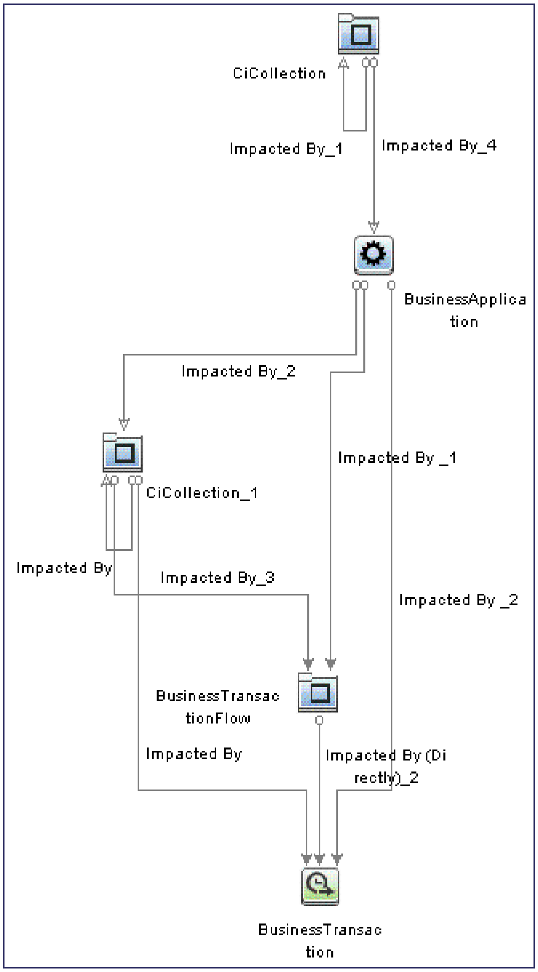
The View's Hierarchical Structure

The Application Management view generally contains the following hierarchical structure:



The View's TQL

The TQL for the view is built as follows:



Note: The TQL nodes use the internal names for the CITs.

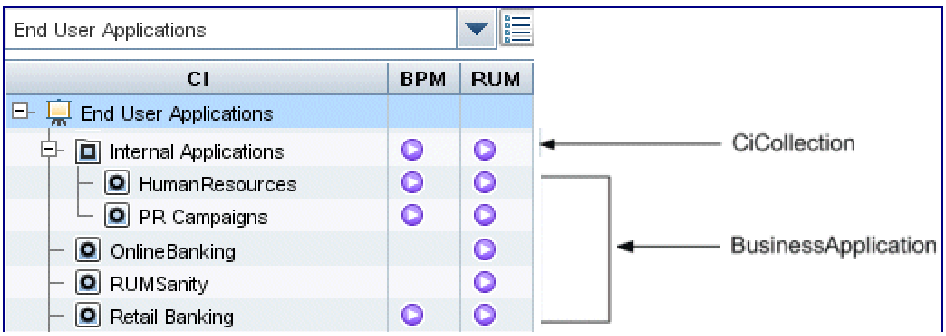
End User Applications View

The End User Applications view displays the applications that are configured for BPM or RUM, as well as any CI collections in which they are included.

For information on configuring applications to be monitored, see "Business Process Monitor Application Configuration Wizard" on page 162 and "Real User Monitor Application Configuration Wizard" on page 372.

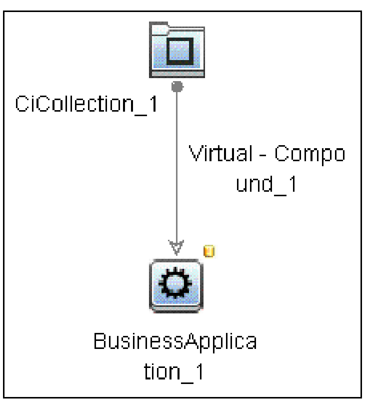
The View's Hierarchical Structure

The End User Applications view generally contains the following hierarchical structure:



The View's TQL

The TQL for the view is built as follows:



Note: The TQL nodes use the internal names for the CITs.

End User Locations View

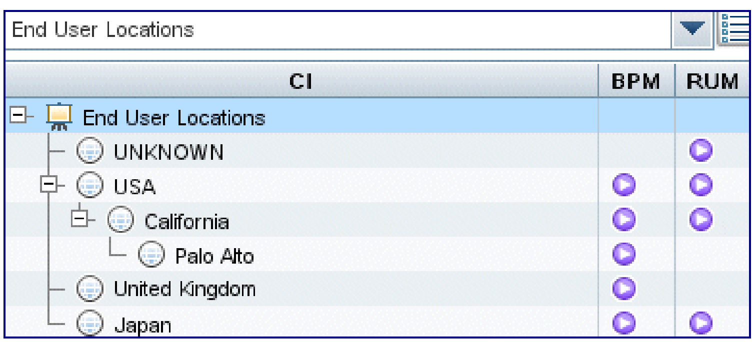
The End User Locations view displays the locations that are monitored by BPM or RUM.

The locations monitored by BPM are those locations that are configured in the BPM instances registered in BSM. The locations monitored by RUM are those locations to which an end-user group has been assigned, or a location for which RUM has collected data.

Locations are configured and managed in the Location Manager. For details on the Location Manager, see "Location Manager" in *Platform Administration*.

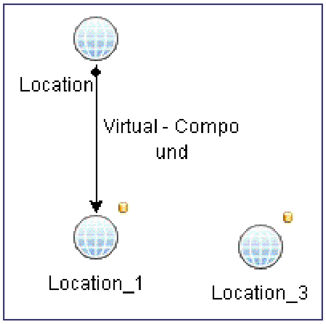
The View's Hierarchical Structure

The End User Locations view generally contains the following hierarchical structure:



The View's TQL

The TQL for the view is built as follows:



Note: The TQL nodes use the internal names for the CITs.

RUM End Users View

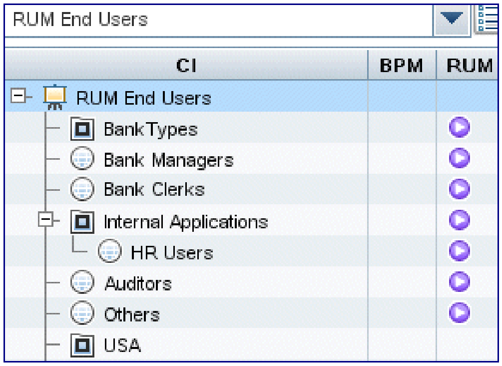
The RUM End Users view displays end-user groups and subgroups, as well as any collections (CiCollections) in which they are included.

End-users who do not belong to a configured end-user group are included in a default end-user group called **Others**. RUM automatically creates end-user subgroups, which are displayed in EUM reports, according to the IP resolution configured for the end-user group.

For information on configuring end-user groups to be monitored, see "Add End User Group with Real User Monitor Configuration Dialog Box" on page 322.

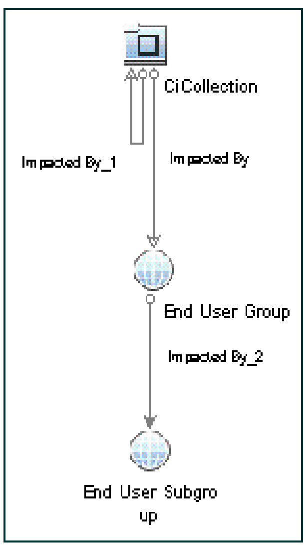
The View's Hierarchical Structure

The RUM End Users view contains the following hierarchical structure:



The View's TQL

The TQL for the view is built as follows:



Note: The TQL nodes use the internal names for the CITs.

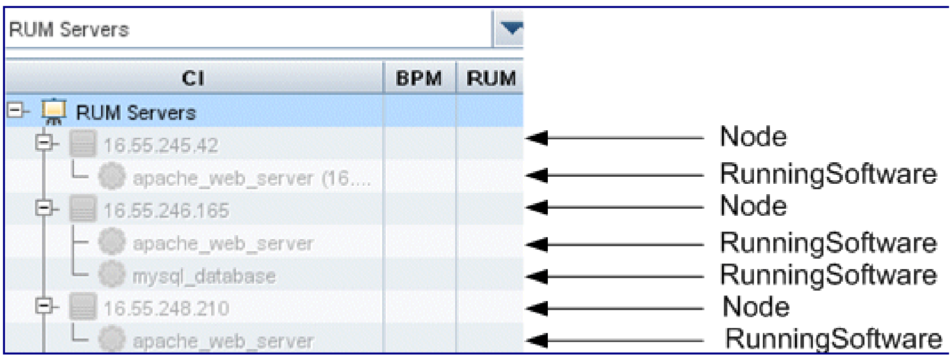
RUM Servers View

The RUM Servers view displays the servers and running software elements monitored by RUM.

For information on configuring servers to be monitored, see "Real User Monitor Application Configuration Wizard" on page 372.

The View's Hierarchical Structure

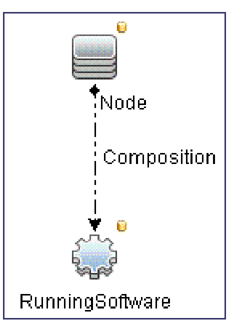
The Real User Servers view contains the following hierarchical structure:



Note: In EUM Administration you are unable to configure Node and RunningSoftware CITs, so they are disabled in the RUM Servers tree.

The View's TQL

The TQL for the view is built as follows:



Note: The TQL nodes use the internal names for the CITs.

Locations View

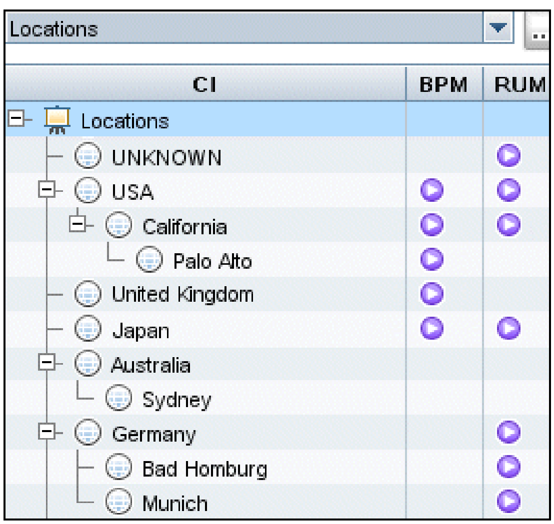
The Locations view displays all the configured locations in the system and shows which are monitored by BPM or RUM.

The locations monitored by BPM are those locations that are configured in the BPM instances registered in BSM. The locations monitored by RUM are those locations to which an end-user group has been assigned, or a location for which RUM has collected data.

Locations are configured and managed in the Location Manager. For details on the Location Manager, see "Location Manager" in *Platform Administration*.

The View's Hierarchical Structure

The Locations view generally contains the following hierarchical structure:



The View's TQL

The TQL for the view is built as follows:

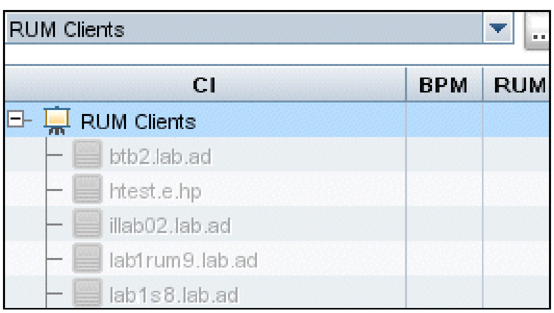
Note: The TQL nodes use the internal names for the CITs.

RUM Clients View

The RUM Clients view displays all the actual end-user clients monitored by RUM.

The View's Hierarchical Structure

The RUM Clients view generally contains the following hierarchical structure:



Note: In EUM Administration you are unable to configure end-user clients, so they are disabled in the RUM Clients tree.

The View's TQL

The TQL for the view is built as follows:

Note: The TQL nodes use the internal names for the CITs.

End User Management Administration User Interface

This section includes (in alphabetical order):

Add CI Collection Dialog Box

This dialog box enables you to create user-defined collections of CIs to organize the display of monitoring configuration information according to various relationships (for example, organizational relationships, locations, servers, and so forth). You can create a CI collection under the root node of a view, an application, or another CI collection.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree select the root node, an application, or a CI collection, click the **Add** button and select **CI Collection** from the Shortcut menu.
See also	"Managing CI Collections in End User Management Administration" on page 31

User interface elements are described below:

UI Element (A-Z)	Description
Description	Enter a description for the CI collection. The description is visible only when editing or viewing the CI collection's properties. **Syntax exceptions:** The maximum length is 1000 characters.
Name	Enter a name for the CI collection. **Syntax exceptions:** The maximum length is 884 characters.

CI Collection Page

This page enables you to view and edit a CI collection's properties.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree select a CI collection.

User interface elements are described below:

UI Element (A-Z)	Description
Description	A description for the CI collection. The description is visible only when editing or viewing the CI collection's properties. **Syntax exceptions:** The maximum length is 1000 characters.
Name	The CI collection's name. **Syntax exceptions:** The maximum length is 884 characters.

CI Properties Page

This page enables you to view and change the name and description of a CI used in EUM Administration.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the CI selector, select a CI and in the Content pane, select the **CI Properties** tab.
Important information	The CI name and description are configured initially when the CI is created.

User interface elements are described below:

UI Element (A-Z)	Description
Description	A free text description for the CI.
Name	The CI name. **Caution:** ➤ Changing the CI name changes it in the RTSM, which means that the CI name is changed wherever it is used (for example, in other applications, in views, and so forth). ➤ Changing a CI name to the same name of an existing CI of the same CI type and in the same level of the model (for example, two applications in the root, or two business transaction flows in an application), can cause an undesired reconciliation of the two CIs with adverse results.

Edit Location Offset Dialog Box

This dialog box enables you to set threshold offsets for multiple locations. A threshold offset is a percentage value that is added to, or subtracted from, the configured thresholds of BPM and RUM transactions, and the RUM pages and <actions>, that are included in the selected application and that are accessed by users from a selected location.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree select an application and in the Content pane, select the **Location Offset** tab. Select multiple locations and click the **Edit offsets for multiple locations** button.
See also	"Location Threshold Offsets Overview" on page 29

User interface elements are described below:

UI Element (A-Z)	Description
Propagate offset to descendant locations	Select this check box to propagate the configured value to the selected locations' children (that is, all the child locations of the selected locations have the same threshold offset value as their parent). **Default value:** Selected **Example:** A location called **USA** has two children—**New York** and **California**. A threshold offset of 10% is set for the location **USA**. The **Propagate** check box is selected (by default) and the locations **New York** and **California** are automatically configured with a threshold offset of 10%.
Threshold offset (%)	The threshold offset, as a percentage, to add to, or subtract from, the configured thresholds of BPM and RUM transactions and RUM pages and <actions> that are accessed by users from the selected locations. **Note:** Use a negative value to reduce configured thresholds. **Syntax exceptions:** The valid range is -99 to 999.

Global Replace Wizard

This wizard enables you to change and update EUM configurations across the entire monitoring infrastructure. In one action, you can update any combination of settings and properties in the view tree.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** > **Search** tab. Perform a search and in the **Search Results** pane, select the entities you want to include in the global replace and click the **Global Replace** button. ➤ Select **Admin** > **End User Management** > **Script Repository** and in the **Folder Content** pane, click the **Search Script Assignment** button for selected scripts. In the **Search Results** dialog box, select the scripts you want to include in the global replace and click the **Global Replace** button.
Wizard map	This wizard contains: Select Context Page > Select and Update Properties Page > Preview Page > Summary Page
See also	➤ "Global Search and Replace Overview" on page 28 ➤ "Script Repository" on page 455

Select Context Page

This wizard page enables you to select whether to perform the global replace on BPM properties or RUM properties, if the entities you selected for the global replace include both BPM and RUM configurations.

Important information	➤ General information about this wizard is available here: "Global Replace Wizard" on page 55. ➤ This page is displayed only when the entities you selected for the global replace include both BPM and RUM configurations. ➤ You cannot perform a global replace on BPM and RUM properties at the same time.
Wizard map	The Global Replace Wizard contains: **Select Context Page** > Select and Update Properties Page > Preview Page > Summary Page

User interface elements are described below:

UI Element	Description
Context	**CI Properties.** Select this radio button to perform the global replace on the selected entities' CI properties (name and description). **Default value:** Selected
	Real User Monitor. Select this radio button to perform the global replace on the selected entities' RUM properties.
	Business Process Monitor. Select this radio button to perform the global replace on the selected entities' BPM properties.

Select and Update Properties Page

This wizard page enables you to select the properties to update and the new values with which to update them.

Important information	General information about this wizard is available here: "Global Replace Wizard" on page 55.
Wizard map	The Global Replace Wizard contains: Select Context Page > **Select and Update Properties Page** > Preview Page > Summary Page

Properties Pane

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<Properties tree>	A hierarchical tree of the properties available for updating, according to the context selected in the previous wizard page. Select the check boxes for the properties you want to update. The selected properties are displayed in the **Values** pane.

Values Pane

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<Selected properties>	Each property selected in the **Properties** pane is displayed, together with details of its configured change. Click the change link to open the Set New Value dialog box, where you configure the new value for updating the property. For user interface details, see "Set New Value Dialog Box" on page 92. **Default value:** Before you configure a new value for a property, the change is displayed as **unspecified**. **Note:** If you configure an empty new value for a property, the change is displayed as **ignored**.

Preview Page

This wizard page enables you to preview the objects on which the replacement operation is performed.

Important information	➤ General information about this wizard is available here: "Global Replace Wizard" on page 55. ➤ The number of objects that are affected by the global replacement is displayed above the table. ➤ Changed values are shown in bold text. ➤ Entities/properties are displayed in the table as a hierarchical tree. ➤ Each table column can be sorted in ascending or descending order by right-clicking the column title. An up or down arrow indicates the sort order. ➤ Once you click **Finish** in this page, you cannot undo the replacement operation.
Wizard map	The Global Replace Wizard contains: Select Context Page > Select and Update Properties Page > **Preview Page** > Summary Page

User interface elements are described below:

UI Element (A-Z)	Description
	**Expand all rows in table.** Expands the affected entities/properties and displays all the rows in the table.
	**Collapse all rows in table.** Collapses all the rows in the table and displays parent entities/properties only.
	**Export to Excel.** Exports the table to an Excel file. **Note:** The default name of the Excel file is **results.xls**.
Entity/Property Name	The name of the entity/property included in the global replace.
Excluded entities	Click the **Excluded entities** link to display a list of those entities that are excluded and will not be updated. An entity is excluded if its context differs from the selected context of the wizard. For example, if the selected entities are applications and the selected context is BPM, then applications configured only for RUM are excluded. **Note:** This element is visible only if there are excluded entities.
New Value	The new value with which the entity/property will be updated.
Old Value	The current value of the entity/property
Status	The update status of the entity/property. The following are the valid statuses: ➤  The entity/property will be updated. ➤  A validation error has occurred and the entity/property will not be updated. **Note:** The status of a parent entity/property is the worst status of its children.

Summary Page

This wizard page enables you to view the update results.

Important information	➤ General information about this wizard is available here: "Global Replace Wizard" on page 55. ➤ The number of objects for which the update was successful and the number of objects for which the update failed are displayed above the table. ➤ Each table column can be sorted in ascending or descending order by right-clicking the column title. An up or down arrow indicates the sort order.
Wizard map	The Global Replace Wizard contains: Select Context Page > Select and Update Properties Page > Preview Page > **Summary Page**

User interface elements are described below:

UI Element (A-Z)	Description
	Export to Excel. Exports the table to an Excel file. **Note:** The default name of the Excel file is **result.xls**.
Entity Name	The name of the updated entity/property included in the global replace.
Error	Error details for those entities that were not successfully updated.
Status	The update status of the entity. The following are the valid statuses: ➤ The entity was successfully updated. ➤ The entity was not updated. **Note:** The status of a parent entity/property is the worst status of its children.

Location Offset Page

This page enables you to set threshold offsets for specific locations for a selected application. A threshold offset is a percentage value that is added to, or subtracted from, the configured thresholds of the BPM and RUM transactions, and the RUM pages and <actions>, that are included in the selected application and that are accessed by users from a selected location.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree select an application and in the Content pane, select the **Location Offset** tab.
Important information	Select a single location by clicking a row in the location list and enter the threshold offset directly in the row. Use the Shift or CTRL key to select several locations and click the **Edit offsets for multiple locations**  button to open the Edit Location Offset dialog box, where you configure a threshold offset for all the selected locations.
See also	"Location Threshold Offsets Overview" on page 29

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit offsets for multiple locations.** Opens the Edit Location Offset dialog box, where you configure a threshold offset for multiple, selected locations. For user interface details, see "Edit Location Offset Dialog Box" on page 53.
	**Reset the offset configuration for a location.** Resets configured threshold offsets for the selected locations. The value is reset either to the value of a parent location that is configured for propagation, or to zero.
Location	A hierarchical tree of configured locations and their sub locations.
Monitored by BPM	A check mark denotes that the location is monitored by BPM (that is, the application has an assigned BPM that is configured for the location).

UI Element (A-Z)	Description
Monitored by RUM	A check mark denotes that the location is monitored by RUM. A location is considered to be monitored by RUM if an IP range has been configured for the location (or one of its child locations), or if the location (or one of its child locations) has been configured for an end-user group. For user interface details on configuring locations, see "Location Manager" in *Platform Administration*. For user interface details on configuring end-user groups, see "Add End User Group with Real User Monitor Configuration Dialog Box" on page 322.
Override	A check mark denotes that the configured threshold offset value for the location overrides any threshold offset value propagated by a parent location. **Default value:** Override is automatically enabled when you select the **Propagate** check box. **Note:** You can only clear the override by clicking the **Reset the offset configuration for a location** button. **Example:** A location called **USA** has a configured offset of 5% with **Propagate** enabled. The 5% offset is propagated to its two children—**New York** and **California**. You change the offset for **New York** to 10% with **Override** enabled (default). You change the threshold offset of **USA** to 15%. **New York** keeps its 10% offset, but **California's** offset is changed to 15%.

UI Element (A-Z)	Description
Propagate	A check mark denotes that the configured value is propagated to the location's children. If propagation is enabled, all the child locations of the selected location have the same threshold offset value as the parent, unless a specific threshold has been configured for a child or intermediate parent location. **Default value:** The check box is automatically enabled when you configure a threshold offset value for a location. **Example:** A location called **USA** has two children—**New York** and **California**. A threshold offset of 10% is set for the location **USA**. The **Propagate** check box is selected (by default) and the locations **New York** and **California** are automatically configured with a threshold offset of 10%.
Threshold Offset (%)	The threshold offset, as a percentage, to add to, or subtract from, the configured thresholds of BPM and RUM transactions and RUM pages and <actions> that are accessed by users from the selected location. **Note:** Use a negative value to reduce configured thresholds. **Syntax exceptions:** The valid range is -99 to 999.

Monitoring Page Browse Tab

The Browse tab in the Monitoring page enables you to select and display a view, and browse through the view to locate and manage the included CIs that are used in EUM Administration.

To access	Select **Admin** > **End User Management** > **Monitoring** tab > **Browse** tab

Important information	➤ The default view for EUM Administration is **End User Monitors**.
	➤ When you display a view other than the Application Management view, only the CIs used by EUM Administration are enabled.
	➤ Configuration details of a selected CI are displayed in the right pane of the Monitoring page. For details about each configuration, refer to the relevant user interface page.
	➤ You can select actions by:
	    ➤ Selecting a CI in the tree and clicking the action button.
	    ➤ Right-clicking a CI in the tree to open a Shortcut menu and then clicking the required action in the menu.
	Note: Only the actions that are valid for the selected CI are enabled.

See also	➤ "Monitoring Page Search and Replace Tab" on page 75 ➤ "Predefined Views for End User Management" on page 37

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Refresh.** Refreshes the CI tree of the view.
	**Add EUM Configuration.** Opens a menu with the add actions that are applicable for the selected CI. For details on the add actions and their availability, see "Add Actions" on page 68.
	**Properties.** Displays the names and values of the selected CI's properties, in a new window.
	**Cut.** Cuts a selected CI.
	**Paste.** Pastes a selected CI that you have previously cut. You can cut and paste the following CIs: ➤ **Applications.** You can paste an application to the root entry of the view, or to a CI collection that is not included under an application. ➤ **CI collections.** You can paste a CI collection into another CI collection, but cannot paste a CI collection that is directly under the root entry of the view to a CI collection that is included under an application. ➤ **End-user groups.** You can paste an end-user group to a CI collection that is not included under an application. ➤ **Business transaction flows.** You can paste a business transaction flow only in the application in which it is configured (either to a CI collection under the application, or directly to the application). ➤ **Real User Monitor transactions.** You can paste a RUM transaction only in the application in which it is configured (either to a CI collection under the application, or directly to the application). **Note:** You cannot cut and paste BPM transactions.

UI Element (A-Z)	Description

	Delete EUM Configuration. Opens a menu with the delete actions that are applicable for the selected CI. The following are the possible delete options:
	➤ **BPM Configuration.** Deletes the BPM configuration for the selected CI.
	➤ **RUM Configuration.** Deletes the RUM configuration for the selected CI.
	➤ **Delete CI.** Deletes the CI from the RTSM. You can delete the following CIs:
	  ➤ Applications (CI type: BusinessApplication
	  ➤ Business transaction flows (CI type: BusinessTransactionFlow)
	  ➤ Transactions (CI type: BusinessTransaction)
	  Note: You cannot delete a transaction that is configured for BPM.
	  ➤ Collections (CI type: CiCollection)
	  Note: When you delete a collection, all the CIs included in the collection are also deleted.
	  ➤ End-user groups (CI type: End User Group)
	Note:
	➤ When you delete BPM and RUM configurations from a CI, the CI itself is not deleted.
	➤ To delete a BPM or RUM configuration, you must have **Change** permissions, in addition to **Delete** permissions, for the application.
	➤ When you delete a CI, it is deleted from the RTSM and is no longer available in other applications in which it may have been configured.

	Management Operations. Opens a menu with the management operation actions that are applicable for the selected CIs. For details on the management operation actions and their availability, see "Management Operation Actions" on page 71.

UI Element (A-Z)	Description
	Click the **ellipsis** button to the right of the <Selected view> to open the Select a view from the tree dialog box. In this dialog box, all views are displayed and you can browse through and search the folder tree to locate the view with which you want to work.
<Selected view>	Displays the currently selected view. Click the arrow to open a list of the available views from which you can select the view with which you want to work. **Default value:** End User Monitors view **Note:** By default, only views containing EUM entities are included in the list of available views. You can select other views by clicking the **ellipsis** button to open the Select a view from the tree dialog box.
BPM	Denotes that the CI is configured for BPM and if the configuration is active or inactive. The following icons are used: ➤ Configured for BPM and the configuration is active. ➤ Configured for BPM and the configuration is inactive.
CI	The CI name.
RUM	Denotes that the CI is configured for RUM and if the configuration is active or inactive. The following icons are used: ➤ Configured for RUM and the configuration is active. ➤ Configured for RUM and the configuration is inactive.

Add Actions

To access	Use one of the following: ➤ Select a CI in the tree in the **Monitoring Page Browse tab** and click the **Add** button to display the applicable add actions. Click the required action. ➤ Right-click a CI in the tree in the **Monitoring Page Browse tab** to display a Shortcut menu. Click the **Add** button to display the applicable add actions and click the required action.
Important information	The applicable add actions for a selected CI depend on the CI type.

User interface elements are described below:

Add Action	Description	Applicable for
CI Collection	Add a CI collection. For user interface details, see "Add CI Collection Dialog Box" on page 51.	➤ View root node ➤ Business application ➤ CI collection
End User Group with RUM Configuration	Add a new end-user group configured for monitoring by RUM. For user interface details, see "Add End User Group with Real User Monitor Configuration Dialog Box" on page 322.	➤ View root node ➤ Group
Application and its BPM Configuration	Add a new application configured for monitoring by BPM. For user interface details, see "Business Process Monitor Application Configuration Wizard" on page 162.	➤ View root node ➤ Group

Add Action	Description	Applicable for
Application and its RUM Configuration	Add a new application configured for monitoring by RUM. For user interface details, see "Real User Monitor Application Configuration Wizard" on page 372.	➤ View root node ➤ Group
BPM Configuration	Configure an existing application for monitoring by BPM. For user interface details, see "Business Process Monitor Application Configuration Wizard" on page 162.	Business application (without BPM configuration)
RUM Configuration	Configure an existing application for monitoring by RUM. For user interface details, see "Real User Monitor Application Configuration Wizard" on page 372.	➤ Business application (without RUM configuration) ➤ Business transaction (without RUM configuration)
Business Transaction Flow	Add a new business transaction flow. For user interface details, see "Add Business Transaction Flow Dialog Box" on page 136.	➤ Business application ➤ Group (configured for a business application)
Business Transaction Flows and their BPM Configurations	Add new business transaction flows configured for monitoring by BPM. For user interface details, see "Business Transaction Flow Configuration Wizard" on page 207.	➤ Business application (with BPM configuration) ➤ Group (configured for a business application with BPM configuration)

Add Action	Description	Applicable for
Business Transaction with RUM Configuration	Add a new business transaction configured for monitoring by RUM. For user interface details, see "Business Transaction Real User Monitor Configuration Dialog Box" on page 329.	➤ Business application (with RUM configuration) ➤ Business Transaction Flow (for an application configured for RUM)
Generate Single Transaction Script	Add a single transaction script to a business transaction flow. The single transaction script is created for the URL of a selected page of one of the business transaction flow's RUM transactions. The business transaction flow must be configured for BPM. When you click this option, a dialog box opens displaying the pages (and their URLs) included in the business transaction. Select a page and click **OK** to open the Single Transaction Script dialog box, where you configure the single transaction script. For user interface details, see "Single Transaction Script Dialog Box" on page 244.	Business Transaction configured for RUM, that is included in a business transaction flow configured for BPM.

Management Operation Actions

To access	Use one of the following: ➤ Select one or more CIs in the tree in the **Monitoring Page Browse tab** and click the **Management Operations** button to display the applicable management operation actions. Click the required action. ➤ Select one or more CIs in the tree in the **Monitoring Page Browse tab** and right-click one of the selected CIs to display a Shortcut menu. Click the **Management Operations** button to display the applicable management operation actions and click the required action.
Important information	➤ The applicable management operation actions for a selected CI depend on the CI type. ➤ For concept details on importing and export RUM configurations, see"Exporting and Importing Real User Monitor Configurations" on page 278.

User interface elements are described below:

Management Operation Action	Description	Applicable for
Global Replace Wizard	Change and update EUM configurations for selected CIs. When you select this action, the Global Replace wizard opens. For user interface details, see "Global Replace Wizard" on page 55.	Selected EUM CIs of the same CI type
Deactivate BPM	Set the status of the selected CI's BPM configuration to inactive.	➤ Applications ➤ Business transaction flows ➤ RUM transactions

Management Operation Action	Description	Applicable for
Deactivate RUM	Set the status of the selected CI's RUM configuration to inactive.	➤ Applications ➤ Business transaction flows ➤ RUM transactions ➤ End-user groups
Activate BPM	Set the status of the selected CI's BPM configuration to active.	➤ Applications ➤ Business transaction flows ➤ RUM transactions
Activate RUM	Set the status of the selected CI's RUM configuration to active.	➤ Applications ➤ Business transaction flows ➤ RUM transactions ➤ End-user groups
Export all RUM Applications	Export all the applications that are configured for RUM in the selected view, including RUM applications that are part of CI collections. When you select this action, you are prompted for the export path and file name on the client machine. **Default value:** My Documents\ rum_app_<date>.xml	The root node of a view that contains applications configured for RUM.

Management Operation Action	Description	Applicable for
Export RUM Applications	Export the selected applications. When you select this action, you are prompted for the export path and file name on the client machine. **Default value:** My Documents\ rum_app_<date>.xml	Applications that are configured for RUM.
Export all RUM End User Groups	Export all the end-user groups that are configured for RUM in the selected view, including end-user groups that are part of CI collections. When you select this action, you are prompted for the export path and file name on the client machine. **Default value:** My Documents\ rum_eug_<date>.xml	The root node of a view that contains end-user groups configured for RUM.
Export RUM End User Groups	Export the selected end-user groups. When you select this action, you are prompted for the export path and file name on the client machine. **Default value:** My Documents\ rum_eug_<date>.xml	CI collections that contain end-user groups configured for RUM and end-user groups that are configured for RUM. **Note:** This action is enabled only if you have not selected a parent node with its child node in the tree.

Management Operation Action	Description	Applicable for
Import RUM Applications	Import previously exported RUM applications under the root node or the selected CI collection. When you select this action, the Import RUM Applications Configuration wizard opens. For user interface details, see "Import RUM Applications/End User Groups Configuration Wizard" on page 357.	➤ The root node of a view ➤ CI collections that are not under an application node
Import RUM End User Groups	Import previously exported RUM end-user groups under the rood node or selected CI collection. When you select this action, the Import RUM End User Groups Configuration wizard opens. For user interface details, see "Import RUM Applications/End User Groups Configuration Wizard" on page 357.	➤ The root node of a view ➤ CI collections that are not under an application node

Monitoring Page Search and Replace Tab

The Search and Replace tab in the Monitoring page enables you to search for EUM Administration entities that match specific criteria and to select multiple entities from the search results on which to perform various operations, including global replace and bulk operations.

To access	Select **Admin** > **End User Management** > **Monitoring** tab > **Search** tab
Important information	You configure the search definition in the left pane of the Monitoring page. The search results are displayed in the right pane of the Monitoring page.
Relevant tasks	"How to Search and Manage End User Management Configurations" on page 33
See also	"Monitoring Page Browse Tab" on page 64

Search Definition Area

The search definition area is located in the left pane of the Monitoring page.

User interface elements are described below:

UI Element (A-Z)	Description
Advanced search	Select this radio button to perform an advanced search based on a search query. Select one of the following options: ➤ **Query.** Select an existing query from the drop-down list, or select **New search query** to open the Search Query wizard where you can create a new query. For user interface details, see "Search Query Wizard" on page 87. ➤ **Open Query Repository**. Click the link to open the Query Repository in a new window, where you manage your search queries. For user interface details, see "Query Repository Page" on page 85.
Clear	Clears the data in the **Search Details** area.

UI Element (A-Z)	Description
Search	Runs the search. Results are displayed in the **Search Results** area. For user interface details, see "Search Results Area" on page 76.
Search Details	For advanced searches, displays the query and enables you to set condition criteria for the run, by clicking existing property values, to open the Set Query Criteria dialog box. The type of value you set will vary according to the specific criteria for which you are setting the value. For example, it can be a free text field, a check box, a radio button selection, and so forth. For details about each setting, refer to the relevant user interface page for the specific property.
Simple search	Select this radio button to perform a simple search based on entity names and/or types. Enter the following details: ➤ **Entity name.** Enter a string to be matched with entity names. Any entity whose name contains the string is located and included in the search results. ➤ **Entity type.** Select an entity type from the drop-down menu.

Search Results Area

The search results area is located in the right pane of the Monitoring page.

Important information	➤ The availability of the action buttons depends on the type of entities selected and whether they are configured for BPM, RUM, or both. ➤ You can filter the search results by setting a filter option for any of the displayed columns. The filter is displayed at the top of each column. According to the type of data displayed in the column, either select a filter option from the drop-down menu or enter a string to which the column entries are matched (column entries that begin with the filter string are displayed).

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Edit Properties.** Opens the selected entity's configuration pages in a new window, where you can edit the selected entity's properties. For user interface details, refer to the relevant user interface pages for the specific entity type. **Note:** You can only edit a single entity at a time.
	**Delete BPM Configuration.** Deletes the BPM configuration for the selected entities.
	**Delete RUM Configuration.** Deletes the RUM configuration for the selected entities. **Note:** This button is disabled if the selected entities are RUM end-user groups and include the **Others** end-user group.
	**Open Global Replace Wizard.** Opens the Global Replace wizard where you can search and replace configuration settings and properties for the selected entities. For user interface details, see "Global Replace Wizard" on page 55.
	**Bulk Operations.** Opens a menu with bulk operations that are applicable for the selected entities. For details on the bulk operations and their availability, see "Bulk Operations" on page 78. **Note:** The applicable bulk operations available for selected entities depend on the entity type and whether they are configured for BPM, RUM, or both. Only bulk operations that are applicable for all the selected entities are available.
	**Export to Excel.** Exports the displayed table to an Excel file. **Note:** The default Excel file names is **result.xls**.

UI Element (A-Z)	Description
	**Locate in View.** Locates a selected entity in the current view, and display it in the **Browse** tab. If the entity is not located in the current view, the default view (End User Monitors for all EUM CIs except end-user groups, for which RUM End Users is the default view) is searched. If the selected entity is a CI, the CI is selected in the view and displayed. If the selected entity is not a CI, but an EUM related entity (for example, an action, event, script, and so forth), its parent CI is selected in the view and displayed. **Note:** This button is enabled only when a single entity is selected.
	**Select Columns.** Opens a list of available columns that you can display for the located entities. Select the check boxes for the columns you want to display and click **OK**.
<Columns>	Different columns of information are displayed for different entity types. For each entity type, a set of default columns are displayed, but you can select additional columns to display by clicking the **Select Columns** button and selecting the columns you want to display. For details of the default columns displayed for each entity type, see "Default Columns" on page 81.

Bulk Operations

To access	Select one or more entities in the **Search Results** area, click the **Bulk Operations** button to display the applicable bulk operations for the selected entities and then click the required operation.
Important information	The applicable bulk operations available for selected entities depend on the entity type and whether they are configured for BPM, RUM, or both.

User interface elements are described below:

Add Action	Description	Valid Entity Types
Add an Engine or Probe	Opens the Add an Engine or Probe dialog box, where you add engines and probes to monitor the selected entities. For user interface details, see "Select Engines Dialog Box" on page 433.	Applications (with RUM configuration)
Remove an Engine or Probe	Opens the Remove an Engine or Probe dialog box, where you remove engines and probes from monitoring the selected entities. For user interface details, see "Select Engines Dialog Box" on page 433.	Applications (with RUM configuration)
Add BPM Data Collectors	Opens the Add Data Collectors wizard, where you add and configure data collectors to run the selected entities. For user interface details, see "Add Data Collectors Wizard" on page 140.	➤ Applications (with BPM configuration) ➤ Business Transaction Flows (with BPM configuration) ➤ Script monitors
Remove BPM Data Collectors	Opens the Remove Data Collectors wizard, where you remove data collectors from the selected entities. For user interface details, see "Remove Data Collectors Wizard" on page 237.	➤ Applications (with BPM configuration) ➤ Business Transaction Flows (with BPM configuration) ➤ Script monitors

Add Action	Description	Valid Entity Types
Add a Parameter to a Description/URL	Opens the Add Parameter to Description/URL dialog box, where you can add a parameter to selected action descriptions and page URLs. For user interface details, see "Description/URL Parameter Dialog Box" on page 345.	Actions and pages
Remove a Parameter from a Description/URL	Opens the Remove Parameter from Description/URL dialog box, where you can remove a parameter from selected action descriptions and page URLs. For user interface details, see "Description/URL Parameter Dialog Box" on page 345.	Actions and pages
Update Version	Opens the Update Version wizard, where you can change the versions of selected scripts used in business transaction flows. For user interface details, see "Update Version Wizard" on page 485.	Script monitors
Update Script Parameters	Opens the Update Script Parameters wizard, where you update the values for selected script parameters. For user interface details, see "Update Script Parameters Wizard" on page 94.	Script monitors

Default Columns

The following table lists the default columns displayed for each entity type in the Search Results area.

Entity Type	Default Columns
Application	➤ **Name.** The application name. ➤ **BPM Status.** The status of the BPM configuration—active or inactive. ➤ **RUM Status.** The status of the RUM configuration—active or inactive. ➤ **Protocol.** The configured protocol of the application's front-end tier for RUM.
Business Transaction Flow	➤ **Name.** The business transaction flow name. ➤ **Application.** The name of application in which the business transaction flow is included. ➤ **Status.** The status of the BPM configuration—active or inactive.
Business Transaction	➤ **Name.** The name of the business transaction. ➤ **Application.** The name of the application in which the business transaction is included. ➤ **RUM Status.** The status of the RUM configuration—active or inactive. ➤ **BPM Status.** The status of the BPM configuration—active or inactive.
End User Group	➤ **Name.** The name of the end-user group. ➤ **Status.** The status of the RUM configuration—active or inactive.

Entity Type	Default Columns
Event	➤ **Name.** The RUM event name. ➤ **Type.** The RUM event type. ➤ **Application.** The application in which the event is included. ➤ **Tier Name.** The name of the application tier in which the event is included. ➤ **Classification.** The RUM event classification (denoted by an icon with a tooltip). ➤ **Status.** The status of the RUM event configuration—active or inactive.
Action/Page	➤ **Name.** The action/page name. ➤ **Application.** The application in which the action/page is included. ➤ **Tier Name.** The name of the application tier in which the action/page is included. ➤ **Status.** The status of the RUM action/page configuration—active or inactive. A check mark denotes that the action/page configuration is active. ➤ **Action Description/URL.** The action description or page URL. ➤ **Auto Discovered.** A check mark denotes that the action/page was automatically discovered by RUM.
Script Monitor	➤ **Name.** The script name. ➤ **Application.** The application in which the script is included. ➤ **BTF Name.** The business transaction flow in which the script is included. ➤ **Version.** The version number of the script.

Entity Type	Default Columns
Single Transaction Script	**URL.** The page URL.
WebTrace	➤ **Destination.** The WebTrace's destination URL. ➤ **Port.** The destination port number. ➤ **Application.** The application in which the WebTrace is included. ➤ **BTF Name.** The business transaction flow in which the WebTrace is included.

Monitoring Tab

The Monitoring tab enables you to view, configure and manage the applications you want monitored by BPM and RUM. The tab includes two main display areas. The left pane includes the **Browse** tab and the **Search and Replace** tab. The right pane displays the configuration and settings of a CI selected in the Browse tab, or the results of a search made in the Search and Replace tab. The configuration and settings of a selected CI are displayed in a number of different tabs in the right pane, with only the tabs applicable to the selected CI visible.

To access	Select **Admin** > **End User Management** > **Monitoring**
Important information	The Monitoring tab is the default tab displayed when you access EUM Administration.
See also	➤ "End User Management Administration Overview" on page 22 ➤ "Monitoring Applications Overview" on page 23

Browse Tab

Enables you to select and display a view, and browse through the view to locate and manage the included CIs that are used in EUM Administration.

For user interface details, see "Monitoring Page Browse Tab" on page 64.

Search and Replace Tab

Enables you to search for EUM Administration entities that match specific criteria and to select multiple entities from the search results on which to perform various operations.

For user interface details, see "Monitoring Page Search and Replace Tab" on page 75.

CI Properties Tab

Enables you to view and change the name and description of a CI used in EUM Administration.

For user interface details, see "CI Properties Page" on page 52.

Business Process Monitor Tab

Enables you to configure the BPM settings for a selected CI. The Business Process Monitor tab includes the following pages:

- **Properties.** For user interface details, see "Business Process Monitor Application Properties Page" on page 196.
- **Default Settings.** For user interface details, see "Business Process Monitor Application Default Settings Page" on page 192.
- **Data Collectors.** For user interface details, see "Business Process Monitor Application Data Collectors Page" on page 190.
- **Reports Configuration.** For user interface details, see "Business Process Monitor Application Reports Configuration Page" on page 202.

Real User Monitor Tab

Enables you to configure the RUM settings for a selected CI. The Real User Monitor tab includes the following pages:

- **General.** For user interface details, see "Real User Monitor Application General Page" on page 403.
- **Session.** For user interface details, see "Real User Monitor Application Session Page" on page 422.

- **Data Collection.** For user interface details, see "Real User Monitor Application Data Collection Page" on page 381.
- **<Actions>.** For user interface details, see "Real User Monitor Application <Actions> Page" on page 366.
- **Events.** For user interface details, see "Real User Monitor Application Events Page" on page 397.

Alerts Tab

Enables you to configure EUM alerts for a selected CI.

For details on administering EUM alerts, see "Administer EUM Alerts" on page 525.

Location Offset Tab

Enables you to set threshold offsets for specific locations for a selected CI.

For user interface details, see "Location Offset Page" on page 61.

Query Repository Page

This page enables you to manage and store search queries that you use to search for EUM Administration entities that match specific criteria. You can use the search results generated by queries to perform global replace and bulk operations on multiple entities.

To access	Select **Admin** > **End User Management** > **Monitoring** > **Search** > **Search Definition** > **Query** > **Open Query Repository**

User interface elements are described below:

UI Element (A-Z)	Description
	**New Search Query.** Opens the Search Query wizard, where you can create a new query. For user interface details, see "Search Query Wizard" on page 87.
	**Edit Search Query.** Opens the Search Query wizard, where you can edit a selected query. For user interface details, see "Search Query Wizard" on page 87.
	**Duplicate Search Query.** Duplicates a selected query. A new query with the same configuration as the original is created and is automatically given the same name as the original with the addition of a period followed by a sequential number. For example, if you duplicate a query called **myquery**, the new query is called **myquery.1**. If you then duplicate the query called **myquery.1**, the new query is called **myquery.1.1** and so forth.
	**Delete Search Query.** Deletes a selected query.
Description	The query description.
Editable	A check mark denotes that the query is editable (that is, the query is a user defined query). Predefined queries included in BSM cannot be edited.
Entity Type	The entity type on which the query is run.
Name	The query name.
Search Details	Lists the selected entity properties included in the query, together with details of their values to be matched. **Note:** ➤ An unconfigured property value is displayed as **unspecified**. ➤ An empty property value is displayed as **ignored**.

Search Query Wizard

This wizard enables you to create a new search query for locating EUM Administration entities that match specific criteria. You can use the search results generated by the query to perform global replace and bulk operations on multiple entities.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab > **Search** tab > **Search Definition** area > **Query** > **New search query** ➤ Select **Query Repository** and click the **Add Search Query** or **Edit Search Query** buttons.
Wizard map	This wizard contains: Define Query Details Page > Select Search Context Page > Define Search Criteria Page > Summary Page

Define Query Details Page

This wizard page enables you to configure the name and description of a query in the Query Repository.

Important information	➤ General information about this wizard is available here: "Search Query Wizard" on page 87. ➤ This page is only applicable when you access the Search Query wizard from the Query Repository page. For user interface details, see "Query Repository Page" on page 85.
Wizard map	The Search Query Wizard contains: **Define Query Details Page** > Select Search Context Page > Define Search Criteria Page > Summary Page

User interface elements are described below:

UI Element (A-Z)	Description
Query description	An optional query description.
Query name	The query name.

Select Search Context Page

This wizard page enables you to configure the entity type to search for and the context in which to search for it. The selected entity type and context determine the properties that are displayed in the Define Search Criteria page.

Important information	General information about this wizard is available here: "Search Query Wizard" on page 87.
Wizard map	The Search Query Wizard contains: Define Query Details Page > **Select Search Context Page** > Define Search Criteria Page > Summary Page

User interface elements are described below:

UI Element (A-Z)	Description
Context	Select the radio button for the context in which you want to search for the entities. Valid context options are: **CI Properties.** Search for the entities whose name and/or description include a specific string. **Real User Monitor.** Search for the entities by RUM properties. **Business Process Monitor.** Search for the entities by BPM properties. **Note:** The context radio buttons are only enabled for **Application** and **Business Transaction** entity types. For all other entity types there is a default context which you cannot change.
Entity type	Select the radio button for the entity type for which you want to search.

Define Search Criteria Page

This wizard page enables you to select the entity properties and their values to be matched during the search.

Important information	➤ General information about this wizard is available here: "Search Query Wizard" on page 87. ➤ The available properties are determined by the entity type and context selected in the Select Search Context page.
Wizard map	The Search Query Wizard contains: Define Query Details Page > Select Search Context Page > **Define Search Criteria Page** > Summary Page

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
Search Criteria Area	
Predefined Search Criteria	Predefined search criteria, with properties for matching during the search already selected. Select the check box next to the predefined search criteria you want to use. **Note:** If there are no predefined search criteria for the entity type selected, this field is not visible.
Properties	A hierarchical tree of the properties available for matching during the search, according to the context and entity type selected in the previous wizard page. Select the check boxes for the properties you want to update. The selected properties are displayed in the **Search Details** area.
Search Details Area	
<**Property settings**>	Each property selected in the **Properties** field is displayed, together with details of the value to be matched. Click the value link to open the Set Query Criteria dialog box, where you configure the new property value to be matched during the search. For user interface details, see "Set Query Criteria Dialog Box" on page 93. **Default value:** Before you configure a new value for a property, the value is displayed as **unspecified**. **Note:** If you configure an empty new value for a property, the value is displayed as **ignored**.

Summary Page

This wizard page enables you to view a summary of the query, change property values for matching, save the query in the Query Repository, and launch the query automatically when you exit the wizard.

Important information	➤ General information about this wizard is available here: "Search Query Wizard" on page 87. ➤ This page is only applicable when you access the Search Query wizard from the Search Definition area of the Monitoring Page Search tab. For user interface details, see "Search Definition Area" on page 75.
Wizard map	The Search Query Wizard contains: Define Query Details Page > Select Search Context Page > Define Search Criteria Page > **Summary Page**

User interface elements are described below:

UI Element (A-Z)	Description
Execute query immediately	Select this check box to launch the query automatically when you click **Finish** to end and exit the wizard. **Default value:** Selected
Query description	An optional description of the query. **Note:** This field is enabled only when the **Save query** check box is selected.
Query name	The query name. **Note:** This field is enabled only when the **Save query** check box is selected.

UI Element (A-Z)	Description
Save query	Select this check box to save the query to the Query Repository and enter the query name and an optional description. **Default value:** Not selected
Search Details	Lists the selected entity properties included in the query, together with details of their values to be matched. Click a value link to open the Set Query Criteria dialog box, where you configure a new property value to be matched during the search. For user interface details, see "Set Query Criteria Dialog Box" on page 93. **Default value:** Before you configure a new value for a property, the value is displayed as **unspecified**. **Note:** ➤ Before you configure a new value for a property, the value is displayed as **unspecified**. ➤ All values must be configured before you can run the query. ➤ If you configure an empty new value for a property, the value is displayed as **ignored**.

Set New Value Dialog Box

This dialog box enables you to input a new value for updating a selected property in the Global Replace wizard.

To access	Select **Global Replace** wizard > **Select and Update Properties** page > **Values** pane and click the **change** link for a property.
Important information	The elements displayed in this dialog box vary according to the selected property.
See also	"Global Replace Wizard" on page 55

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Property value setting>	The type of value you set for a property will vary according to the specific property for which you are setting the value. For example, it can be a free text field, a check box, a radio button selection, and so forth. For details about each setting, refer to the relevant user interface page for the specific property. **Note:** When the value is a free text field, make sure you adhere to any syntax exceptions and limitations (for example, a maximum length or permitted characters).
Replace... with...	For some properties, you can replace a string within an existing property value with a new string. In such cases, you are prompted to enter both the existing and new strings. All occurrences of the string in the existing property value are replaced by the new string.

Set Query Criteria Dialog Box

This dialog box enables you to input a new value for a property to be matched when searching for EUM Administration entities.

To access	Select **Search Query wizard** > **Define Search Criteria** page > **Search Details** area and click the value link for a property.
Important information	The elements displayed in this dialog box vary according to the selected property.
See also	"Search Query Wizard" on page 87

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Property value setting>	The type of value you set for a property will vary according to the specific property for which you are setting the value. For example, it can be a free text field, a check box, a radio button selection, and so forth. For details about each setting, refer to the relevant user interface page for the specific property.

Update Script Parameters Wizard

This wizard enables you to update the values of multiple script parameters as part of a bulk operation.

To access	Click the **Update Script Parameters** button in the Bulk Operations Shortcut menu in the: ➤ **Monitoring page** > **Search and Replace** tab > **Search Results** area ➤ **Script Repository** > **Search Results** dialog box
Important information	This wizard enables you update script parameters that contain only regular or sensitive data.
Wizard map	This wizard contains: Update Parameters Page > (Bulk Edit Script Parameters Dialog Box) > (Excluded Script Monitors and Parameters Page) > Preview Page > Summary Page
See also	➤ "Script Parameter Management Overview" on page 112 ➤ "Bulk Operations Overview" on page 28 ➤ "Global Search and Replace Overview" on page 28

Update Parameters Page

This wizard page enables you to update the value, expiration date, and description of selected parameters.

Important information	➤ General information about this wizard is available here: "Update Script Parameters Wizard" on page 94. ➤ By default, the displayed data is sorted by script name. You can sort and filter the data by any column. ➤ Data collectors for which a unique parameter value is configured are displayed as children of the matching swept monitor and parameter. ➤ Script monitors that do not contain any parameters, or that contain only multi value parameters, and individual multi value parameters are not included in the displayed data. You can view details of such scripts and parameters by clicking the **Excluded script monitors and parameters** link.
Wizard map	The Update Script Parameters Wizard contains: **Update Parameters Page** > (Bulk Edit Script Parameters Dialog Box) > (Excluded Script Monitors and Parameters Page) > Preview Page > Summary Page

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit the value of multiple parameters.** Opens the Bulk Edit Script Parameters dialog box, where you can configure the value, expiration date, and description for selected parameters. For user interface details, see "Bulk Edit Script Parameters Dialog Box" on page 98. **Note:** This button is disabled if the selected parameters are of different types (that is, a mixture of regular and sensitive data).
	**Reset the value of multiple parameters.** Restores the old value, expiration date, or description for any changes you have made, but not yet saved, for the selected parameters. **Note:** This button is disabled if no changes were made for the selected parameter.
Application	The name of the application in which the parameter's parent script monitor is included.
BTF	The name of the business transaction flow in which the parameter's parent script monitor is included.
Data Collectors	The name of the data collectors to which the script is assigned.
Description	A free text description of the parameter. **Note:** ➤ This column is hidden by default. ➤ You can only update the description in the Bulk Edit Script Parameters dialog box.

UI Element (A-Z)	Description
Excluded script monitors and parameters	Click this link to open the Excluded Script Monitors and Parameters page, where you can see a list of the script monitors and parameters that were filtered out of the wizard. For user interface details, see "Excluded Script Monitors and Parameters Page" on page 100. A script monitor is excluded if it does not contain any parameters, or if all its parameters are multi values. A parameter is excluded if it is a multi value, but its parent script monitor is not excluded as it contains other valid parameters. **Note:** This link is only visible when one or more script monitors and/or parameters are filtered out of the wizard.
Expiration Date	A free text description of the parameter. **Note:** ➤ This column is hidden by default. ➤ You can only update the expiration date in the Bulk Edit Script Parameters dialog box.
New Value	The new value you configure for the parameter. You can update the new value directly in this field for a single parameter. **Note:** ➤ For sensitive values, the value itself is not displayed and a row of black dots is displayed instead. ➤ You can only update sensitive values in the Bulk Edit Script Parameters dialog box. **Syntax exceptions:** The maximum value length is 255 characters.
Old Value	The current (old) value set for the parameter. **Note:** For sensitive values, the value itself is not displayed and a row of black dots is displayed instead.
Parameter	The parameter name.

UI Element (A-Z)	Description
Script Name	The name of the monitor script in which the parameter is included. **Note:** If a parameter was assigned a unique value for a specific data collector, the data collector is displayed as a child of the script in this column.
Version	The version number of the monitor script in which the parameter is included.

Bulk Edit Script Parameters Dialog Box

This wizard page enables you to update the value, description and expiration date for multiple parameters.

To access	Select the **Update Parameters** page and click the **Edit the value of multiple parameters** button.
Important information	➤ General information about this wizard is available here: "Update Script Parameters Wizard" on page 94. ➤ To enable a field, select the check box adjacent to it. ➤ You can enter empty (blank) values for any field.
Wizard map	The Update Script Parameters Wizard contains: Update Parameters Page > (**Bulk Edit Script Parameters Dialog Box**) > (Excluded Script Monitors and Parameters Page) > Preview Page > Summary Page

User interface elements are described below:

UI Element (A-Z)	Description
Confirm Value	When you enter a value for a parameter marked sensitive (for example, a password parameter), you must confirm the value by entering it again. The Value and Confirm Value entries must match. **Note:** The value itself is not displayed and a row of black dots is displayed instead. **Syntax exceptions:** The maximum value length is 255 characters.
Description	A free text description for the parameter.
Expiration Date	An expiration date for the parameter value. You can configure expiration dates for parameter values to help you manage parameters with frequently changing values, such as passwords. The expiration date is an indication of when you want to change a parameter's value. Click the arrow in the field to open a calendar from which you can select a date.
Value	The parameter value. **Note:** ➤ For parameters marked sensitive, the value is not displayed and a row of black dots is displayed instead. ➤ If the selected parameters contain different value types, the text Mixed Values is displayed **Syntax exceptions:** The maximum value length is 255 characters.

Excluded Script Monitors and Parameters Page

This wizard page enables you to view a list of the script monitors and parameters that were filtered out of the wizard.

A script monitor is excluded if it does not contain any parameters, or if all its parameters are multi values. A parameter is excluded if it is a multi value, but its parent script monitor is not excluded as it contains other valid parameters.

To access	Select the **Update Parameters** page and click the **Excluded script monitors and parameters** link.
Important information	General information about this wizard is available here: "Update Script Parameters Wizard" on page 94.
Wizard map	The Update Script Parameters Wizard contains: Update Parameters Page > (Bulk Edit Script Parameters Dialog Box) > (**Excluded Script Monitors and Parameters Page**) > Preview Page > Summary Page

User interface elements are described below:

UI Element (A-Z)	Description
Application	The name of the application in which the parameter's parent script monitor is included.
BTF	The name of the business transaction flow in which the parameter's parent script monitor is included.
Data Collectors	The name of the data collectors to which the script is assigned.
Parameter	The parameter name. **Note:** This column displays All if all of the script monitor's parameters are filtered out.

UI Element (A-Z)	Description
Script Name	The name of the monitor script in which the parameter is included.
Version	The version number of the monitor script in which the parameter is included.

Preview Page

This wizard page enables you to view the number of parameters that will be updated with new values, expiration dates, or descriptions as well as the details of these changes.

Important information	➤ General information about this wizard is available here: "Update Script Parameters Wizard" on page 94.
	➤ Only the parameters that will be updated are displayed on this page. However, a parent row is displayed if one of its children will be updated, even if the parent will not be updated directly itself.
	➤ The **Expiration Date** and **Description** columns are hidden by default, even if you updated their values.
	➤ The UI elements on this page are similar to those on the Update Parameters page, except for the following differences:
	  ➤ The total number of parameters that will be updated is displayed.
	  ➤ The **Edit the value of multiple parameters** and **Reset the value of multiple parameters** buttons are not displayed, nor is the **Excluded script monitors and parameters** link.
	For user interface details, see "Update Parameters Page" on page 95.

Wizard map	The Update Script Parameters Wizard contains: Update Parameters Page > (Bulk Edit Script Parameters Dialog Box) > (Excluded Script Monitors and Parameters Page) > **Preview Page** > Summary Page

Summary Page

This wizard page enables you to view a summary of the update operation.

Important information	➤ General information about this wizard is available here: "Update Script Parameters Wizard" on page 94. ➤ Only the parameters that were updated are displayed on this page. However, a parent row is displayed if one of its children was updated, even if the parent was not updated directly itself. ➤ By default, the table is sorted by Status (with failed results first) and then by Script Name.
Wizard map	The Update Script Parameters Wizard contains: Update Parameters Page > (Bulk Edit Script Parameters Dialog Box) > (Excluded Script Monitors and Parameters Page) > Preview Page > **Summary Page**

User interface elements are described below:

UI Element (A-Z)	Description
Application	The name of the application in which the parameter's parent script monitor is included.
BTF	The name of the business transaction flow in which the parameter's parent script monitor is included.
Data Collectors	The name of the data collectors to which the script is assigned.
Error	If the update of the parameter failed, as indicated in the Status column, the relevant error message is displayed.
Parameter	The parameter name.

UI Element (A-Z)	Description
Script Name	The name of the monitor script in which the parameter is included.
Status	One of the following icons indicates if the parameter update was successful or not: ➤ The update was successful. ➤ The update failed.

Troubleshooting and Limitations

This section includes troubleshooting and limitations for EUM Administration.

No Profile Database is Configured in Business Service Management

If no profile database is configured in BSM, when you first access EUM Administration a warning message is displayed and you cannot add BPM or RUM applications.

2

Business Process Monitor Administration

This chapter includes:

Concepts

Tasks

Reference

Concepts

Monitoring Essential Transactions

Scripts run by Business Process Monitor (BPM) emulate real user actions using specific URLs or pre-recorded transactions that perform typical business processes in your application. Consider the following when determining the type of transactions to use:

- Establish the main applications or lines of business whose performance you want to monitor.
- Determine the business functions whose failure could cause harm to your company, for example, transactions that have significant impact on the business (such as purchases), heavy throughput transactions (such as home page download), or transactions integrated with legacy systems, since these integrations increase the risk for application failures.
- Identify transactions that hit the different components within your application infrastructure (servers and physical devices), for example, transactions high in database I/O (such as search requests), since those tend to stress the system.
- Monitor transactions that affect typical end-user experience, for example, links that users commonly follow or transactions associated with new promotions.
- Select transactions that enable you to verify and reinforce service level agreements, for example, mission-critical transactions that typically exhibit heavy throughput, high impact on the system and high database I/O, or transactions describing increased user actions (such as clicking on many links or visiting many parts of your site).
- Record transactions that interact with specific parts of your network infrastructure. For example, define a transaction that exercises just the Web server, another that interacts with the Web server and application server, and a third that interacts with the Web server, application server, and database server.

Editing the Schedule for Business Process Monitor Applications/Business Transaction Flows

When determining how often to run a BPM application or business transaction flow, you should consider the following:

- How soon you want to know if the system is down. If the default wait of 15 minutes is too long, schedule the application/flow to run more frequently.
- How much load the system can handle. If the script monitoring an application/flow creates a high load on the system, schedule the application/flow to run less frequently so that the script does not cause system performance degradation.
- How much data is required for SLAs or reports. For example, if an SLA requires an application to be hit by a script from a specific location once every 15 minutes, it may not add any value to run an application/flow more frequently.
- How much load can the BPM and BSM handle. If you schedule an application/flow to run very frequently, it increases the load on the BPM and BSM. This may affect the performance of all the scripts run on the overloaded BPM and the performance of BSM.
- How closely the script is meant to emulate real users. If the users being emulated by the script only work specific hours, it may only be necessary to schedule the application/flow to run from one or two hours prior to the start of this time period, to one or two hours after the end of this time period.

Enabling Component Breakdown

If you enable breakdowns for the transaction monitors in an application, you can select the **Perform component breakdown** option to specify that you want HP Business Service Management to save complete component breakdown data (page components for Web based protocols, and TCP components/requests for non-Web based protocols) for a sampling of transaction instances. For user interface details, see "Default Transaction Settings Page" on page 166.

Collecting component breakdown data enables drilling down in the transaction breakdown reports, in the End User Management (EUM) application. Drilling down to view the component breakdown data for the transaction instances for which data is collected, helps to pinpoint response time issues that occurred due to problems with a specific component (for example, a large or missing image on a page). For details on how component breakdown data appears in reports, see "BPM Page Component Breakdown on Demand" on page 1073.

This section also includes:

- "Protocols for Breakdown" on page 108
- "Breakdown Samples" on page 109

Protocols for Breakdown

For component breakdown to appear in reports, the script containing the transactions must have been recorded using one of the protocols configured in the **agent1.cfg** file on the BPM machine. Web based protocols are configured in the **BdSupportedProtocols** setting and non-Web based protocols are configured in the **AdvancedTcpBdSupportedProtocols** setting. For details on the agent1.cfg file, see "Parameters in agent1.cfg" in the *Business Process Monitor Administration* PDF.

If a script for which BPM is configured to collect transaction breakdown data contains multiple protocols, only one type of breakdown is used:

- Web based breakdown is used providing one of the protocols is a Web based protocol that is included in the **BdSupportedProtocols** configuration setting in the **agent1.cfg** file on the BPM machine.
- TCP breakdown is used providing one of the protocols is a non-Web based protocol that is included in the **AdvancedTcpBdSupportedProtocols** configuration setting and none of the protocols is a Web based protocol that is included in the **BdSupportedProtocols** configuration setting in the **agent1.cfg** file on the BPM machine.

Breakdown Samples

By default, HP Business Service Management saves component breakdown data to the database once per every four transaction instances. The setting for how often to save component breakdown data can be modified from the PCBD section of the **topaz_data_server.cfg** file on the BPM machine. For details, see "Business Process Monitor Configuration Files" in the *Business Process Monitor Administration* PDF.

Note to HP Software-as-a-Service customers: The default for saving page component breakdown data to the database differs for HP Software-as-a-Service. By default, page component breakdown data is saved when the transaction's threshold status changes to or from the Poor (red) status. For details on setting transaction thresholds, see "Default Transaction Settings Page" on page 166.

Enabling SOA Transaction Breakdown

You can configure BPM to send SOA data to HP Business Service Management (BSM) for inclusion in Application Management for SOA reports and Service Health. For details on incorporating SOA data from BPM in Application Management for SOA, see "Enrich the SOA Model From Scripts" in *Solutions and Integrations*.

If a script contains both regular BPM transactions and SOA WebService calls, samples for both types of data are sent to BSM. Data for the regular BPM transactions is included in BSM reports and Service Health, and data for the SOA WebService calls is included in Application Management for SOA reports and Service Health. There is no automatic link between the two types of data, that is, you cannot view or access SOA breakdown data from regular BPM transaction data and vice versa. You can, however, manually find a link between the different types of data by tracing them back to the same transaction.

You enable SOA breakdown when you configure the breakdown settings for a transaction monitor. For user interface details, see "Default Transaction Breakdown" on page 169. You add SOA scripts to a transaction monitor in the same way that you add regular BPM scripts. For user interface details, see "Set Transaction Monitor Scripts Page" on page 171.

When you assign a script that includes SOA WebService calls to a business transaction flow, Configuration Items (CIs) for the included WebServices and operations are created in the Run-time Service Model (RTSM).

For details on troubleshooting and limitations for SOA transaction breakdown, see "SOA Transaction Breakdown Troubleshooting and Limitations" on page 260.

This section also includes:

Prerequisites

The option to enable SOA breakdown for a transaction monitor is only available when the following conditions exist:

- You have a valid Application Management for SOA license.
- You are using BPM version 7.50 or later. If you are using an earlier version of BPM, the check box to enable SOA data for a transaction monitor is visible and can be selected in EUM Administration, but no SOA data is sent to BSM from the BPM machine running the earlier version.
- The transaction monitor's protocol type is Web Service (SOA) if it is a single protocol script, or one of the protocols is Web Service if it is a multiple protocols script.
- The scripts are record with HP Virtual User Generator version 9.10 or later. For details on using scripts recorded with earlier versions of HP Virtual User Generator, see "SOA Transaction Breakdown Troubleshooting and Limitations" on page 260.

Samples

If SOA breakdown is enabled for a transaction monitor, a performance sample is sent by the BPM to Application Management for SOA for every **web_service_call** operation included in the script. If SOA errors are received for a **web_service_call** operation, an event sample is also sent.

Transactions

Unlike regular BPM scripts, an SOA script does not have to include transactions to produce SOA data. However, even though no transactions may be recorded in a script, BPM considers each **web_service_call** operation in a script as a transaction for internal purposes only. These internal transactions are not sent to, and do not appear in, BSM.

Configuration and Log Files

For details on the BPM configuration and log files for SOA transactions, see the following:

- "Parameters in topaz_data_server.cfg" in the *Business Process Monitor Administration* PDF.
- "Data Directory" in the *Business Process Monitor Administration* PDF.

Script Parameter Management Overview

BSM’s script parameter management feature enables you to manage the values of parameters included in HP Virtual User Generator (VuGen) transaction scripts that are run by BPMs to monitor applications and business transaction flows.

VuGen scripts contain parameters, such as user names and passwords that are used by the scripts to log in to monitored applications. You may need to change the values of these parameters at certain intervals. For example, if your IT organization requires periodic changes of login credentials. You may also need to have different values for a parameter in the same script when it is run on different BPMs. For example, if you monitor an application that prevents simultaneous logins with the same credentials on multiple BPMs.

Constantly having to edit scripts to update parameter values, or duplicate scripts and then make changes, is heavy maintenance, especially as to change a script you have to download it, edit it in VuGen, and then upload it again to BSM.

Managing parameters in EUM Administration enables you to set different parameter values to be used by scripts, without having to edit the scripts themselves. You set parameter values for specific scripts in specific applications or business transaction flows, and can also set different values to be used for the same parameter according to the BPM that runs the script. You can also update the values for multiple parameters across multiple scripts at the same time.

When you configure a value for a script parameter, you can enter an expiration date for the value. Using expiration dates for parameter values helps you manage parameters with frequently changing values, such as passwords. The expiration date is an indication of when you need to change a parameter's value. The expiration date is for informational purposes only and does not trigger any notification or change.

Parameter values are stored in an application's configuration in the management database and use the same encryption as the original value in the script. You cannot set parameter values in EUM Administration for parameters that use multiple values.

You can edit script parameters for scripts included in:

➤ A BPM application. For user interface details, see "Script Parameters Pane" on page 200.

➤ A business transaction flow. For user interface details, see "Script Parameters Tab" on page 232.

➤ The Script Repository. For user interface details, see "Script Parameters Tab" on page 232.

You can also edit script parameters as part of a bulk operation. For concept details, see "Bulk Operations Overview" on page 28.

Tasks

How to Set up Business Process Monitors

This task describes the process required to set up and use BPM to collect data on the performance of specific business processes.

This task includes the following steps:

- "Prepare a plan for monitoring specific business processes" on page 115
- "Install Business Process Monitor components" on page 115
- "Create scripts" on page 115
- "Upload scripts to the Script Repository" on page 115
- "Create and configure applications for Business Process Monitor" on page 116
- "Create and configure business transaction flows" on page 116
- "Create single transaction scripts for business transaction flows - optional" on page 116
- "Create WebTraces for applications or business transaction flows - optional" on page 117
- "Set script parameter values - optional" on page 117
- "Set location aware thresholds - optional" on page 117
- "Configure data collector overrides - optional" on page 117
- "Grant permissions" on page 118
- "View Business Process Monitor data in reports and Service Health" on page 118

1 Prepare a plan for monitoring specific business processes

Prepare a plan that maps out the specific applications and business processes for which you want to collect data. Consider the locations from where you want to emulate end users accessing the application. Include information about the monitored IT infrastructure components associated with the applications (for example, servers being monitored by SiteScope that are running a Web-based application against which you plan to run BPM scripts). For task details, see "How to Plan Business Process Monitor Applications" on page 118.

2 Install Business Process Monitor components

Install BPM on machines designated to run scripts recorded with HP script recording tools such as HP Virtual User Generator. You can run multiple BPMs from multiple platforms. For details, see the *Business Process Monitor Administration* PDF.

3 Create scripts

Create scripts that include transactions that reflect the business processes for which you plan to collect data, and save them to a local or network drive. For details, refer to the *HP Virtual User Generator User's Guide*.

4 Upload scripts to the Script Repository

In the Script Repository, create folders and upload the scripts to the folders. For user interface details, see "Script Repository Page" on page 478.

Tip: Scripts can also be uploaded to the Script Repository while configuring applications and business transaction flows for BPM.

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5 Create and configure applications for Business Process Monitor

In EUM Administration, create applications and configure them for BPM using the Business Process Monitor Application Configuration wizard. For user interface details, see "Business Process Monitor Application Configuration Wizard" on page 162.

6 Create and configure business transaction flows

In EUM Administration, create business transaction flows and configure them for BPM using the Business Transaction Flow Configuration wizard. For user interface details, see "Business Transaction Flow Configuration Wizard" on page 207.

7 Create single transaction scripts for business transaction flows - optional

In EUM Administration, create single transaction scripts for business transaction flows. A single transaction script emulates navigation to a specified URL and enables you to track response time and availability results in EUM reports. For user interface details, see "Single Transaction Script Dialog Box" on page 244.

8 Create WebTraces for applications or business transaction flows - optional

In EUM Administration, create WebTraces for applications or business transaction flows. WebTrace monitors enable you to record the specific route taken from a data collector to a destination Web server or IP address, including the specific gateway servers at each hop. For user interface details, see "WebTrace Dialog Box" on page 257.

9 Set script parameter values - optional

In EUM Administration, set specific script parameter values for an application or business transaction flow, and for specific data collectors. For concept details, see "Script Parameter Management Overview" on page 112.

10 Set location aware thresholds - optional

In EUM Administration, set transaction threshold offsets for specific locations. For user interface details, see "Location Aware Thresholds Dialog Box" on page 362.

11 Configure data collector overrides - optional

In EUM Administration, set overriding schedules and run modes for specific data collectors for BPM applications and business transaction flows. For user interface details, see "Edit Data Collector Settings Dialog Box" on page 219.

12 Grant permissions

Grant permissions so that users can view and modify the BPM related configuration settings in EUM Administration. For concept details, see "Permissions Overview" in *Platform Administration*.

Note: Permissions for an application set in the EUM context in the Permissions Manager do not affect the permissions to view that application in views defined in IT Universe Manager. Permissions for views must be set separately.

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13 View Business Process Monitor data in reports and Service Health

Once data on the configured BPM applications and business transaction flows has been collected, you can view the data in BPM reports and in Service Health.

For details on BPM reports, see "End User Management Reports Overview" on page 673.

For details on viewing BPM data in Service Health, see "How to Monitor Your Environment Using Service Health" in *Using Service Health*.

How to Plan Business Process Monitor Applications

This task describes how to plan BPM applications to most effectively monitor and manage their performance. The information described in the steps below can assist you with effective application planning and should be considered before you create and run applications.

This task includes the following steps:

- "Monitor essential transactions" on page 119
- "Monitor from different locations" on page 119

1 Monitor essential transactions

Plan the transactions you want to monitor to ensure that you monitor essential transactions for your organization. For details on what you should consider when determining what to monitor, see "Monitoring Essential Transactions" on page 106.

2 Monitor from different locations

To obtain an accurate assessment of end-user experience, you should monitor from a variety of locations. If possible, select locations where customers are located. Monitoring from a variety of locations also enables you to better track and compare network performance from different Internet backbone locations and service providers.

How to Zip Scripts

This task describes how to zip the files comprising a transaction so that you can add it as a transaction monitor to a business process profile in EUM Administration.

You can zip a transaction's files by:

- Using the HP Virtual User Generator. For details, see the HP Virtual User Generator documentation.
- Zipping the files in your file manager as described in the following procedure.

To zip transactions:

1. In your file manager, browse to the transaction's directory.
2. Select all the files in the directory (CTRL A) and create a zip file including all the files. You must use the name of the .usr file as the name of the zipped file. For example, if the .usr file is called check_accounts.usr, the zip file must be named check_accounts.zip.

   Ensure that the **Save full path info** option is not selected so that there are no paths in the path column of the zip archive.

Note: Do not select the directory itself to **Add to Zip** as this includes the directory name in the path column. You cannot add a zipped file that includes a directory to a profile in the console.

Reference

Guidelines for Working with QuickTest Professional

In certain environments, it may be necessary or preferable to use QuickTest Professional instead of VuGen to record scripts for use with BPM. Examples of such environments include: certain Java applications, terminal emulators, home-grown applications written in Visual Basic or MVS, Lotus Notes, Siebel (in certain cases), a Delphi application using a third-party Oracle integration layer, an application that communicates using a proprietary, compressed, encrypted protocol, or an application using asynchronous communication.

Use the guidelines below when installing and using QuickTest Professional with HP Business Service Management. For more information about QuickTest Professional, see the *HP QuickTest Professional User Guide*.

Tip: For additional recommendations to consider when scripting for BPM with QuickTest Professional, see HP Software Self-solve knowledge base article KM198697.

This section also includes:

➤ "General" on page 122

➤ "Installing QuickTest Professional" on page 122

➤ "QuickTest Professional Script Content" on page 123

➤ "Running QuickTest Professional Scripts" on page 124

General

- Before recording QuickTest Professional scripts, select the **Record and run on these applications** option in the Record and Run Settings dialog box, and specify the applications against which the script will run. Failure to select this option may result in the failure of BPM to run the script. To enable this option, open the script in QuickTest Professional, select **Automation** > **Record and Run Settings** > **Windows Applications**, and select the **Record and run only on Applications specified below** setting. Make sure the applications against which the script will run are defined.
- When calling values from a parameter file, note the following:
  - The data table expects the column name as the first parameter, for example DataTable("A") will access the value from column A. In QuickTest Professional, this is known as a data table parameter.
  - By default, QuickTest Professional runs a number of global iterations equal to the number of rows in the global data sheet. You can modify the default range of global iterations in QuickTest Professional from **File** > **Settings** > **Run**.
- Disable the screensaver on BPM machines running QuickTest Professional scripts.

Installing QuickTest Professional

- When possible, install QuickTest Professional and record scripts (referred to as tests in the *HP QuickTest Professional User Guide*) on the same machine running the BPM that will execute the scripts. It is further recommended to use the same operating system image on all BPM machines that will execute the script. If it is not possible to record scripts on the BPM machine, make sure to record scripts on a machine whose environment is the same as the BPM machines that will run the scripts.
- Make sure to install BPM prior to installing QuickTest Professional.

Note: You require a QuickTest Professional license to create and modify scripts, but do not require a license to run QuickTest Professional scripts on BPM. When you install QuickTest Professional you are required to enter license details, but have an option of using QuickTest Professional for a 30-day trial period without a license. During this trial period, you are able to create and modify QuickTest Professional scripts.

QuickTest Professional Script Content

- Every QuickTest Professional script must contain at least one transaction to provide useful information in BPM. To add transactions in QuickTest Professional, add the following lines to the script:
  - To start a transaction, click the **Start Transaction** button, or manually add the following statement: `Services.StartTransaction "<name of transaction>"`
  - To end a transaction, click the **End Transaction** button, or manually add the following statement: `Services.EndTransaction "<name of transaction>"`
- When a script starts, it usually launches some application. Scripts should be designed such that the application is closed at the end. Otherwise, the next invocation of the script will launch another instance of the application, which could cause the script to fail. Alternatively, design the script to check whether the application is already open and to launch the application only if it is not open. In this case, the script should return the application to its starting state.
- External Actions or other external resources (such as data table, function library, shared object repository, external environment variable) are not supported unless the external resource can be found from the BPM machine (that is, if it was defined using the UNC network path and that UNC network path is also accessible from BPM). Also, the user under which BPM runs must have permissions to access the resources.
- Do not use QTP Bitmap Checkpoint. Instead, use other types of checkpoints, for example Text Checkpoint.

➤ Do not use the QTP **process.close** command as it can cause the system to become unstable.

Running QuickTest Professional Scripts

➤ Executing a QuickTest Professional script in an application or business transaction flow (when run by BPM) differs from executing it in QuickTest Professional. In BPM, the script runs in *mdrv mode*, while in QuickTest Professional the script runs in *QTP mode* (which is a GUI mode). It is recommended to always run scripts in QuickTest Professional in mdrv mode to verify that they run correctly before using them in BPM. To test the execution in mdrv mode, use one of the following methods:

  ➤ Use Silent Test Runner (accessible from **Start** > **Programs** > **QuickTest Professional** > **Tools**), an application for running tests in mdrv mode. It provides a run log and transaction log that can be reviewed to verify that scripts run successfully.

  ➤ Run mdrv using command line syntax. First, run the following command from the QuickTest Professional path with the -usr flag:

  "<QuickTest Professional installation directory>\bin\mdrv.exe" -usr <path to usr file>

  Then run the script using the following syntax:

  <QTP script path located under the BPM workspace directory>\script name.usr

  For example:

  <Business Process Monitor application directory>\workspace\agent1 \Site1\qtp_script\<long RTSM ID>\Check_users\Check_users.usr

➤ Keep in mind that scripts run faster in mdrv mode than in QTP mode, which can result in synchronizations problems; thus scripts that run correctly in QTP mode might not run correctly in mdrv mode. Usually adding wait time or checking for an object's existence will solve this problem.

VuGen Recording Tips

This section describes tips and recommendations for recording scripts in HP Virtual User Generator (VuGen) when recording scripts for use in HP Business Service Management.

Note: It is recommended to change the name of a transaction in EUM Administration, but if you change the name of a transaction in a VuGen script, you will no longer see historical data for the transaction in BSM.

This section includes:

- "Recommended VuGen Run-Time Settings" on page 125
- "Default Functions at Start of Script" on page 132
- "Recommended VuGen Script Recording Techniques" on page 133

Recommended VuGen Run-Time Settings

The following run-time settings are recommended when creating scripts for HP Business Service Management using VuGen. You set run-time settings in VuGen. For details, see the HP Virtual User Generator documentation.

Note: For non-Web protocols, not all of the run-time settings described below are available. When recording scripts with non-Web protocols, it is recommended to use the default run-time settings, unless modifications are required to suit your specific environment.

General: Pacing

Setting	Recommended Value	Remarks
Number of iterations	1	Default setting. Typically, in HP Business Service Management, there is no need to have a script run multiple iterations during each scheduled run. **Note:** For multiple action protocols, this setting appears under the Run Logic node.
Start Each Iteration	As soon as the previous iteration ends	Default setting. This setting is applicable to HP Business Service Management only if the number of iterations is set to greater than 1.

General: Log

Setting	Recommended Value	Remarks
Enable logging	Disabled	When logging is enabled, it increases transaction response times. By default, BPM sets the value to disabled.

General: Think Time

Setting	Recommended Value	Remarks
Ignore think time	Enabled	Default setting. When think time is enabled, it increases transaction response times when occurring inside a transaction.

General: Additional Attributes

Setting	Recommended Value	Remarks
No additional attributes		Default settings. This setting is not applicable to HP Business Service Management.

General: Miscellaneous

Setting	Recommended Value	Remarks
Continue on error	Enabled	Set this in the Error Handling section so that your scripts continue to run when errors occur.
Fail open transactions on lr_error_message	Disabled	Default setting. Set this in the Error Handling section. You can insert lr_error_message statements into a transaction for informational messages that can aid in identifying the reason for transaction failure. Such messages will display even with logging turned off (unlike lr_output_message). If statements to explicitly fail transactions are required, use lr_set_transaction_status.
Generate snapshot on error	Enabled	Set this in the Error Handling section so that you can later analyze the errors that occur during the script run.
Run Vuser as a process	Selected	BPM always runs scripts as a process.
Define each action as a transaction	Disabled	
Define each step as a transaction	Disabled	

Network: Speed Simulation

Setting	Recommended Value	Remarks
Use maximum bandwidth or **Use bandwidth** <typical>	Enabled	Default setting. For B2B applications, it is reasonable to assume that maximum bandwidth emulation reflects the end-user experience. Otherwise, select the most widely used connection type of your customer base.

Browser: Browser Emulation (Web protocols)

Setting	Recommended Value	Remarks
Use Custom User-Agent String	Default setting	Although this is the recommended setting, you should select the browser type most suitable to the application being monitored.
Simulate browser cache	Enabled	Default setting. This setting is preferable as it simulates real browser behavior, especially when you have several transactions within the same script that are dependant on one another.
Cache URLs requiring content (HTMLs)	Disabled	This setting is preferable as, if the setting is enabled, VuGen will not download the content of a URL that is cached and may cause verification checks to fail. The replay engine will not check to see whether the content of the cached page has changed.
Check for newer versions of stored pages every visit to the page	Disabled	Default setting. This reflects the default browser setting.

Setting	Recommended Value	Remarks
Download non-HTML resources	Enabled	Default setting. This setting is preferable as it simulates real end-user experience.
Simulate a new user on each iteration	Enabled	Default setting. This setting is applicable to HP Business Service Management only if the number of iterations is set to greater than 1.
Clear cache on each iteration	Enabled	Default setting. This setting is applicable to HP Business Service Management only if the number of iterations is set to greater than 1.
DNS Caching	Yes	
HTTP Version	Default value	
Keep-Alive HTTP Connections	Yes	
HTTP request connect timeout (sec)	120	
HTTP request receive timeout (sec)	120	
Network Buffer Size	12288	
Step Download Timeout	120	
Resource Page Timeout is a warning	No	

Internet Protocol: Proxy (Web protocols)

Setting	Recommended Value	Remarks
No proxy (direct connection to the Internet)	Enabled	Default setting. This is the recommended setting when direct connection to the Internet from the BPM is possible, and/or when your end users are not typically accessing your application through a proxy server. If for any reason connection through a proxy is required to access the Internet (for example, if the BPM machine is behind a firewall, or due to company policy requiring connection to the Internet through a proxy), or if you want to emulate end users connecting through a proxy server, select one of the available proxy server settings.

Internet Protocol: Preferences (Web protocols)

Setting	Recommended Value	Remarks
Enable image and text check	Enabled	If you are using checks in the script, it is recommended that you use web_reg_find and not web_find, as the latter has a significant effect on transaction response time. When using web_reg_find, you do not need to enable the Checks setting. However, if you are using the web_find or web_image_check functions, this setting needs to be enabled.
Hits per second and HTTP Codes	Disabled	

Setting	**Recommended Value**	**Remarks**
Pages per second (HTML Mode Only)	Disabled	
Response Bytes per second	Disabled	
All **Generate Web performance graphs** settings	Disabled	These settings are not applicable to HP Business Service Management.
WinInet replay instead of Sockets (Windows only)	Disabled	Default setting. Only enable WinInet replay if you are recording in an environment that uses SOCKS proxy or proxy automatic configuration.
File and line in automatic transaction names	Disabled	These settings are not applicable to HP Business Service Management.
Non-critical resource errors as warnings	Enabled	Similarly to the way IE works, this prevents a transaction from failing on errors such as HTTP 404, which can occur, for example, if one image is missing from the page.
Save snapshot resources locally: disabled		This setting is not applicable to HP Business Service Management.
All **Advanced Options** can be left at default values, or modified as required.		To set Advanced Options, click the **Options** button in the Advanced section.

Internet Protocol: Download Filters (Web protocols)

Setting	Recommended Value	Remarks
Include only addresses in list	Enabled	Default setting. This setting is ignored as long as no addresses are listed. To enable this feature, choose either option (Include or Exclude) and add entries. For example, you can exclude the downloading of resources from a third-party vendor (address) for which you have no control (such as an ad server).

Internet Protocol: ContentCheck (Web protocols)

Setting	Recommended Value	Remarks
Enable ContentCheck during replay	Enabled	Default setting. It is recommended that you configure and use ContentCheck if possible. If you choose to enable this feature, you must define ContentCheck rules. If you do not have any ContentCheck rules defined, disable the feature. Note that an alternative method to verify content is the use of text checks using web_reg_find.

Default Functions at Start of Script

The following default functions can be included at the start of a script, to exclude unnecessary files when you zip a script folder for uploading to the Central Repository Service in BSM:

```
web_add_auto_header("Accept-Encoding","gzip, deflate");
```

Tip: Although the excluded files are not necessary for running a script, you may require them for reference and analysis at a later stage. In such a case, do not include these default functions at the start of the script.

Recommended VuGen Script Recording Techniques

Use the following recommendations when recording scripts with VuGen for use in HP Business Service Management. For more information about recording-related terminology, see the HP Virtual User Generator documentation.

- While recording, insert transaction markers to mark the start and end of the specific business processes for which you want HP Business Service Management to collect data. For example, you might record a transaction file that includes navigating to the home page of a Web site, performing a user login, performing a search, and viewing the search results. You could break this script into two separate transactions—login and search. During recording, you would insert start and end transaction markers before and after each separate activity. HP Business Service Management would then track response time and availability data separately for each marked transaction in the transaction file. Note that you can also record a number of business process steps, and then after recording, manually insert transaction markers into the script.
- Record small transactions that contains just one logic step (for example, logging in, accessing a home page, performing a search, and so forth). This will improve the ability to later pinpoint and resolve problems.
- Record transactions that monitor specific components in your application architecture (for example, accessing the home page to monitor the Web server, performing a search to monitor the database server, and so forth).
- Ensure that each step of a script is contained within a transaction. By design, VuGen reports data only for those user steps in a script that are contained within a VuGen transaction. If a step is not contained within a transaction and the script fails at that point, the failure is not reported to BSM and no alerts are sent.

- Always use correlation and fail the transaction if correlation fails.
- When recording Web-based transactions, include a web_reg_find check inside a transaction to verify that you receive the correct Web page. Ensure that you place the check statement between the start and end transaction statements.
- If you are interested in monitoring performance dependency, you can nest transactions one inside another.
- To get an overall picture of business process performance, while at the same time tracking the performance of individual steps within the business process, create a main transaction inside which you mark sub-transactions.

  For example, say you want to monitor the business process of ordering a book in a Web-based application. You could create one main transaction that involves all the steps: accessing the home page, logging in, performing a search, submitting the order. Within this transaction you could mark sub-transactions that monitor each individual step in the process.

  You monitor the sub-transactions to track the performance of the business process components (which might access different server machines in the application architecture); you monitor the overall transaction to get a clear picture of the performance of the complete business process, which is often useful for reporting, comparing to a competitor's application, and so forth.
- Add comments to your script to achieve good maintainability.
- Work with your application team to ensure that:
  - monitoring goals are being achieved.
  - any changes to the application are communicated to the script writer so that the script can be updated.
  - deployment of the updated scripts is coordinated with deployment of application upgrades.
- To encrypt a default parameter value in VuGen, first of all encrypt the value using the VuGen Script Editor and then paste the encrypted value into the **Parameters List** dialog box.

➤ You must zip the script folder before uploading to the Central Repository Service in BSM.

Business Process Monitor Administration User Interface

This section includes (in alphabetical order):

- Set Transaction Breakdown Dialog Box on page 243
- Single Transaction Script Dialog Box on page 244
- Unique Data Collector Values Dialog Box on page 251
- Update Version Wizard on page 252
- WebTrace Dialog Box on page 257

Add Business Transaction Flow Dialog Box

This dialog box enables you to add a business transaction flow for an application.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click an application and select **Add** > **Business Transaction Flow.**
Important information	➤ You can only create a business transaction flow in this dialog box and cannot configure it. You configure the flow after you have created it in the Business Transaction Flow Properties and Data Collectors pages. For user interface details, see "Business Transaction Flow Properties Page" on page 210 and "Business Transaction Flow Data Collectors Page" on page 208. ➤ You can also use the Business Transaction Flow Configuration wizard to create and configure a new flow. For user interface details, see "Business Transaction Flow Configuration Wizard" on page 207.

User interface elements are described below:

UI Element (A-Z)	Description
Description	The business transaction flow description.
Name	The business transaction flow name. **Syntax exceptions:** Cannot exceed 900 characters.

Add Data Collectors Dialog Box

This dialog box enables you to add data collectors to run transaction monitor scripts included in BPM applications and business transaction flows.

To access	Use one of the following: Select **Admin** > **End User Management** > **Monitoring** tab and click the **Add Data Collectors** button in the: ➤ Business Transaction Flow Properties page > Scripts pane > Add Scripts wizard > Assign Data Collectors page ➤ Business Transaction Flow Properties page > Scripts pane > Edit Script Settings dialog box > Assigned Data Collectors tab ➤ Business Transaction Flow Properties page > WebTraces pane > New WebTrace dialog box ➤ Business Transaction Flow Properties page > WebTraces pane > Edit WebTrace Settings dialog box ➤ Business Transaction Flow Properties page > Single Transaction Scripts pane > New Single Transaction Script dialog box > Assigned Data Collectors tab ➤ Business Transaction Flow Properties page > Single Transaction Scripts pane > Edit Single Transaction Script dialog box > Assigned Data Collectors tab ➤ Business Process Monitor Application Properties page > WebTraces pane > New WebTrace dialog box ➤ Business Process Monitor Application Properties page > WebTraces pane > Edit WebTrace Settings dialog box
Important information	Select a single data collector by clicking a row in the list, or use the Shift or CTRL key to select several data collectors.

User interface elements are described below:

UI Element (A-Z)	Description
	**Move to Selected Data Collectors.** Moves selected data collectors from the Available Data Collectors pane to the Selected Data Collectors pane.
	**Move all to Selected Data Collectors.** Moves all data collectors from the Available Data Collectors pane to the Selected Data Collectors pane.
	**Move to Available Data Collectors.** Moves selected data collectors from the Selected Data Collectors pane to the Available Data Collectors pane.
	**Move all to Available Data Collectors.** Moves all data collectors from the Selected Data Collectors pane to the Available Data Collectors pane.
Available Data Collectors	The left pane on the page lists the available data collectors that you can select for the application.
Host	Displays the host name of the data collector.
Location	Displays the location of the data collector.
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.

UI Element (A-Z)	Description
Selected Data Collectors	The right pane on the page lists the selected data collectors for the application.
Source	Displays an icon that shows how the data collector obtains its configuration. The possible icons are: ➤ **Configured locally.** The data collector is assigned to the business transaction flow only. ➤ **Inherits parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow and the same settings are used for both. ➤ **Configured locally but can inherit parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow, but its settings have been changed for the business transaction flow. **Tooltip:** A tooltip explains the meaning of the icon. **Note:** This element is visible only when adding data collectors to business transaction flows.

Add Data Collectors Wizard

This wizard enables you to add data collectors to run transaction monitor scripts included in a BPM application or business transaction flow, and to assign which transaction monitor scripts to run on those data collectors. It also enables you to add data collectors to multiple applications, business transaction flows, and transaction monitor scripts as part of a bulk operation.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select a BPM application or a business transaction flow. In the Content pane, select **Business Process Monitor** tab > **Data Collectors** and click the **Add Data Collectors** button. ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select the **Search** tab. Perform a search (for applications, business transaction flows, or script monitors) and in the **Search Results** pane, select the entities you want to update, click the **Bulk Operations** button and select **Add BPM Data Collectors** from the Shortcut menu. ➤ Select **Admin** > **End User Management** > **Script Repository** tab. In the **Folder Content** pane, select a script that is in use and click the **Script Search Assignment** button. In the **Search Results** dialog box, select the scripts you want to update, click the **Bulk Operations** button and select **Add BPM Data Collectors** from the Shortcut menu. ➤ Select **Admin** > **End User Management** > **Settings** tab > **Business Process Monitor Settings** > **BPM Agents**. Select data collectors from the list and click the **Search for Monitored Business Transaction Flows** button. In the **Search Results** dialog box, select the business transaction flows you want to update, click the **Bulk Operations** button and select **Add BPM Data Collectors** from the Shortcut menu.

Wizard map (adding data collectors to an individual application or business transaction flow)	This wizard contains: Select Data Collectors Page > Assign Monitors Page (for business transaction flows) > Assign Business Transaction Flows Page (for applications) > Assign Data Collectors Page
Wizard map (adding data collectors as a bulk operation)	This wizard contains: Select Data Collectors Page > Change Data Collector Settings Page > Override Data Collectors Page > Summary Page

Select Data Collectors Page

This wizard page enables you to assign the data collector instances on which to run the transaction monitors of the application or business transaction flow.

Important Information	General information about this wizard is available here: "Add Data Collectors Wizard" on page 140.
Wizard map (adding data collectors to an individual application or business transaction flow)	The Add Data Collectors Wizard contains: **Select Data Collectors Page** > Assign Monitors Page (for business transaction flows) > Assign Business Transaction Flows Page (for applications) > Assign Data Collectors Page
Wizard map (adding data collectors as a bulk operation)	The Add Data Collectors Wizard contains: **Select Data Collectors Page** > Change Data Collector Settings Page > Override Data Collectors Page > Summary Page

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Select.** Moves selected data collectors from the Available Data Collectors pane to the Selected Data Collectors pane.
	**Select All.** Moves all data collectors from the Available Data Collectors pane to the Selected Data Collectors pane.
	**Deselect.** Moves selected data collectors from the Selected Data Collectors pane to the Available Data Collectors pane.
	**Deselect All.** Moves all data collectors from the Selected Data Collectors pane to the Available Data Collectors pane.
<Custom attributes>	Displays custom attributes configured for the data collector. You can configure up to five different custom attributes for data collectors. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Available Data Collectors	The left pane on the page lists the available data collectors that you can select for the application or business transaction flow.
Host	Displays the host name of the data collector.
Location	Displays the location of the data collector.
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.
Selected <entities>	Click the **Selected <entities>** link to open a window in which the selected <entities> to which you are adding data collectors are displayed.

UI Element (A-Z)	Description
Selected Data Collectors	The right pane on the page lists the selected data collectors for the application or business transaction flow.
Source	Displays an icon that shows how the data collector obtains its configuration. The possible icons are: ➤ **Configured locally.** The data collector is assigned to the business transaction flow only. ➤ **Inherits parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow and the same settings are used for both. ➤ **Configured locally but can inherit parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow, but its settings have been changed for the business transaction flow. You use the **Restore Application Data Collectors** button to restore the parent application's data collector settings and override any locally configured settings. **Tooltip:** A tooltip explains the meaning of the icon. **Note:** ➤ This element is visible only when adding data collectors to business transaction flows. ➤ This element is not visible for bulk operations.

Assign Monitors Page

This wizard page enables you to assign the transaction monitor scripts to run on the data collectors.

Important information	➤ General information about this wizard is available here: "Add Data Collectors Wizard" on page 140. ➤ This page is included in the Add Data Collectors wizard only when the wizard is accessed from the **Business Transaction Flow Data Collectors** page.
Wizard map	The Add Data Collectors Wizard contains: Select Data Collectors Page > **Assign Monitors Page** > Assign Data Collectors Page

User interface elements are described below:

UI Element (A-Z)	Description
	**Select.** Moves selected monitors from the Available Monitors pane to the Selected Monitors pane.
	**Select All.** Moves all monitors from the Available Monitors pane to the Selected Monitors pane.
	**Deselect.** Moves selected monitors from the Selected Monitors pane to the Available Monitors pane.
	**Deselect All.** Moves all monitors from the Selected Monitors pane to the Available Monitors pane.
Available Monitors	The left pane on the page lists the available monitors that you can select for the business transaction flow.
Name	The monitor name.
Selected Monitors	The right pane on the page lists the selected monitors for the business transaction flow.

UI Element (A-Z)	Description
Source	The monitor source. That is, the entity monitored by the monitor. Valid sources are: ➤ Transaction ➤ WebTrace ➤ Single Transaction Monitor
Transactions	The names of the transactions included in the script. **Note:** This element is only populated for monitors whose source is Transaction.

Assign Business Transaction Flows Page

This wizard page enables you to assign the application's business transaction flows to be run by the data collectors.

Important information	This page is included in the Add Data Collectors wizard only when the wizard is accessed from the **Business Process Monitor Application Data Collectors** page.
Wizard map	The Add Data Collectors Wizard contains: Select Data Collectors Page > **Assign Business Transaction Flows Page** > Assign Data Collectors Page

User interface elements are described below:

UI Element (A-Z)	Description
	**Select.** Moves selected monitors from the Available Monitors pane to the Selected Monitors pane.
	**Select All.** Moves all monitors from the Available Monitors pane to the Selected Monitors pane.
	**Deselect.** Moves selected monitors from the Selected Monitors pane to the Available Monitors pane.
	**Deselect All.** Moves all monitors from the Selected Monitors pane to the Available Monitors pane.

UI Element (A-Z)	Description
Available Business Transaction Flows	The left pane on the page lists the available business transaction flows that you can select for the application.
Name	The business transaction flow name.
Selected Business Transaction Flows	The right pane on the page lists the selected business transaction flows for the application.
Source	The monitor source. That is, the entity monitored by the monitor.

Assign Data Collectors Page

This wizard page enables you to view details of the data collectors selected for the business transaction flows and edit their schedules and advanced settings.

Important Information	General information about this wizard is available here: "Add Data Collectors Wizard" on page 140.
Wizard map	The Add Data Collectors Wizard contains: Select Data Collectors Page > Assign Monitors Page (for business transaction flows) > Assign Business Transaction Flows Page (for applications) > **Assign Data Collectors Page**

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Edit Data Collector Settings.** Opens the Edit Data Collector Settings dialog box, where you configure schedules and advanced settings for the data collectors assigned to an application or business transaction flow. For user interface details, see "Edit Data Collector Settings Dialog Box" on page 219.
	**Restore Application Data Collectors.** Restores the application's data collector settings for selected data collectors. This overrides any locally configured settings for the selected data collectors in the business transaction flow. **Note:** This button is enabled only when data collectors that are assigned to both the business transaction flow and its parent application are selected.
<Custom attributes>	Displays custom attributes configured for the data collector. You can configure up to five different custom attributes for data collectors. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Assigned Monitors	Lists all the business transaction flow's monitors currently scheduled to run on the data collector host location. By default, all monitors are assigned to run on all off the business transaction flow's assigned data collectors.
Host	Displays the host alias of the data collector instance as defined on the data collector machine.
Location	Displays the location of the data collector instance as defined on the data collector machine.
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.

UI Element (A-Z)	Description
Schedules	Displays the schedule configured for the business transaction flow's monitors to run on the selected data collector.
Source	Displays an icon that shows how the data collector obtains its configuration. The possible icons are: ➤ **Configured locally.** The data collector is assigned to the business transaction flow only. ➤ **Inherits parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow and the same settings are used for both. ➤ **Configured locally but can inherit parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow, but its settings have been changed for the business transaction flow. You use the **Restore Application Data Collectors** button to restore the parent application's data collector settings and override any locally configured settings. **Tooltip:** A tooltip explains the meaning of the icon.
Version	Displays the version of the data collector software installed on the data collector machine.

Change Data Collector Settings Page

This wizard page enables you to view details of the data collectors selected for the entity you are updating, and edit their schedules and advanced settings.

Important Information	General information about this wizard is available here: "Add Data Collectors Wizard" on page 140.
Wizard map	The Add Data Collectors Wizard contains: Select Data Collectors Page > **Change Data Collector Settings Page** > Override Data Collectors Page > Summary Page

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Edit Data Collector Settings.** Opens the Edit Data Collector Settings dialog box, where you configure schedules and advanced settings for the data collectors assigned to the entity. For user interface details, see "Edit Data Collector Settings Dialog Box" on page 219. **Note:** Only the Schedules and Advanced Settings tabs in the Edit Data Collector Settings dialog box are available.
Host	Displays the host name of the data collector.
Location	Displays the location of the data collector.
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.
Schedules	Displays the schedules configured for the entity's monitors to run on the selected data collector.
Version	Displays the version of the data collector software installed on the data collector machine.

Override Data Collectors Page

This wizard page enables you to select whether the selected data collectors and schedules override an entity's previously assigned data collectors and schedules, or only apply to new data collectors added to the entity.

Important Information	General information about this wizard is available here: "Add Data Collectors Wizard" on page 140.
Wizard map	The Add Data Collectors Wizard contains: Select Data Collectors Page > Change Data Collector Settings Page > **Override Data Collectors Page** > Summary Page

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
Assign data collectors only when not assigned...	Select this radio button to assign only new data collectors and their schedules to an entity.
Override existing data collectors and schedules...	Select this radio button to override an entity's existing data collectors and schedules.

Summary Page

This wizard page displays a summary of the updates made by the wizard.

Important Information	General information about this wizard is available here: "Add Data Collectors Wizard" on page 140.
Wizard map	The Add Data Collectors Wizard contains: Select Data Collectors Page > Change Data Collector Settings Page > Override Data Collectors Page > **Summary Page**

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Entity> name	The name of the updated entity.
Status	The number of data collectors assigned to the entity by the wizard.

Add Scripts Wizard

This wizard enables you to assign scripts to a business transaction flow, set transaction thresholds for the transactions included in the scripts, assign BPM data collectors to run the scripts, and configure script parameter values.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select a business transaction flow. In the Content pane, select **Business Process Monitor** tab > **Properties**, and in the **Scripts** pane click the **Add Script** button.
Wizard map	This wizard contains: Add Scripts Page > Define Transaction Thresholds Page > Assign Data Collectors Page > Define Script Parameters Page

Add Scripts Page

This wizard page enables you to select scripts from the Script Repository and add them to a business transaction flow.

Important information	General information about this wizard is available here: "Add Scripts Wizard" on page 151.
Wizard map	The Add Scripts Wizard contains: **Add Scripts Page** > Define Transaction Thresholds Page > Assign Data Collectors Page> Define Script Parameters Page

<General Settings>

User interface elements are described below:

UI Element (A-Z)	Description
	**Move to Selected Scripts.** Moves selected scripts from the Available Scripts pane to the Selected Scripts pane.
	**Move selected item with children to Selected Scripts.** Moves all the scripts in the selected folder from the Available Scripts pane to the Selected Scripts pane.
	**Move to Available Scripts.** Moves selected scripts from the Selected Scripts pane to the Available Scripts pane.
	**Move all to Available Scripts.** Moves all scripts from the Selected Scripts pane to the Available Scripts pane.
Script Repository	Click the **Script Repository** link to open the Script Repository page in a new window, where you manage scripts in the Script Repository. For user interface details, see "Script Repository Page" on page 478.

Available Scripts Pane

User interface elements are described below:

UI Element (A-Z)	Description
Browse Tab	**<Script Repository tree>.** The browse tab displays a tree of the folders and scripts in the Script Repository. Click the plus sign (+) next to an object in the tree to expand it and display its children. Click the minus sign (-) next to an open object in the tree to close it and hide its children. Click a script in the tree to select it for moving to the Selected Scripts pane. **Note to HP Software-as-a-Service customers:** Only scripts that have been verified (that is, scripts with a verification status of **Verified** or **Verified without sandbox**) are displayed in the tree and can be added to the business transaction flow.
	Add Script. Opens the Add Script dialog box, where you can upload new scripts to a selected folder in the Script Repository. For user interface details, see "Script Repository Page" on page 478.

UI Element (A-Z)	Description
Search Tab	**Look in.** **Entire Script Repository.** Select this radio button to search for a given string in the entire Script Repository. **<Specific directory>.** Select this radio button to configure a specific directory in which to search for a given string. Click the **Browse** button to open the Browse Tree dialog box, where you search for and select a directory in the Script Repository.
	Script name. Enter the string to search for. When the search is run, any script in the specified location whose name contains this string is included in the search results.
	Search. Click the Search button to run the configured search.
	Clear. Click the Clear button to clear the search settings.
	Search Results. All scripts in the specified location whose name contains the configured string are included in the search results. For each script located, the following information is displayed: ➤ **Name.** The name of the selected script. ➤ **Version.** The version of the selected script. ➤ **Script Repository Path.** The path of the selected script in the Script Repository. Click a script in the Search Results list to select it for moving to the Selected Scripts pane.

Selected Scripts Pane

User interface elements are described below:

UI Element (A-Z)	Description
	**Up.** Moves a selected script higher in the order of selected scripts. This determines the order of the scripts in the business transaction flow.
	**Down.** Moves a selected script lower in the order of selected scripts. This determines the order of the scripts in the business transaction flow.
	**Select Version.** Opens the Select Version dialog box, where you can select which version of a selected script to use. By default, the most current version of the script is used.
	**Set Transaction Breakdown.** Opens the Select Transaction Breakdown dialog box, where you configure the transaction breakdown settings for a selected script. For user interface details, see "Set Transaction Breakdown Dialog Box" on page 243.
Name	Displays the name of the selected script.
Script Repository Path	Displays the path of the selected script in the Script Repository.
Version	Displays the version of the selected script.

Define Transaction Thresholds Page

This wizard page lists the transactions included in the scripts you add to the business transaction flow and enables you to set transaction thresholds for them.

Important information	➤ General information about this wizard is available here: "Add Scripts Wizard" on page 151. ➤ Select a single transaction by clicking a row in the transaction list and enter thresholds directly in the row. Use the Shift or CTRL key to select several transactions and click the **Edit Thresholds** button to open the Edit Thresholds dialog box, where you configure thresholds for all the selected transactions.
Wizard map	The Add Scripts Wizard contains: Add Scripts Page > **Define Transaction Thresholds Page** > Assign Data Collectors Page> Define Script Parameters Page

User interface elements are described below:

UI Element (A-Z)	Description
	Edit Thresholds. Opens the Edit Thresholds dialog box, where you configure transaction thresholds for multiple transactions. For user interface details, see "Edit Thresholds Dialog Box" on page 234.
Availability	The availability threshold percentage for the transaction.
Critical	The response time threshold above which the transaction's status is Critical. **Note:** The default color for critical transactions in Service Health and reports is red.

UI Element (A-Z)	Description
Minor	The response time thresholds between which the transaction's status is Minor. **Note:** ➤ The default color for Minor transactions in Service Health and reports is yellow. ➤ The Minor transaction threshold is automatically set to the range between the **OK** and **Critical** thresholds that you configure for the transaction.
OK	The response time threshold below which the transaction's status is OK. **Note:** The default color for OK transactions in Service Health and reports is green.
Outlier	The response time threshold above which the transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. **Note:** You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. For user interface details, see "Default Transaction Thresholds" on page 167.
Scripts	The transaction monitor script in which the transaction is included.
Transaction Name	The transaction name.

Assign Data Collectors Page

This wizard page enables you to assign BPM data collectors to run the scripts included in the business transaction flow.

Important information	General information about this wizard is available here: "Add Scripts Wizard" on page 151.
Wizard map	The Add Scripts Wizard contains: Add Scripts Page > Define Transaction Thresholds Page > **Assign Data Collectors Page** > Define Script Parameters Page

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Add Data Collectors.** Opens the Add Data Collectors dialog box, where you select the data collectors you want to add to the business transaction flow. For user interface details, see "Add Data Collectors Dialog Box" on page 137.
	**Edit Data Collector Settings.** Opens the Edit Data Collector Settings dialog box, where you configure the schedule and advanced settings for selected data collectors for the business transaction flow. For user interface details, see "Edit Data Collector Settings Dialog Box" on page 219.
	**Restore Application Data Collectors.** Restores the application's data collector settings for selected data collectors. This overrides any locally configured settings for the selected data collectors in the business transaction flow. **Note:** This button is enabled only when data collectors that are assigned to both the business transaction flow and its parent application are selected.
	**Remove Data Collectors.** Removes selected data collectors from the business transaction flow.
<Custom attributes>	Displays custom attributes configured for the data collector. You can configure up to five different custom attributes for data collectors. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Assigned Monitors	Displays the monitor scripts assigned to run on the data collector.
Host	Displays the host alias of the data collector instance as defined on the data collector machine.
Location	Displays the location of the data collector instance as defined on the data collector machine.

UI Element (A-Z)	Description
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.
Schedules	Displays the schedule configured for the data collector.
Source	Displays an icon that shows how the data collector obtains its configuration. The possible icons are: ➤ **Configured locally.** The data collector is assigned to the business transaction flow only. ➤ **Inherits parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow and the same settings are used for both. ➤ **Configured locally but can inherit parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow, but its settings have been changed for the business transaction flow. You use the **Restore Application Data Collectors** button to restore the parent application's data collector settings and override any locally configured settings. **Tooltip:** A tooltip explains the meaning of the icon.
Version	Displays the version of the data collector software installed on the data collector machine.

Define Script Parameters Page

This wizard page enables you to assign a value to a parameter used by a script included in a business transaction flow, that is different than the default parameter value. It also enables you to set a value for a parameter for a specific data collector assigned to run the script.

Important information	➤ General information about this wizard is available here: "Add Scripts Wizard" on page 151. ➤ If none of the selected scripts contain parameters, this wizard page is not displayed.
Wizard map	The Add Scripts Wizard contains: Add Scripts Page > Define Transaction Thresholds Page > Assign Data Collectors Page > **Define Script Parameters Page**
See also	"Script Parameter Management Overview" on page 112

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Edit Script Parameter.** Opens the Edit Script Parameter dialog box, where you can edit the value, description and expiration date for a selected parameter. For user interface details, see "Edit Script Parameter Dialog Box" on page 225. **Note:** This button is disabled for parameters containing multiple values.
	**View Unique Data Collector Values.** Opens the Unique Data Collector Values dialog box, where you can view the parameter's settings for each data collector and set specific values by data collector. For user interface details, see "Unique Data Collector Values Dialog Box" on page 251. **Note:** This button is disabled for parameters containing multiple values.

UI Element (A-Z)	Description
	**Restore Script Parameter Value.** Restores the original script parameter value. **Note:** This button is disabled for parameters containing multiple values.
Description	A free text description for the parameter. **Note:** You can edit the description by clicking the relevant cell in the table.
Expiration Date	An expiration date for the parameter value. You can configure expiration dates for parameter values to help you manage parameters with frequently changing values, such as passwords. The expiration date is an indication of when you want to change a parameter's value. **Note:** You can edit the expiration date by clicking the arrow in the relevant table cell. A calendar opens from which you can select a date.
Name	The parameter name.
Script Name	The name of the script in which the parameter is used.
Unique Data Collector Values	A list of the BPMs for which different values of the parameter are configured. You can view the data collectors and the parameter values configured for them by clicking the **View Unique Data Collector Values**  button.
Value	The parameter value. **Note:** ➤ For parameters marked sensitive, the value is not displayed and a row of black dots, indicating the number of characters in the value, is displayed instead. ➤ For parameters containing multiple values, the value is not displayed and the message [Multiple Values] is displayed instead.

Business Process Monitor Application Configuration Wizard

This wizard enables you to create a new application and its BPM configuration in EUM Administration, or to add a BPM configuration to an existing application (for example, to an existing Real User Monitor (RUM) application that does not yet have a BPM configuration).

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click the root object of the view and click **Add** > **Application and its BPM Configuration**. ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click an existing application that is not configured for BPM and click **Add** > **BPM Configuration**.
Wizard map	This wizard contains: Application Properties Page > Default Transaction Settings Page > Set Transaction Monitor Scripts Page > Application Data Collectors Page > Set Transaction Thresholds Page > Define Script Parameter Values Page > Preview Page > Finish Page
Relevant tasks	"How to Set up Business Process Monitors" on page 114

Application Properties Page

This wizard page enables you to configure the CI and BPM properties for a new Business Process application.

Important information	General information about this wizard is available here: "Business Process Monitor Application Configuration Wizard" on page 162.
Wizard map	The Business Process Monitor Application Configuration Wizard contains: **Application Properties Page** > Default Transaction Settings Page > Set Transaction Monitor Scripts Page > Application Data Collectors Page > Set Transaction Thresholds Page > Define Script Parameter Values Page > Preview Page > Finish Page

CI Properties Pane

Important information	When you are adding a BPM configuration to an existing application, the fields in the CI Properties pane are disabled and display existing information only.

User interface elements are described below:

UI Element (A-Z)	Description
Description	Enter a description for the application CI.
Name	The application CI name. **Note:** ➤ When you create a new application, this field is mandatory. ➤ When you add a BPM configuration to an existing application, the existing application CI name is displayed and cannot be edited. **Syntax exceptions:** ➤ Cannot exceed 900 characters. ➤ Names that include characters not supported by the Windows file system are not supported in BPM.
Type	Displays the CI type that is created for the application. **Default value:** Application

Business Process Monitor Properties Pane

User interface elements are described below:

UI Element (A-Z)	Description
Assign Application 360 license	Select this check box to assign an APM 360 with SLM license to the application. **Note:** This element is displayed for HP Software-as-a-Service customers, or when an APM 360 with SLM license is the only available license in the system.
License type	Select a BPM license to assign to the application. Click the license to open a list of licenses that you can assign to the application. For concept details, see "End User Management Licenses Overview" on page 492. **Note:** ➤ Even if you have a valid 360 license, it does not appear as an option if you do not have change permissions for both Real User Monitor and BPM configurations. ➤ If you assign or unassign a 360 license to a BPM application that is also configured for RUM, the 360 license is also automatically assigned to, or unassigned from, the RUM application. **Note to HP Software-as-a-Service customers:** This element is not displayed.
Profile database	Select a profile database for storing this application's BPM information. The list includes all the profile databases defined for this BSM installation. For details on configuring profile databases in BSM, see "Database Administration" in *Platform Administration*. **Default value:** The default profile database configured for BSM. **Note to HP Software-as-a-Service customers:** This element is not displayed.

UI Element (A-Z)	Description
Status	Select the relevant radio button to configure whether the application is active. **Default value:** Active **Note:** The status of the application overrides the status of its business transaction flows. This means that if the application is inactive, its business transaction flows are also inactive, regardless of their status setting.
Time zone	Select a **GMT offset**—the time zone, in relation to GMT, that BSM uses to determine when daily aggregation should occur for data collected by this application. **Tip:** The time zone should be set to match the time zone in which the BSM servers and database machine are located. **Example:** If you want BSM to aggregate data collected by the application based on Pacific Time, enter -8, since Pacific Time is GMT-8 hours.

Default Transaction Settings Page

This wizard page enables you to configure the default transaction threshold and breakdown settings that are assigned to all transactions included in the application's business transaction flows.

Important information	General information about this wizard is available here: "Business Process Monitor Application Configuration Wizard" on page 162.
Wizard map	The Business Process Monitor Application Configuration Wizard contains: Application Properties Page > **Default Transaction Settings Page** > Set Transaction Monitor Scripts Page > Application Data Collectors Page > Set Transaction Thresholds Page > Define Script Parameter Values Page > Preview Page > Finish Page

Default Transaction Thresholds

This area enables you to set the transaction response times, which are used to indicate transaction performance status by creating performance boundaries. There are three transaction threshold ranges—OK, Minor, and Critical—which are color-coded when used in the reports that display transaction performance data and in Service Health. The color-coding enables quick pinpointing of problem areas that need further analysis.

You can also configure how BSM treats outlier values. Outliers are transactions whose response time exceeds a defined time range.

Important information	➤ When setting transaction thresholds, you should take into account factors such as application performance under ideal conditions, competitors' performance, generally accepted performance standards, service level agreements, and end-user feedback. ➤ You should consider the alert trigger criteria you specify in your alert schemes. For example, if you set up an alert scheme to trigger a high priority alert whenever the response time of a transaction is greater than 15 seconds, you may want to set the Poor range for that transaction to 15 seconds or more.

User interface elements are described below:

UI Element (A-Z)	Description
Availability	Enter the default availability threshold percentage for transactions.
Critical	Enter the response time threshold above which a transaction's status is Critical. **Default value:** 12 seconds **Note:** The default color for critical transactions in Service Health and reports is red.
Ignore outlier values	Select this check box to instruct BSM to ignore outlier transactions (and not include the data in Service Health or in reports).

UI Element (A-Z)	Description
Minor	Displays the response time thresholds between which a transaction's status is Minor. **Default value:** 8–12 seconds **Note:** ➤ The default color for Minor transactions in Service Health and reports is yellow. ➤ The Minor transaction thresholds are automatically set to the range between the **OK** and **Critical** thresholds that you configure for a transaction.
OK	Enter the response time threshold below which a transaction's status is OK. **Default value:** 8 seconds **Note:** The default color for OK transactions in Service Health and reports is green.
Outlier	Enter the response time threshold above which a transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. **Default value:** 45 seconds **Note:** By selecting or clearing the Ignore outlier data for reports check box, you can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. If you selected to ignore outlier values, any transaction that takes longer than this value to complete is ignored in Service Health and in reports. If you did not select to ignore outlier values and if the transaction response time is greater than this value, its status is **Failed**.

Default Transaction Breakdown

User interface elements are described below:

UI Element (A-Z)	Description
Enable breakdown	Select the **Enable breakdown** check box to generate transaction breakdown data when running the selected Web or TCP monitor. For details on the transaction breakdown reports, see "Understanding Transaction Breakdown in Reports" on page 686.
Enable Diagnostics /TV breakdown	Select **Enable Diagnostics/TV** breakdown to see J2EE and .Net data. This data is available in HP Diagnostics and Transaction Management reports only if you have valid HP Diagnostics and Transaction Management licenses. For details, see the *HP Diagnostics Installation and Configuration Guide* and the *HP TransactionVision Deployment Guide* PDF.
Enable Siebel breakdown	Select the **Enable Siebel breakdown** check box to see Siebel Application Response Measurement (SARM) data in Application Management for Siebel.
Enable SOA breakdown	Select the **Enable SOA breakdown** check box to see SOA data in Application Management for SOA. For details on incorporating SOA data from BPM in Application Management for SOA, see "Enrich the SOA Model From Scripts" in *Solutions and Integrations*. For details on enabling SOA breakdown in BPM, see "Enabling SOA Transaction Breakdown" on page 110. **Default value:** Enabled

UI Element (A-Z)	Description
Perform component breakdown	Select the **Perform component breakdown** check box to save complete component (page components for Web based protocols and TCP components (requests) for non-Web based protocols) breakdown data for a sampling of transaction instances By default, BSM saves component breakdown data to the database once per every four transaction instances. **Note:** You can only select this check box if you have enabled breakdown.
Report additional error information	Select the **Report additional error information** check box to include date, time, location, and error messages for failed transactions in applicable EUM reports. If this option is disabled, BSM reports only average error times. Disabling this option decreases the amount of data that is sent from the BPMs running the transaction breakdown to the Gateway Server and profile database. For details on the Error Log, see "Error Log" on page 886. **Note:** You can only select this check box if you have enabled breakdown.

Set Transaction Monitor Scripts Page

This wizard page enables you to assign transaction monitor scripts to be run by BPM for the application or business transaction flow.

Important information	➤ General information about the Business Process Monitor Application Configuration wizard is available here: "Business Process Monitor Application Configuration Wizard" on page 162. ➤ General information about the Business Transaction Flow Configuration wizard is available here: "Business Transaction Flow Configuration Wizard" on page 207. ➤ The Set Transaction Monitor Scripts page is included in both the Business Process Monitor Application Configuration Wizard and the Business Transaction Flow Configuration Wizard. ➤ Select a single script by clicking a row in the Available Scripts or Selected Scripts panes. Use the Shift or CTRL key to select several scripts.
Wizard map—Business Process Monitor Application Configuration Wizard	The Business Process Monitor Application Configuration Wizard contains: Application Properties Page > Default Transaction Settings Page > **Set Transaction Monitor Scripts Page** > Application Data Collectors Page > Set Transaction Thresholds Page > Define Script Parameter Values Page > Preview Page > Finish Page
Wizard map—Business Transaction Flow Configuration Wizard	The Business Transaction Flow Configuration Wizard contains: **Set Transaction Monitor Scripts Page** > Assign Data Collectors Page > Set Transaction Thresholds Page > Define Script Parameter Values Page > Preview Page > Finish Page

<General Settings>

User interface elements are described below:

UI Element (A-Z)	Description
	**Move to Selected Scripts.** Moves selected scripts from the Available Scripts pane to the Selected Scripts pane.
	**Move selected item with children to Selected Scripts.** Moves selected scripts and their children from the Available Scripts pane to the Selected Scripts pane.
	**Move to Available Scripts.** Moves selected scripts from the Selected Scripts pane to the Available Scripts pane.
	**Move all to Available Scripts.** Moves all scripts from the Selected Scripts pane to the Available Scripts pane.
Business Transaction Flows status	Select the appropriate radio button to set the business transaction flows CI status as active or inactive. **Default value:** Active **Note:** The status of the business transaction flow is overridden by the status of its parent application. This means that if the application is inactive, the business transaction flow is also inactive, regardless of this setting.
Create a business transaction flow CI for each script	Select this radio button to generate a separate business transaction flow CI for each transaction monitor script configured. **Default value:** Selected **Note:** This element is not visible when you are adding the BPM configuration for an existing business transaction flow.

UI Element (A-Z)	Description
Group all scripts under one business transaction flow CI named	Select this radio button to generate only one business transaction flow CI for all of the transaction monitor scripts configured, and enter a name for the business transaction flow CI. **Note:** This element is not visible when you are adding the BPM configuration for an existing business transaction flow. **Syntax exceptions:** Names that include characters not supported by the Windows file system are not supported in BPM.
Preview	Click the **Preview** button to open a new window in which you can see the business transaction flow and transaction hierarchy that will be created based on your choice of creating one business transaction flow CI for all the transaction monitor scripts, or creating a separate business transaction flow CI for each of the transaction monitor scripts.
Script Repository	Click the **Script Repository** link to open the Script Repository page in a new window, where you manage scripts in the Script Repository. For user interface details, see "Script Repository Page" on page 478.

Available Scripts Pane

User interface elements are described below:

UI Element (A-Z)	Description
Browse Tab	**<Script Repository tree>.** The browse tab displays a tree of the scripts in the Script Repository. Click the plus sign (+) next to an object in the tree to expand it and display its children. Click the minus sign (-) next to an open object in the tree to close it and hide its children. Click a script in the tree to select it for moving to the Selected Scripts pane. **Tooltip:** Hold the cursor over a script in the tree to display its full name, description, creation date, and last modification date.
	Add Script. Opens the Add Script dialog box, where you can upload new scripts to the Script Repository. For user interface details, see "Add Script Dialog Box" on page 466.

UI Element (A-Z)	Description
Search Tab	**Look in.** **Entire Script Repository.** Select this radio button to search for a given string in the entire Script Repository. **<Specific directory>.** Select this radio button to configure a specific directory in which to search for a given string. Click the **Browse** button to open the Browse Tree dialog box, where you view and select a Script Repository directory.
	Script name. Enter the string to search for. When the search is run, any script in the specified location whose name contains this string is included in the search results.
	Search. Click the Search button to run the configured search.
	Clear. Click the Clear button to clear the search settings.
	Search Results. All scripts in the specified location whose name contains the configured string are included in the search results. For each script located, the following information is displayed: ➤ **Name.** The name of the selected script. ➤ **Version.** The version number of the selected script. ➤ **Script Repository Path.** The path of the selected script in the Script Repository. Click a script in the Search Results list to select it for moving to the Selected Scripts pane.

Selected Scripts Pane

User interface elements are described below:

UI Element (A-Z)	Description
	**Up.** Moves a selected script higher in the order of selected scripts.
	**Down.** Moves a selected script lower in the order of selected scripts.
	**Select Version.** Opens the Select Version dialog box, where you can select which version of a selected script to use. By default, the most current version of the script is used.
	**Set Transaction Breakdown.** Opens the Select Transaction Breakdown dialog box, where you configure the transaction breakdown settings for a selected script. For user interface details, see "Set Transaction Breakdown Dialog Box" on page 243.
Name	Displays the name of the selected script.
Script Repository Path	Displays the path of the selected script in the Script Repository.
Version	Displays the version number of the selected script.

Application Data Collectors Page

This wizard page enables you to configure the default data collectors and their settings, which are assigned to all the business transaction flows you add to the application.

Important information	General information about this wizard is available here: "Business Process Monitor Application Configuration Wizard" on page 162.
Wizard map	The Business Process Monitor Application Configuration Wizard contains: Application Properties Page > Default Transaction Settings Page > Set Transaction Monitor Scripts Page > **Application Data Collectors Page** > Set Transaction Thresholds Page > Define Script Parameter Values Page > Preview Page > Finish Page

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Add Data Collectors.** Opens the Add Data Collectors dialog box, where you select the data collectors you want to add to the application as default data collectors for business transaction flows. For user interface details, see "Add Data Collectors Dialog Box" on page 137.
	**Remove Data Collectors.** Removes selected data collectors from the list of default data collectors for business transaction flows in the application.
	**Edit Data Collector Settings.** Opens the Edit Data Collector Settings dialog box, where you configure the schedule and advanced settings for selected default data collectors for business transaction flows in the application. You can also assign or unassign business transaction flows from the data collectors. For user interface details, see "Edit Data Collector Settings Dialog Box" on page 219.

UI Element (A-Z)	Description
<Custom attributes>	Displays custom attributes configured for the data collector. You can configure up to five different custom attributes for data collectors. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Assigned Business Transaction Flows	Displays the business transaction flows to which the data collector is assigned.
Host	Displays the host alias of the data collector instance as defined on the data collector machine.
Location	Displays the location of the data collector instance as defined on the data collector machine.
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.
Schedules	Displays the schedule configured for the data collector.
Version	Displays the version of the data collector software installed on the data collector machine.

Assign Data Collectors Page

This wizard page enables you to:

- View details of the data collectors selected for the business transaction flow.
- Add and remove data collectors for the business transaction flow.
- Modify the list of monitors each data collector runs.
- Configure the data collectors' schedules and settings.

The data collectors assigned to the application in which the business transaction flow is included are, by default, assigned to the business transaction flow.

Important information	➤ General information about the Business Transaction Flow Configuration wizard is available in "Business Transaction Flow Configuration Wizard" on page 207. ➤ Settings are saved to the data collector only if you complete the steps in the wizard and click **Finish**. If you click **Cancel** during the wizard, any changes you make to schedules or advanced properties are not saved.
Wizard map	The Business Transaction Flow Configuration Wizard contains: Set Transaction Monitor Scripts Page > **Assign Data Collectors Page** > Set Transaction Thresholds Page > Define Script Parameter Values Page > Preview Page > Finish Page

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Add Data Collectors.** Opens the Add Data Collectors dialog box, where you can select data collectors to add to the business transaction flow. For user interface details, see "Add Data Collectors Dialog Box" on page 137.
	**Edit Data Collector Settings.** Opens the Edit Data Collector Settings dialog box, where you configure schedules, assigned monitors and advanced settings for the data collectors assigned to an application or business transaction flow. For user interface details, see "Edit Data Collector Settings Dialog Box" on page 219.
	**Restore Application Data Collectors.** Restores the application's data collector settings for selected data collectors. This overrides any locally configured settings for the selected data collectors in the business transaction flow. **Note:** This button is enabled only when data collectors that are assigned to both the business transaction flow and its parent application are selected.
	**Remove Data Collectors.** Removes selected data collectors from the business transaction flow.
<**Custom attributes**>	Displays custom attributes configured for the data collector. You can configure up to five different custom attributes for data collectors. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Assigned Monitors	Lists all the business transaction flow's monitors currently scheduled to run on the data collector host location. By default, all monitors are assigned to run on all off the business transaction flow's assigned data collectors.
Host	Displays the host alias of the data collector instance as defined on the data collector machine.

UI Element (A-Z)	Description
Location	Displays the location of the data collector instance as defined on the data collector machine.
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.
Schedules	Displays the schedule configured for the business transaction flow's monitors to run on the selected data collector.
Source	Displays an icon that shows how the data collector obtains its configuration. The possible icons are: ➤ **Configured locally.** The data collector is assigned to the business transaction flow only. ➤ **Inherits parent application's data collector settings**. The data collector is assigned to both the application and the business transaction flow and the same settings are used for both. ➤ **Configured locally but can inherit parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow, but its settings have been changed for the business transaction flow. You use the **Restore Application Data Collectors** button to restore the parent application's data collector settings and override any locally configured settings. **Tooltip:** A tooltip explains the meaning of the icon.
Version	Displays the version of the data collector software installed on the data collector machine.

Set Transaction Thresholds Page

This wizard page enables you to set thresholds for individual transactions that are part of the transaction monitor scripts assigned to the application or business transaction flow.

Important information	➤ General information about the Business Process Monitor Application Configuration wizard is available here: "Business Process Monitor Application Configuration Wizard" on page 162. ➤ General information about the Business Transaction Flow Configuration wizard is available here: "Business Transaction Flow Configuration Wizard" on page 207. ➤ The Set Transaction Thresholds page is included in both the Business Process Monitor Application Configuration wizard and the Business Transaction Flow Configuration wizard. ➤ By default, all transactions that are part of the configured transaction monitor scripts are assigned the default threshold values that you configured for the application (on the Default Transaction Settings page of the BPM Application wizard). For user interface details, see "Default Transaction Settings Page" on page 166. ➤ Select a single transaction by clicking a row in the transaction list and enter thresholds directly in the row. Use the Shift or CTRL key to select several transactions and click the **Edit Thresholds** button to open the Edit Thresholds dialog box, where you configure thresholds for all the selected transactions. For user interface details, see "Edit Thresholds Dialog Box" on page 234.

Wizard map—Business Process Monitor Application Configuration Wizard	The Business Process Monitor Application Configuration Wizard contains: Application Properties Page > Default Transaction Settings Page > Set Transaction Monitor Scripts Page > Application Data Collectors Page > **Set Transaction Thresholds Page** > Define Script Parameter Values Page > Preview Page > Finish Page
Wizard map—Business Transaction Flow Configuration Wizard	The Business Transaction Flow Configuration Wizard contains: Set Transaction Monitor Scripts Page > Assign Data Collectors Page > **Set Transaction Thresholds Page** > Define Script Parameter Values Page > Preview Page > Finish Page

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Thresholds.** Opens the Edit Thresholds dialog box, where you configure transaction thresholds for multiple transactions. For user interface details, see "Edit Thresholds Dialog Box" on page 234. **Note:** Use the Shift or CTRL key to select several transactions.
Availability	Enter the availability threshold percentage for the transaction.
Critical	Enter the response time threshold above which the transaction's status is Critical. **Note:** The default color for critical transactions in Service Health and reports is red.

UI Element (A-Z)	Description
Minor	Displays the response time thresholds between which the transaction's status is Minor. **Note:** ➤ The default color for Minor transactions in Service Health and reports is yellow. ➤ The Minor transaction threshold is automatically set to the range between the **OK** and **Critical** thresholds that you configure for the transaction.
OK	Enter the response time threshold below which the transaction's status is OK. **Note:** The default color for OK transactions in Service Health and reports is green.
Outlier	Enter the response time threshold above which the transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. **Note:** You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. For user interface details, see "Default Transaction Thresholds" on page 167.
Scripts	Displays the transaction monitor scripts in which the transaction is included.
Transaction Name	Displays the transaction name.

Define Script Parameter Values Page

This wizard page enables you to assign a value to a parameter used by a script included in the application or business transaction flow, that is different than the default parameter value. It also enables you to set a value for a parameter for a specific data collector assigned to run the script.

Important information	➤ General information about the BPM Application wizard is available in "Business Process Monitor Application Configuration Wizard" on page 162. ➤ General information about the BPM Business Transaction Flow wizard is available in "Business Transaction Flow Configuration Wizard" on page 207. ➤ The Define Script Parameters page is included in both the BPM Application wizard and the BPM Business Transaction Flow wizard. ➤ If none of the selected scripts contain parameters, this wizard page is not displayed.
Wizard map—Business Process Monitor Application Configuration Wizard	The Business Process Monitor Application Configuration Wizard contains: Application Properties Page > Default Transaction Settings Page > Set Transaction Monitor Scripts Page > Application Data Collectors Page > Set Transaction Thresholds Page > **Define Script Parameter Values Page** > Preview Page > Finish Page
Wizard map—Business Transaction Flow Configuration Wizard	The Business Transaction Flow Configuration Wizard contains: Set Transaction Monitor Scripts Page > Assign Data Collectors Page > Set Transaction Thresholds Page > **Define Script Parameter Values Page** > Preview Page > Finish Page
See also	"Script Parameter Management Overview" on page 112

The following elements are included (unlabeled GUI elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Edit Script Parameter.** Opens the Edit Script Parameter dialog box, where you can edit the value, description and expiration date for a selected parameter. For user interface details, see "Edit Script Parameter Dialog Box" on page 225. **Note:** This button is disabled for parameters containing multiple values.
	**View Unique Data Collector Values.** Opens the Unique Data Collector Values dialog box, where you can view the parameter's settings for each data collector and set specific values by data collector. For user interface details, see "Unique Data Collector Values Dialog Box" on page 251. **Note:** This button is disabled for parameters containing multiple values.
	**Restore Script Parameter Value.** Restores the original script parameter value. **Note:** This button is disabled for parameters containing multiple values.
Description	A free text description for the parameter. **Note:** You can edit the description by clicking the relevant cell in the table.
Expiration Date	An expiration date for the parameter value. You can configure expiration dates for parameter values to help you manage parameters with frequently changing values, such as passwords. The expiration date is an indication of when you want to change a parameter's value. **Note:** You can edit the expiration date by clicking the arrow in the relevant table cell. A calendar opens from which you can select a date.
Name	The parameter name.

UI Element (A-Z)	Description
Script Name	The name of the script in which the parameter is used.
Unique Data Collector Values	A list of the BPMs for which different values of the parameter are configured. You can view the data collectors and the parameter values configured for them by clicking the **View Unique Data Collector Values** button.
Value	The parameter value. **Note:** ➤ For parameters marked sensitive, the value is not displayed and a row of black dots, indicating the number of characters in the value, is displayed instead. ➤ For parameters containing multiple values, the value is not displayed and the message [Multiple Values] is displayed instead.

Preview Page

This wizard page enables you to view the application or business transaction flow you are creating and all the business transaction flows (for applications) and transactions that are part of it. Click **Back** to make any changes to the application or business transaction flow. Click **Finish** to save the application or business transaction flow. Updating your new application or business transaction flow may take a few moments, depending on how many monitors you selected and the size of the scripts added as transaction monitors.

Important information	➤ General information about the Business Process Monitor Application Configuration wizard is available here: "Business Process Monitor Application Configuration Wizard" on page 162. ➤ General information about the Business Transaction Flow Configuration wizard is available here: "Business Transaction Flow Configuration Wizard" on page 207. ➤ The Preview page is included in both the Business Process Monitor Application Configuration wizard and the Business Transaction Flow Configuration wizard. ➤ The object icons are the same as those displayed in the view tree. This same hierarchy appears in the view tree once you finish the wizard.
Wizard map—Business Process Monitor Application Configuration Wizard	The Business Process Monitor Application Configuration Wizard contains: Application Properties Page > Default Transaction Settings Page > Set Transaction Monitor Scripts Page > Application Data Collectors Page > Set Transaction Thresholds Page > Define Script Parameter Values Page > **Preview Page** > Finish Page
Wizard map—Business Transaction Flow Configuration Wizard	The Business Transaction Flow Configuration Wizard contains: Set Transaction Monitor Scripts Page > Assign Data Collectors Page > Set Transaction Thresholds Page > Define Script Parameter Values Page > **Preview Page** > Finish Page

Finish Page

This wizard page displays the status of the application or business transaction flow you created, as well as its business transaction flows (for applications) and transactions. It also indicates if there were any errors during creation. Click the **Close** button to exit from and close the wizard.

Important information	➤ General information about the Business Process Monitor Application Configuration wizard is available here: "Business Process Monitor Application Configuration Wizard" on page 162. ➤ General information about the Business Transaction Flow Configuration wizard is available here: "Business Transaction Flow Configuration Wizard" on page 207. ➤ The Finish page is included in both the Business Process Monitor Application Configuration wizard and the Business Transaction Flow Configuration wizard. ➤ The object icons are the same as those displayed in the view tree. This same hierarchy appears in the view tree once you finish the wizard.
Wizard map—Business Process Monitor Application Configuration Wizard	The Business Process Monitor Application Configuration Wizard contains: Application Properties Page > Default Transaction Settings Page > Set Transaction Monitor Scripts Page > Application Data Collectors Page > Set Transaction Thresholds Page > Define Script Parameter Values Page > Preview Page > **Finish Page**
Wizard map—Business Transaction Flow Configuration Wizard	The Business Transaction Flow Configuration Wizard contains: Set Transaction Monitor Scripts Page > Assign Data Collectors Page > Set Transaction Thresholds Page > Define Script Parameter Values Page > Preview Page > **Finish Page**

User interface elements are described below:

UI Element (A-Z)	Description
Additional Details	Displays any additional information about the creation of the relevant CI.
Name	Displays a hierarchical tree with the names of the application (when you create an application), business transaction flow, or transaction CI that was created.
Status	Displays an icon showing the status of the CI creation: Successful Failed
Type	Displays the type of CI that was created.

Business Process Monitor Application Data Collectors Page

This page enables you to view and configure a BPM application's default data collectors. Default data collectors are automatically assigned to all business transaction flows added to the application.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select a BPM application and in the Content pane, select **Business Process Monitor** tab > **Data Collectors**.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Add Data Collectors.** Opens the Add Data Collectors dialog box, where you select the data collectors you want to add to the application as default data collectors for business transaction flows. For user interface details, see "Add Data Collectors Dialog Box" on page 137.
	**Edit Data Collector Settings.** Opens the Edit Data Collector Settings dialog box, where you configure the schedule and advanced settings for selected default data collectors for business transaction flows in the application. For user interface details, see "Edit Data Collector Settings Dialog Box" on page 219.
	**Remove Data Collectors.** Removes selected data collectors from the list of default data collectors for business transaction flows in the application.
<Custom attributes>	Displays custom attributes configured for the data collector. You can configure up to five different custom attributes for data collectors. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Assigned Business Transaction Flows	Displays the application's business transaction flows assigned to run on the data collector.
Assigned WebTraces	Displays the application's WebTraces assigned to run on the data collector.
Host	Displays the host name of the data collector instance as defined on the data collector machine.
Location	Displays the location of the data collector instance as defined on the data collector machine.
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.

UI Element (A-Z)	Description
Schedules	Displays the schedule configured for the data collector.
Version	Displays the version of the data collector software installed on the data collector machine.

Business Process Monitor Application Default Settings Page

This page enables you to view and configure a BPM application's default transaction settings. Default transaction settings are assigned to all transactions added to the application.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select a BPM application and in the Content pane, select **Business Process Monitor** tab > **Default Settings**.

Default Transaction Thresholds Pane

User interface elements are described below:

UI Element (A-Z)	Description
Availability	Enter the availability threshold percentage for the transactions.
Critical	Enter the response time threshold above which a transaction's status is Critical. **Default value:** 12 seconds **Note:** The default color for critical transactions in Service Health and reports is red.
Ignore outlier values	Select this check box to instruct BSM to ignore outlier transactions (and not include the data in Service Health or in reports).

UI Element (A-Z)	Description
Minor	Displays the response time thresholds between which a transaction's status is Minor. **Default value:** 8–12 seconds **Note:** ➤ The default color for Minor transactions in Service Health and reports is yellow. ➤ The Minor transaction thresholds are automatically set to the range between the **OK** and **Critical** thresholds that you configure for a transaction.
OK	Enter the response time threshold below which a transaction's status is OK. **Default value:** 8 seconds **Note:** The default color for OK transactions in Service Health and reports is green.
Outlier	Enter the response time threshold above which a transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. **Default value:** 45 seconds **Note:** By selecting or clearing the Ignore outlier data for reports check box, you can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. If you selected to ignore outlier values, any transaction that takes longer than this value to complete is ignored in Service Health and in reports. If you did not select to ignore outlier values and if the transaction response time is greater than this value, its status is **Failed**.

Default Transaction Breakdown Pane

User interface elements are described below:

UI Element (A-Z)	Description
Enable breakdown	Select the **Enable breakdown** check box to generate transaction breakdown data when running the selected Web or TCP monitor. For details on the transaction breakdown reports, see "Understanding Transaction Breakdown in Reports" on page 686.
Enable Diagnostics /TV breakdown	Select **Enable Diagnostics/TV** breakdown to see J2EE and .Net data. This data is available in HP Diagnostics and Transaction Management reports only if you have valid HP Diagnostics and Transaction Management licenses. For details, see the *HP Diagnostics Installation and Configuration Guide* and the *HP TransactionVision Deployment Guide* PDF.
Enable Siebel breakdown	Select the **Enable Siebel breakdown** check box to see Siebel Application Response Measurement (SARM) data in Application Management for Siebel.
Enable SOA breakdown	Select the **Enable SOA breakdown** check box to see SOA data in Application Management for SOA. For details on incorporating SOA data from BPM in Application Management for SOA, see "Enrich the SOA Model From Scripts" in *Solutions and Integrations*. For details on enabling SOA breakdown in HP Business Process Monitor, see "Enabling SOA Transaction Breakdown" on page 110. **Default value:** Enabled

UI Element (A-Z)	Description
Perform component breakdown	Select the **Perform component breakdown** check box to save complete component (page components for Web based protocols and TCP components (requests) for non-Web based protocols) breakdown data for a sampling of transaction instances. By default, BSM saves component breakdown data to the database once per every four transaction instances. **Note:** You can only select this check box if you have enabled breakdown.
Report additional error information	Select the **Report additional error information** check box to include date, time, location, and error messages for failed transactions in applicable EUM reports. If this option is disabled, BSM reports only average error times. Disabling this option decreases the amount of data that is sent from the BPMs running the transaction breakdown to the Gateway Server and profile database. For details on the Error Log, see "Error Log" on page 886. **Note:** You can only select this check box if you have enabled breakdown.

Business Process Monitor Application Properties Page

This page enables you to view and configure a BPM application's main properties.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select an application and in the Content pane, select **Business Process Monitor** tab > **Properties**.

General Application Settings Pane

User interface elements are described below:

UI Element (A-Z)	Description
Assign Application 360 license	Select this check box to assign an APM 360 with SLM license to the application. **Note:** This element is displayed for HP Software-as-a-Service customers only.
Downtime/Event Schedule	Click the **Downtime/Event Schedule** link to configure and manage downtime and event schedules for the application. The **Downtime Management** page opens in a new window. For user interface details, see "Downtime Management Page" in *Platform Administration*.

<table>
<tr><th>UI Element (A-Z)</th><th>Description</th></tr>
<tr><td>License type</td><td>The BPM license assigned to the application. Click the license to open a list of licenses that you can assign to the application. For concept details, see "End User Management Licenses Overview" on page 492.
Note:
➤ If you have only one license key installed, you cannot edit the license type.
➤ Even if you have a valid 360 license, it does not appear as an option if you do not have change permissions for both Real User Monitor and BPM configurations.
➤ If you assign or unassign a 360 license to a BPM application that is also configured for RUM, the 360 license is also automatically assigned to, or unassigned from, the RUM application.
Note to HP Software-as-a-Service customers: This element is not displayed.</td></tr>
<tr><td>Profile database</td><td>The profile database name for storing the application’s BPM information. This setting is defined when creating a new BPM configuration for an application and cannot be edited once it is set.
Note to HP Software-as-a-Service customers: This element is not displayed.</td></tr>
</table>

UI Element (A-Z)	Description
Status	Select the relevant radio button to configure whether the application's BPM configuration is active. **Note:** The status of the application overrides the status of its business transaction flows. This means that if the application is inactive, its business transaction flows are also inactive, regardless of their status setting.
Time zone	Select a **GMT offset**—the time zone, in relation to GMT, that BSM uses to determine when daily aggregation should occur for data collected by this application. **Tip:** The time zone should be set to match the time zone in which the BSM servers and database machine are located. **Example:** If you want BSM to aggregate data collected by the application based on Pacific Time, enter -8, since Pacific Time is GMT-8 hours.

Business Transaction Flows Order Pane

Important information	The business transaction flow order is applicable when all of the following conditions are met: ➤ All the business transaction flows run on the same BPM. ➤ The business transaction flows use the default application schedule. ➤ The monitor run mode is set to **Classic** (default), **Sequential**, or **Stepped**. If set to **Dialup** mode, BPM may override the configured run order. For details on run modes, see "Run Modes" in the *Business Process Monitor Administration* PDF.

User interface elements are described below:

UI Element (A-Z)	Description
	**Up.** Moves a selected business transaction flow higher in the running order of the application's business transaction flows.
	**Down.** Moves a selected business transaction flow lower in the running order of the application's business transaction flows.
Data Collectors	The data collectors assigned to run the business transaction flow.
Name	The business transaction flow name.

WebTraces Pane

Important information	BPMs earlier than version 9.00 cannot be assigned to Webtraces on the application level and do not appear as available data collectors.

User interface elements are described below:

UI Element (A-Z)	Description
	**New WebTrace.** Opens the New WebTrace dialog box, where you configure a new WebTrace for the application. For user interface details, see "WebTrace Dialog Box" on page 257.
	**Edit WebTrace Settings.** Opens the Edit WebTrace dialog box, where you configure the settings for a selected WebTrace. For user interface details, see "WebTrace Dialog Box" on page 257.
	**Delete WebTraces.** Deletes selected WebTraces from the application.
Assigned Data Collectors	The data collector assigned to run the WebTrace.

UI Element (A-Z)	Description
Destination	The Web server address on which the trace is performed.
Port	The port number of the Web server on which the trace is performed.

Script Parameters Pane

This area enables you to configure parameters (such as user name, password, and so forth) that are required by a script to run properly.

See also	"Script Parameter Management Overview" on page 112

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Script Parameter.** Opens the Edit Script Parameter dialog box, where you can edit the value, description and expiration date for a selected parameter. For user interface details, see "Edit Script Parameter Dialog Box" on page 225. **Note:** This button is disabled for parameters containing multiple values.
	**View Unique Data Collector Values.** Opens the Unique Data Collector Values dialog box, where you can view the parameter's settings for each data collector and set specific values by data collector. For user interface details, see "Unique Data Collector Values Dialog Box" on page 251. **Note:** This button is disabled for parameters containing multiple values.
	**Restore Script Parameter Value.** Restores the original script parameter value. **Note:** This button is disabled for parameters containing multiple values.

UI Element (A-Z)	Description
Business Transaction Flow Name	The name of the business transaction flow in which the script is included.
Description	A free text description for the parameter.
Expiration Date	An expiration date for the parameter value. You can configure expiration dates for parameter values to help you manage parameters with frequently changing values, such as passwords. The expiration date is an indication of when you want to change a parameter's value. **Note:** You can edit the expiration date by clicking the arrow in the relevant table cell. A calendar opens from which you can select a date.
Name	The parameter name.
Script Name	The name of the script in which the parameter is used.
Unique Data Collector Values	A list of the BPMs for which different values of the parameter are configured. You can view the data collectors and the parameter values configured for them by clicking the **View Unique Data Collector Values** button.
Value	The configured parameter value for the specific data collector.

Business Process Monitor Application Reports Configuration Page

This page enables you to modify the colors used to represent an application's transactions in EUM reports and to specify the order in which an application's transactions appear in the reports.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select an application and in the Content pane, select **Business Process Monitor** tab > **Reports Configuration**.
Important information	After changing the order of an application's transactions, if you want to regenerate a report to reflect the new order you must first log out of BSM and then log back in to the system.

User interface elements are described below:

UI Element (A-Z)	Description
	**Up.** Changes the order of a selected transaction by moving it up.
	**Down.** Changes the order of a selected transaction by moving it down.
	**Restore Original Order.** Re-orders the transactions in their original order, before you made any changes.
Business Transaction Flow	The business transaction flow in which the transaction is included.
Color	The configured color for the transaction in EUM reports. Click a color cell and the **down arrow** button to display a color chart, where you can select a different color for the transaction.
Monitors	The application scripts and single transaction scripts in which the transaction is included.
Name	The transaction name.

Business Transaction Business Process Monitor Configuration Page

This page enables you to display and edit the threshold settings for a Business Transaction included in a business transaction flow. Also enables you to view the scripts in which the Business Transaction is included and the transaction name used in the scripts.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select a Business Transaction and in the Content pane, select the **Business Process Monitor** tab.

Thresholds Pane

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Thresholds.** Opens the Edit Thresholds dialog box, where you configure transaction thresholds for multiple locations. For user interface details, see "Edit Thresholds Dialog Box" on page 234.
	**Restore location specific threshold values.** Restores threshold values for selected locations based on specific threshold offsets configured for the applicable locations. For user interface details on configuring location offsets, see "Edit Location Offset Dialog Box" on page 53. **Note:** This button is enabled only when the selected transactions' locations have configured transaction offsets.

UI Element (A-Z)	Description
	**Calculate suggested thresholds.** Opens the Calculate Suggested Thresholds dialog box, where you set the dates and formula for calculating suggested transaction thresholds. For user interface details, see "Calculate Suggested Thresholds Dialog Box" on page 218. **Note:** When the suggested thresholds are calculated, the **Suggested OK**, **Suggested Minor**, and **Suggested Critical** columns are displayed in the Transaction Performance Thresholds pane.
	**Accept suggested thresholds.** Accepts the suggested thresholds for selected transactions or locations. The thresholds for the selected transactions or locations are updated to the suggested thresholds.
	**Hide suggested thresholds.** Hides the **Suggested OK**, **Suggested Minor**, and **Suggested Critical** columns. **Note:** This button is enabled only when suggested thresholds have been calculated and are displayed.
	**Show suggested thresholds.** Shows the **Suggested OK**, **Suggested Minor**, and **Suggested Critical** columns. **Note:** This button is enabled only when suggested thresholds have been calculated, but are hidden.
Critical	The response time threshold above which the transaction's status is Critical. **Note:** The default color for critical transactions in Service Health and reports is red.
Minor	The response time thresholds between which the transaction's status is Minor. **Note:** ➤ The default color for Minor transactions in Service Health and reports is yellow. ➤ The Minor transaction threshold is automatically set to the range between the **OK** and **Critical** thresholds that you configure for the transaction.

UI Element (A-Z)	Description
OK	The response time threshold below which the transaction's status is OK. **Note:** The default color for OK transactions in Service Health and reports is green.
Outlier	The response time threshold above which the transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. **Note:** You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. For user interface details, see "Default Transaction Thresholds" on page 167.
Scripts	The name of the script in which the transaction is included.
Suggested Critical	The suggested response time threshold above which the transaction's status is Critical. **Note:** This column is displayed when you click the **Calculate Suggested Thresholds** or **Show Suggested Thresholds** button.
Suggested Minor	The suggested response time thresholds between which the transaction's status is Minor. **Note:** ➤ The suggest minor transaction threshold is automatically set to the range between the suggested **OK** and **Critical** thresholds. ➤ This column is displayed when you click the **Calculate Suggested Thresholds** or **Show Suggested Thresholds** button.
Suggested OK	The suggested response time threshold below which the transaction's status is OK. **Note:** This column is displayed when you click the **Calculate Suggested Thresholds** or **Show Suggested Thresholds** button.
Transaction	A tree displaying the applicable locations for the transaction.

Availability Threshold Pane

User interface elements are described below:

UI Element (A-Z)	Description
Availability	The availability threshold percentage configured for the transaction.

Scripts Pane

User interface elements are described below:

UI Element (A-Z)	Description
Included in scripts	The script in which the transaction is included.
Name in scripts	The transaction name as used in scripts. **Note:** If you change the name of a Business Transaction CI (in the CI Properties page), the transaction name in existing scripts is not changed. Elsewhere, however, (for example, in Service Health, reports, and EUM Administration) the transaction name is changed and persistent data for the CI is preserved. For details on the CI Properties page user interface, see "CI Properties Page" on page 52.

Business Transaction Flow Configuration Wizard

This wizard enables you to create a new business transaction flow and its BPM configuration in EUM Administration, or to add a BPM configuration to an existing, but as yet unconfigured, business transaction flow.

To access	Use one of the following: ➤ To create and configure a new business transaction flow, select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click the BPM application for which you want to create a business transaction flow, and click **Add** > **Business Transaction Flows and their BPM Configurations**. ➤ To configure a previously created, but as yet unconfigured, business transaction flow, select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click the existing business transaction flow that is not yet configured for BPM and click **Add** > **BPM Configuration**.
Important information	The pages in this wizard are also included in the Business Process Monitor Application Configuration wizard. For a description of the pages, see "Business Process Monitor Application Configuration Wizard" on page 162.
Wizard map	This wizard contains: Set Transaction Monitor Scripts Page > Assign Data Collectors Page > Set Transaction Thresholds Page > Define Script Parameter Values Page > Preview Page > Finish Page

Business Transaction Flow Data Collectors Page

This page enables you to view and update the BPM data collectors assigned to a business transaction flow.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select a business transaction flow and in the Content pane, select **Business Process Monitor** tab > **Data Collectors**.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Add Data Collectors.** Opens the Add Data Collectors wizard, where you select the data collectors you want to add to the business transaction flow and assign monitors to them. For user interface details, see "Add Data Collectors Wizard" on page 140.
	**Edit Data Collector Settings.** Opens the Edit Data Collector Settings dialog box, where you configure the schedules, assigned monitors, and advanced settings for selected data collectors for the business transaction flow. For user interface details, see "Edit Data Collector Settings Dialog Box" on page 219.
	**Restore Application Data Collectors.** Restores the application's data collector settings for selected data collectors. This overrides any locally configured settings for the selected data collectors in the business transaction flow. **Note:** This button is enabled only when data collectors that are assigned to both the business transaction flow and its parent application are selected.
	**Remove Data Collectors.** Removes selected data collectors from the business transaction flow.

UI Element (A-Z)	Description
<Custom attributes>	Displays custom attributes configured for the data collector. You can configure up to five different custom attributes for data collectors. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Assigned Monitors	Displays the monitor scripts assigned to run on the data collector.
Host	Displays the host alias of the data collector instance as defined on the data collector machine.
Location	Displays the location of the data collector instance as defined on the data collector machine.
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.
Schedules	Displays the schedule configured for the data collector.
Source	Displays an icon that shows how the data collector obtains its configuration. The possible icons are: ➤ **Configured locally.** The data collector is assigned to the business transaction flow only. ➤ **Inherits parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow and the same settings are used for both. ➤ **Configured locally but can inherit parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow, but its settings have been changed for the business transaction flow. You use the **Restore Application Data Collectors** button to restore the parent application's data collector settings and override any locally configured settings. **Tooltip:** A tooltip explains the meaning of the icon.
Version	Displays the version of the data collector software installed on the data collector machine.

Business Transaction Flow Properties Page

This page enables you to view and update the properties of a business transaction flow.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select a business transaction flow and in the Content pane, select **Business Process Monitor** tab > **Properties**.

General Settings Pane

User interface elements are described below:

UI Element (A-Z)	Description
Status	Select the relevant radio button to configure whether the business transaction flow is active. **Note:** The status of the business transaction flow is overridden by the status of its parent application. This means that if the application is inactive, the business transaction flow is also inactive, regardless of this setting.

Scripts Pane

User interface elements are described below:

UI Element (A-Z)	Description
	**Add Script.** Opens the Add Scripts wizard, where you select and configure scripts for the business transaction flow. For user interface details, see "Add Scripts Wizard" on page 151.
	**Edit Script Settings.** Opens the Edit Script Settings dialog box, where you configure the assigned data collectors, transaction thresholds, transaction breakdown settings, and script parameter values for selected scripts. For user interface details, see "Edit Script Settings Dialog Box" on page 226.

UI Element (A-Z)	Description
	**Remove Script.** Deletes selected scripts from the business transaction flow.
	**Up.** Changes the order of a selected script by moving it up.
	**Down.** Changes the order of a selected script by moving it down.
	**Update Version.** Opens the Update Version wizard, where you can change the version number of a script, assign script parameters, and set transaction thresholds for a selected script. For user interface details, see "Update Version Wizard" on page 252.
Assigned Data Collectors	The data collectors assigned to run the script.
Name	The script name.
Script Repository Path	The path of the script in the Script Repository. **Note:** Click the path link to open the Script Repository dialog box for the selected script. For user interface details, see "Script Repository Page" on page 478.
Version	The script version number. **Note:** If a newer version of the script is available, the  icon is also displayed. Click the **Update Version**  button in the Scripts pane toolbar to change the script version used.

WebTraces Pane

User interface elements are described below:

UI Element (A-Z)	Description
	**New WebTrace.** Opens the New WebTrace dialog box, where you configure a new WebTrace for the business transaction flow. For user interface details, see "WebTrace Dialog Box" on page 257.
	**Edit WebTrace Settings.** Opens the Edit WebTrace dialog box, where you configure the settings for a selected WebTrace. For user interface details, see "WebTrace Dialog Box" on page 257.
	**Delete WebTraces.** Deletes selected WebTraces from the business transaction flow.
Assigned Data Collectors	The data collector assigned to run the WebTrace.
Destination	The Web server address on which the trace is performed.
Port	The port number of the Web server on which the trace is performed.

Single Transaction Scripts Pane

User interface elements are described below:

UI Element (A-Z)	Description
	**New Single Transaction Script.** Opens the New Single Transaction Script dialog box, where you configure a new single transaction script for the business transaction flow. For user interface details, see "Single Transaction Script Dialog Box" on page 244.
	**Edit Single Transaction Script.** Opens the Edit Single Transaction Script dialog box, where you configure the settings for a selected single transaction script. For user interface details, see "Single Transaction Script Dialog Box" on page 244.

UI Element (A-Z)	Description
	Delete Single Transaction Scripts. Deletes selected single transaction scripts from the business transaction flow.
Assigned Data Collectors	The data collectors assigned to run the single transaction script.
Transaction Name	The name of the single transaction script.
URL	The URL monitored by the single transaction script.

Transaction Performance Thresholds Pane

This area lists the transactions included in the business transaction flow and enables you to set transaction thresholds for them.

Important information	➤ Thresholds configured for a specific location for a transaction, override any location threshold offset configured for that location in the transaction's parent application. ➤ Select a single transaction by clicking a row in the transaction list and enter thresholds directly in the row. Use the Shift or CTRL key to select several transactions and click the **Edit Thresholds** button to open the Edit Thresholds dialog box, where you configure thresholds for all the selected transactions.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Edit Thresholds.** Opens the Edit Thresholds dialog box, where you configure transaction thresholds for multiple transactions. For user interface details, see "Edit Thresholds Dialog Box" on page 234.
	**Restore location specific threshold values.** Restores threshold values for selected transactions based on specific threshold offsets configured for the applicable locations. For concept details, see "Location Threshold Offsets Overview" on page 29. **Note:** This button is enabled only when the selected transactions' locations have configured transaction offsets.
	**Calculate suggested thresholds.** Opens the Calculate Suggested Thresholds dialog box, where you set the dates and formula for calculating suggested transaction thresholds. For user interface details, see "Calculate Suggested Thresholds Dialog Box" on page 218. **Note:** When the suggested thresholds are calculated, the **Suggested OK**, **Suggested Minor**, and **Suggested Critical** columns are displayed in the Transaction Performance Thresholds pane.
	**Accept suggested thresholds.** Accepts the suggested thresholds for selected transactions or locations. The thresholds for the selected transactions or locations are updated to the suggested thresholds.
	**Hide suggested thresholds.** Hides the **Suggested OK**, **Suggested Minor**, and **Suggested Critical** columns. **Note:** This button is enabled only when suggested thresholds have been calculated and are displayed.

UI Element (A-Z)	Description
	**Show suggested thresholds.** Shows the **Suggested OK**, **Suggested Minor**, and **Suggested Critical** columns. **Note:** This button is enabled only when suggested thresholds have been calculated, but are hidden.
<**Select tree option**>	Select the way you want to view the tree. Valid options are: ➤ **Location - Transaction.** For each location in the tree, the applicable transactions are displayed. **Note:** When you select this option, the first column in the table is called **Location**. ➤ **Transaction - Location.** For each transaction in the tree, the applicable locations are displayed. **Note:** When you select this option, the first column in the table is called **Transaction**.
Critical	The response time threshold above which the transaction's status is Critical. **Note:** The default color for critical transactions in Service Health and reports is red.
Location	The location name. Click a location in the tree to expand it to display its applicable transactions. **Note:** This element is visible when you select the **Location - Transaction** view option for the tree.
Minor	The response time thresholds between which the transaction's status is Minor. **Note:** ➤ The default color for Minor transactions in Service Health and reports is yellow. ➤ The Minor transaction threshold is automatically set to the range between the **OK** and **Critical** thresholds that you configure for the transaction.

UI Element (A-Z)	Description
OK	The response time threshold below which the transaction's status is OK. **Note:** The default color for OK transactions in Service Health and reports is green.
Outlier	The response time threshold above which the transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. **Note:** You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. For user interface details, see "Default Transaction Thresholds" on page 167.
Scripts	The name of the script in which the transaction is included.
Suggested Critical	The suggested response time threshold above which the transaction's status is Critical. **Note:** This column is displayed when you click the **Calculate Suggested Thresholds** or **Show Suggested Thresholds** button.
Suggested Minor	The suggested response time thresholds between which the transaction's status is Minor. **Note:** ➤ The suggest minor transaction threshold is automatically set to the range between the suggested **OK** and **Critical** thresholds. ➤ This column is displayed when you click the **Calculate Suggested Thresholds** or **Show Suggested Thresholds** button.

UI Element (A-Z)	Description
Suggested OK	The suggested response time threshold below which the transaction's status is OK. **Note:** This column is displayed when you click the **Calculate Suggested Thresholds** or **Show Suggested Thresholds** button.
Transaction	The transaction name. Click a transaction in the tree to expand it to display its applicable locations. **Note:** This element is visible when you select the **Transaction - Location** view option for the tree.

Transaction Availability Thresholds Pane

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Availability Thresholds.** Opens the Edit Availability Thresholds dialog box, where you configure the availability threshold percentage for selected transactions.
Availability	The availability threshold percentage configured for the transaction.
Scripts	The name of the script in which the transaction is included.
Transaction	The transaction name.

Calculate Suggested Thresholds Dialog Box

This dialog box enables you to configure the time period and formula settings used to calculate suggested transaction thresholds.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and click the **Calculate Suggested Thresholds** button in one of the following: ➤ Business Transaction Flow Properties Page > Transaction Performance Thresholds Pane ➤ Business Transaction Business Process Monitor Configuration Page > Thresholds Pane

Starting Date Area

The Starting Date area displays a calendar in which you can click a date to select it as the starting date for the period from which suggested transaction thresholds are calculated. The period runs from the selected starting date to the current date. By default, the selected starting date is two weeks prior to the current date.

BSM calculates suggested thresholds by using multiples of the average transaction times and standard deviations for the transactions in the configured time period, according to a formula that you configure in the Formula Settings area of the dialog box.

Note: The time taken to calculate suggested thresholds is determined by the length of the time period you configure.

Formula Settings Area

Important information	➤ The formula for calculating suggested transaction thresholds is: n(average transaction time for the configured time period) X n(standard deviation for the configured time period) ➤ The suggested Minor transaction threshold is automatically set to the range between the suggested **OK** and suggested **Critical** thresholds for the transaction.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<**Critical formula**>	Configure the multiples of the average transaction time determined from the configured time period to use as the basis for the suggested Critical threshold, and the multiples of the standard deviation to add to it.
<**OK formula**>	Configure the multiples of the average transaction time determined from the configured time period to use as the basis for the suggested OK threshold, and the multiples of the standard deviation to add to it.

Edit Data Collector Settings Dialog Box

This dialog box enables you to:

- View details for the data collectors selected for a BPM application or business transaction flow.
- Modify the list of monitors each data collector runs.
- Configure the data collectors' settings.

You can assign any, or all, of the monitors added to the BPM application or business transaction flow to any, or all, of the assigned data collectors. This gives a complete picture of all the monitors running within the application or flow and which BPM instances are running which monitors.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and click the **Edit Data Collector Settings** button in one of the following: ➤ Business Process Monitor Application Data Collectors page ➤ Business Process Monitor Application Configuration wizard > Application Data Collectors page ➤ Business Transaction Flow Data Collectors page ➤ Business Transaction Flow wizard > Assign Data Collectors page ➤ New WebTrace dialog box ➤ Edit WebTrace Settings dialog box ➤ New Single Transaction Script dialog box > Assigned Data Collectors tab ➤ Edit Single Transaction Script Settings dialog box > Assigned Data Collectors tab ➤ Add Scripts wizard > Assign Data Collectors page ➤ Edit Script Settings dialog box > Assigned Data Collectors tab
Important information	➤ The availability of the different tabs depends from where you access the dialog box. ➤ Select a single data collector by clicking a row in the list, or use the Shift or CTRL key to select several data collectors.

Schedules Tab

User interface elements are described below:

UI Element (A-Z)	Description
	**New Schedule.** Opens the New Schedule dialog box, where you create a new schedule for the BPM application or business transaction flow. For details, see "Schedule Dialog Box" on page 240.
	**Edit Schedule.** Opens the Edit Schedule dialog box, where you edit selected schedules for the BPM application or business transaction flow. For details, see "Schedule Dialog Box" on page 240.
	**Delete Schedules.** Removes selected schedules from the BPM application or business transaction flow configuration. **Note:** You cannot delete all the schedules as there must be at least one schedule configured.
Assigned to Data Collectors	Displays the data collectors to which the schedule is assigned.
Offset	Displays the configured offset for a schedule. The offset is the time by which to delay the scheduled running of monitors on a data collector. The offset can be the BPM default, or a user defined number of seconds (up to 1000 seconds).
Schedules	The schedule configured for the BPM application or business transaction flow to run on the selected data collectors (only relevant for monitors running on a BPM).
Time Zone	Displays the time zone on which the data collector instance bases its scheduling.

Business Transaction Flow Tab

Important information	➤ This tab is only available for BPM applications. ➤ Select a single business transaction flow by clicking a row in the list, or use the Shift or CTRL key to select several flows.

User interface elements are described below:

UI Element (A-Z)	Description
	**Add Monitors.** Opens the Add Monitors dialog box, where you can add monitors to the selected data collectors.
	**Remove Monitors.** Removes selected monitors from the list of monitors assigned to the selected data collectors.
Assigned Data Collectors	The data collectors assigned to run the monitor.
Name	The monitor name.
Source	The monitor source—business transaction flow or WebTrace.

Monitors Tab

Important information	➤ This tab is only available for business transaction flows ➤ Select a single monitor by clicking a row in the list, or use the Shift or CTRL key to select several monitors.

User interface elements are described below:

UI Element (A-Z)	Description
	**Add Monitors.** Opens the Add Monitors dialog box, where you can add monitors to the selected data collectors.
	**Remove Monitors.** Removes selected monitors from the list of monitors assigned to the selected data collectors.

UI Element (A-Z)	Description
Assigned Data Collectors	The data collectors assigned to run the monitor.
Name	The monitor name.
Source	The monitor type.
Transactions	The transactions included in the monitor.

Advanced Settings Tab

User interface elements are described below:

UI Element (A-Z)	Description
Run mode	The run mode determines how BPM runs the tasks in a BPM application or business transaction flow when an iteration begins. Some of the run modes run the tasks in a specific order; in this case, the scripts run in the order defined in the BPM application or business transaction flow. For details on the available run mode options, see "Run Mode Options" on page 224.
Step	If you select **Stepped** as the run mode option, set the Step value in seconds. **Note:** If Stepped is not selected as the run mode, this setting is disabled.
Timeout	Set the timeout value in seconds. This value determines the time limit after which the data collector (BPM) running all the monitors added to a BPM application or business transaction flow timeouts each of the scripts or WebTrace schemes if they are still running. This setting overrides the timeout value set on the data collector itself (default value on the BPM is 15 minutes). If this value is set to -1 (default value), the timeout value on the BPM is used.

Run Mode Options

The following are the supported run modes that you can configure for a data collector running a business transaction flow:

Option	Description
Classic	All scripts in the business transaction flow (BTF) run sequentially according to their defined order, with an internal algorithm that ensures an optimal load distribution during the BTF run. All WebTrace schemes run concurrently with the first script, once the BTF begins an iteration.
Dialup	If a business transaction flow has two or more scripts, the first script begins running when the business transaction flow begins an iteration. When the first script completes its run, all WebTrace schemes and scripts, excluding the first and last scripts, run in Classic mode. When all tasks stop running, the last script runs. If a business transaction flow has fewer than two scripts, it runs in Classic mode. **Note:** If the first script completes its run, the last script always runs.
Sequential	All business transaction flow tasks run sequentially (with only one task running at a time). The script tasks run according to the defined order. WebTrace tasks run after the last script is completed, with an undefined (though consistent) order.
Stepped	Each task begins running after a defined time period (step) has passed from the time the previous task started. The scripts run according to the defined order. The WebTrace tasks also run in stepped mode after the last script has started, in an undefined (though consistent) order.
Concurrent	All tasks begin running simultaneously when the business transaction flow begins an iteration.

For further details on the specific run mode options and setting the step value, see "Run Schedules and Orders" in the *Business Process Monitor Administration* PDF.

Edit Script Parameter Dialog Box

This dialog box enables you to change the value of a script parameter for an application monitored by BPM, or a business transaction flow. It also enables you to enter a description and expiration date for a parameter.

To access	Select **Edit Script Settings** dialog box > **Script Parameters** tab. Select the parameters whose value you want to change and click the **Edit Script Parameter** button.
Important information	➤ You cannot edit script parameters for a parameter that contains multiple values. ➤ If you change the value of a parameter, it is changed for all data collectors that run the script for the application or business transaction flow. ➤ A parameter marked as sensitive is one whose default value is encrypted in the original script.
See also	"Script Parameter Management Overview" on page 112

User interface elements are described below:

UI Element (A-Z)	Description
Confirm Value	When you enter a value for a parameter marked sensitive (for example, a password parameter), you must confirm the value by entering it again. **Note:** You enter the value in clear text, but the text itself is not displayed and a row of black dots is displayed instead.
Description	A free text description for the parameter.

UI Element (A-Z)	Description
Expiration Date	An expiration date for the parameter value. You can configure expiration dates for parameter values to help you manage parameters with frequently changing values, such as passwords. The expiration date is an indication of when you want to change a parameter's value. Click the arrow in the field to open a calendar from which you can select a date.
Name	The parameter name.
Value	The parameter value. **Note:** You enter the value in clear text, but for parameters marked sensitive, the text is not displayed and a row of black dots is displayed instead.

Edit Script Settings Dialog Box

This dialog box enables you to view and configure transaction threshold and breakdown settings for scripts included in a business transaction flow. It also enables you to assign BPM data collectors to run the transaction monitor scripts, as well as to view and configure the parameters used in a script.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select a business transaction flow. In the Content pane, select the **Business Process Monitor Properties** page and in the **Scripts** pane click the **Edit Script Settings** button. ➤ Select **Admin** > **End User Management** > **Script Repository** tab. Search for script assignments for scripts that are in use and in the **Search Results** dialog box, select a script and click the **Edit Script Settings** button.

Assigned Data Collectors Tab

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Add Data Collectors.** Opens the Add Data Collectors dialog box, where you select the data collectors you want to add to the business transaction flow. For user interface details, see "Add Data Collectors Dialog Box" on page 137.
	**Edit Data Collector Settings.** Opens the Edit Data Collector Settings dialog box, where you configure the schedule and advanced settings for selected data collectors for the business transaction flow. For user interface details, see "Edit Data Collector Settings Dialog Box" on page 219.
	**Restore Application Data Collectors.** Restores the application's data collector settings for selected data collectors. This overrides any locally configured settings for the selected data collectors in the business transaction flow. **Note:** This button is enabled only when data collectors that are assigned to both the script and its parent application are selected.
	**Remove Data Collectors.** Removes selected data collectors from the business transaction flow.
<Custom attributes>	Displays custom attributes configured for the data collector. You can configure up to five different custom attributes for data collectors. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Assigned Monitors	Displays the monitor scripts assigned to run on the data collector.
Host	Displays the host alias of the data collector instance as defined on the data collector machine.

UI Element (A-Z)	Description
Location	Displays the location of the data collector instance as defined on the data collector machine.
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.
Schedules	Displays the schedule configured for the data collector.
Source	Displays an icon that shows how the data collector obtains its configuration. The possible icons are: ➤ **Configured locally.** The data collector is assigned to the script only. ➤ **Inherits parent application's data collector settings.** The data collector is assigned to both the application and the script and the same settings are used for both. ➤ **Configured locally but can inherit parent application's data collector settings.** The data collector is assigned to both the application and the script, but its settings have been changed for the script. You use the **Restore Application Data Collectors** button to restore the parent application's data collector settings and override any locally configured settings. **Tooltip:** A tooltip explains the meaning of the icon.
Version	Displays the version of the data collector software installed on the data collector machine.

Transaction Thresholds Tab

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Thresholds.** Opens the Edit Thresholds dialog box, where you configure transaction thresholds for multiple transactions. For user interface details, see "Edit Thresholds Dialog Box" on page 234.
Availability	The availability threshold percentage for the transaction.
Critical	The response time threshold above which the transaction's status is Critical. **Note:** The default color for critical transactions in Service Health and reports is red.
Minor	The response time thresholds between which the transaction's status is Minor. **Note:** ➤ The default color for Minor transactions in Service Health and reports is yellow. ➤ The Minor transaction threshold is automatically set to the range between the **OK** and **Critical** thresholds that you configure for the transaction.
OK	The response time threshold below which the transaction's status is OK. **Note:** The default color for OK transactions in Service Health and reports is green.
Outlier	The response time threshold above which the transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. **Note:** You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. For user interface details, see "Default Transaction Thresholds" on page 167.

UI Element (A-Z)	Description
Scripts	The transaction monitor script in which the transaction is included.
Transaction Name	The transaction name.

Transaction Breakdown Tab

User interface elements are described below:

UI Element (A-Z)	Description
Enable breakdown	Select the **Enable breakdown** check box to generate transaction breakdown data when running the selected Web or TCP monitor. For details on the transaction breakdown reports, see "Understanding Transaction Breakdown in Reports" on page 686.
Enable Diagnostics /TV breakdown	Select **Enable Diagnostics/TV** breakdown to see J2EE and .Net data. This data is available in HP Diagnostics and Transaction Management reports only if you have valid HP Diagnostics and Transaction Management licenses. For details, see the *HP Diagnostics Installation and Configuration Guide* and the *HP TransactionVision Deployment Guide* PDF.
Enable Siebel breakdown	Select the **Enable Siebel breakdown** check box to see Siebel Application Response Measurement (SARM) data in Application Management for Siebel.
Enable SOA breakdown	Select the **Enable SOA breakdown** check box to see SOA data in Application Management for SOA. For details on incorporating SOA data from BPM in Application Management for SOA, see "Enrich the SOA Model From Scripts" in *Solutions and Integrations*. For details on enabling SOA breakdown in BPM, see "Enabling SOA Transaction Breakdown" on page 110. **Default value:** Enabled

UI Element (A-Z)	Description
Perform component breakdown	Select the **Perform component breakdown** check box to save complete component (page components for Web based protocols and TCP components (requests) for non-Web based protocols) breakdown data for a sampling of transaction instances. By default, BSM saves component breakdown data to the database once per every four transaction instances. **Note:** You can only select this check box if you have enabled breakdown.
Report additional error information	Select the **Report additional error information** check box to include date, time, location, and error messages for failed transactions in applicable EUM reports. If this option is disabled, BSM reports only average error times. Disabling this option decreases the amount of data that is sent from the BPMs running the transaction breakdown to the Gateway Server and profile database. For details on the Error Log, see "Error Log" on page 886. **Note:** You can only select this check box if you have enabled breakdown.

Script Parameters Tab

See also	"Script Parameter Management Overview" on page 112

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Script Parameter.** Opens the Edit Script Parameter dialog box, where you can edit the value, description and expiration date for a selected parameter. For user interface details, see "Edit Script Parameter Dialog Box" on page 225. **Note:** This button is disabled for parameters containing multiple values.
	**View Unique Data Collector Values.** Opens the Unique Data Collector Values dialog box, where you can view the parameter's settings for each data collector and set specific values by data collector. For user interface details, see "Unique Data Collector Values Dialog Box" on page 251. **Note:** This button is disabled for parameters containing multiple values.
	**Restore Script Parameter Value.** Restores the original script parameter value. **Note:** This button is disabled for parameters containing multiple values.
Description	A free text description for the parameter. **Note:** You can edit the description by clicking the relevant cell in the table.

UI Element (A-Z)	Description
Expiration Date	An expiration date for the parameter value. You can configure expiration dates for parameter values to help you manage parameters with frequently changing values, such as passwords. The expiration date is an indication of when you want to change a parameter's value. **Note:** You can edit the expiration date by clicking the arrow in the relevant table cell. A calendar opens from which you can select a date.
Name	The parameter name.
Unique Data Collector Values	A list of the BPMs for which different values of the parameter are configured. You can view the data collectors and the parameter values configured for them by clicking the **View Unique Data Collector Values** button.
Value	The parameter value. **Note:** ➤ For parameters marked sensitive, the value is not displayed and a row of black dots, indicating the number of characters in the value, is displayed instead. ➤ For parameters containing multiple values, the value is not displayed and the message [Multiple Values] is displayed instead.

Edit Thresholds Dialog Box

This dialog box enables you to set the transaction response times for selected transactions in a business transaction flow.

Transaction thresholds are used to validate service level agreements by creating performance boundaries. There are three transaction threshold ranges—OK, Minor, and Critical—which are color-coded when used in Service Health and in the reports that display transaction performance data. The color-coding enables quick pinpointing of problem areas that need further analysis.

You can also configure an outlier threshold. Outliers are transactions whose response time exceeds a defined time range.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and click the **Edit Threshold** button in one of the following: ➤ Add Script wizard > Define Transaction Thresholds page ➤ Business Transaction Flow Properties page > Edit Script Settings dialog box > Transaction Thresholds tab ➤ Update Version wizard > Define Transaction Thresholds page ➤ Business Process Monitor Application Configuration wizard > Set Transaction Thresholds page ➤ BPM Business Transaction Flow wizard > Set Transaction Thresholds page ➤ Business Transaction Business Process Monitor Configuration page > Thresholds pane

Important information	➤ By default, all transactions included in a business transaction flow are initially assigned the default transaction threshold settings for the BPM application that includes the business transaction flow. You configure the default transaction threshold settings in the BPM Application wizard. For user interface details, see "Default Transaction Settings Page" on page 166. ➤ When setting transaction thresholds, you should take into account factors such as application performance under ideal conditions, competitors' performance, generally accepted performance standards, service level agreements, and end-user feedback. ➤ You should consider the alert trigger criteria you specify in your alert schemes. For example, if you set up an alert scheme to trigger a high priority alert whenever the response time of a transaction is greater than 15 seconds, you may want to set the Poor range for that transaction to 15 seconds or more. ➤ Select a single transaction by clicking a row in the list, or use the Shift or CTRL key to select several transactions.

User interface elements are described below:

UI Element (A-Z)	Description
Availability	Enter the availability threshold percentage for the transactions. **Note:** This element is not displayed when you access the dialog box from the Business Transaction Business Process Monitor Configuration page > Thresholds pane.
Critical	Enter the response time threshold above which a transaction's status is Critical. **Note:** The default color for critical transactions in Service Health and reports is red.

UI Element (A-Z)	Description
Minor	Displays the response time thresholds between which a transaction's status is Minor. **Note:** ➤ The default color for Minor transactions in Service Health and reports is yellow. ➤ The Minor transaction thresholds are automatically set to the range between the **OK** and **Critical** thresholds that you configure for a transaction.
OK	Enter the response time threshold below which a transaction's status is OK. **Note:** The default color for OK transactions in Service Health and reports is green.
Outlier	Enter the response time threshold above which a transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. **Note:** You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. For user interface details, see "Default Transaction Thresholds" on page 167.

Remove Data Collectors Wizard

This wizard enables you to remove data collectors assigned to run selected BPM applications, business transaction flows, or scripts, as part of a bulk operation.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab, and in the view tree select the **Search** tab. Run a search and in the **Search Results** pane, select the entities you want to update, click the **Bulk Operations** button and select **Remove BPM Data Collectors** from the Shortcut menu. ➤ Select **Admin** > **End User Management** > **Script Repository** tab. In the **Folder Content** pane, select a script that is in use and click the **Script Search Assignment** button. In the **Search Results** dialog box, select the scripts you want to update, click the **Bulk Operations** button and select **Remove BPM Data Collectors** from the Shortcut menu. ➤ Select **Admin** > **End User Management** > **Settings** tab > **Business Process Monitor Settings** > **BPM Agents**. Select data collectors from the list and click the **Search for Monitored Business Transaction Flows** button. In the **Search Results** dialog box, select the business transaction flows you want to update, click the **Bulk Operations** button and select **Remove BPM Data Collectors** from the Shortcut menu.
Wizard map	This wizard contains: Remove Data Collectors Page > Summary Page

Remove Data Collectors Page

This wizard page enables you to select and remove data collectors assigned to run selected BPM applications, business transaction flows, or scripts.

Important information	➤ General information about this wizard is available here: "Remove Data Collectors Wizard" on page 237 ➤ Select a single data collector by clicking a row in the list, or use the Shift or CTRL key to select several data collectors.
Wizard map	The Remove Data Collectors Wizard contains: **Remove Data Collectors Page** > Summary Page

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Select.** Moves selected data collectors from the Available Data Collectors pane to the Selected Data Collectors pane.
	**Select All.** Moves all data collectors from the Available Data Collectors pane to the Selected Data Collectors pane.
	**Deselect.** Moves selected data collectors from the Selected Data Collectors pane to the Available Data Collectors pane.
	**Deselect All.** Moves all data collectors from the Selected Data Collectors pane to the Available Data Collectors pane.
<Custom attributes>	Displays custom attributes configured for the data collector. You can configure up to five different custom attributes for data collectors. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Available Data Collectors	The left pane on the page lists the available data collectors that you can select to be removed from the selected <entities>.

UI Element (A-Z)	Description
Host	Displays the host name of the data collector.
Location	Displays the location of the data collector.
Selected <entities>	Click the **Selected <entities>** link to open a window in which the selected <entities> from which you are removing data collectors are displayed.
Selected Data Collectors	The right pane on the page lists the selected data collectors to be removed from the selected <entities>.

Summary Page

This wizard page enables you to view the affected entities (BPM applications, business transaction flows, or scripts) and the number of data collectors removed from them by this wizard.

Important Information	General information about this wizard is available here: "Remove Data Collectors Wizard" on page 237
Wizard map	The Remove Data Collectors Wizard contains: Remove Data Collectors Page > **Summary Page**

User interface elements are described below:

UI Element (A-Z)	Description
<Entity> Name	The name of the BPM application, business transaction flow, or script.
Status	The number of data collectors that were removed from the entity.

Schedule Dialog Box

This dialog box enables you to set a schedule for a BPM to run assigned scripts for a BPM application or business transaction flow.

To access	In the **Edit Data Collector Settings** dialog box, click the **New Schedule** button, or **Edit Schedule** button.
Important information	When setting multiple schedules for a BPM application or business transaction flow, keep in mind that if the schedules overlap at any time, the application or flow is run according to both schedules. The exception is if the application or flow is still running when a second schedule is set to start; in which case, the iteration of that application or flow is not run and the data collector skips that scheduled iteration.

Frequency and Recurrence Range Pane

User interface elements are described below:

UI Element (A-Z)	Description
Create custom schedule	Select this radio button and create a custom frequency and recurrence range by configuring the following properties: ➤ Frequency for running the application/business transaction flow ➤ Days of the week on which to run the application/business transaction flow ➤ Hours in the day during which to run the application/business transaction flow **Tip**: If there are no special considerations to take into account, it is recommended that you use the default scheduling scheme: **Every 15 minutes, all week, all day**.
Select from defined schedules	Select this radio button and choose a predefined frequency and recurrence range.

Time Zone Pane

This area enables you to select the time zone option on which the data collector instance bases its scheduling.

User interface elements are described below:

UI Element (A-Z)	Description
Data collector time	Select this radio button to have the data collector instance base its scheduling on the data collector machine's time clock. **Note**: Depending on the data collector location, local time may vary among machines.
Offset from GMT	Select this radio button to have the data collector instance base its scheduling on the time zone you set. Specify a time zone in relation to GMT. **Default value:** Data collector time **Note:** This setting is ignored if a frequency and recurrence setting for **all day, all week** is configured. **Tip:** Choosing **Offset from GMT** enables you to synchronize transaction run times among hosts. **Example:** if you want the data collector instance to run profiles based on Pacific Time, you would type **-8**, since Pacific Time is GMT-8 hours.

Start Offset Pane

This area enables you to set the Start Offset option to delay the scheduled running of the BPM application or business transaction flow. This enables the optimal distribution of script runs over time and minimizes the parallel running of many scripts. For details on the start offset, see "Run Schedules and Orders" in the *Business Process Monitor Administration* PDF.

User interface elements are described below:

UI Element (A-Z)	Description
BPM default	Select this radio button to use the start offset automatically assigned in the BPM for each profile that has this setting.
User defined	Select this radio button and set the amount of seconds the BPM should offset the running of the BPM application or business transaction flow. ➤ If you define the start offset value as 0, then no offset is applied for the BPM application or business transaction flow and the run starts at the time specified in the schedule. ➤ If you define the start offset as -1, or do not enter a value, then the BPM that runs the BPM application or business transaction flow allocates a start offset according to the BPM default. ➤ If you enter a positive value, the BPM application or business transaction flow is run that many seconds later than the schedule configured for it. For example, if the BPM application or business transaction flow is scheduled to run every hour, beginning at noon and you enter 5 seconds as the user-defined start offset, the BPM application or business transaction flow begins running at 12:00 and 5 seconds, and continuing running every hour, at the hour plus 5 seconds.

Set Transaction Breakdown Dialog Box

This dialog box enables you to set the transaction breakdown settings for selected scripts.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and click the **Set Transaction Breakdown** button in one of the following: ➤ Business Process Monitor Application Configuration wizard > Set Transaction Monitor Scripts page ➤ Add Script wizard > Add Scripts page
Important information	➤ For a description of the fields included in the dialog box, see "Default Transaction Breakdown" on page 169. ➤ By default, all scripts included in a business transaction flow are initially assigned the default transaction breakdown settings for the BPM application that includes the business transaction flow. You configure the default transaction breakdown settings in the BPM Application wizard. For user interface details, see "Default Transaction Settings Page" on page 166. ➤ In the Selected Scripts pane, select a single script by clicking a row, or use the Shift or CTRL key to select several scripts.

Single Transaction Script Dialog Box

This dialog box enables you to add a single transaction script to an existing business transaction flow, or to configure existing single transaction script settings. A single transaction script emulates navigation to a specified URL. You then track the response time and availability results in reports.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select a business transaction flow. In the Content pane, select **Business Process Monitor** tab > **Properties** page, and in the **Single Transaction Scripts** pane click the **New Single Transaction Script** button or **Edit Single Transaction Script Settings** button. ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click a RUM transaction that is part of a business transaction flow configured for BPM. In the Shortcut menu select **Add** > **Generate Single Transaction Script** to open the Generate Single Transaction Script dialog box. Select the page for whose URL you want to create the single transaction script and click **OK**.

Properties Tab

User interface elements are described below:

UI Element	Description
URL Settings	**URL to monitor.** Type the URL that you want HP Business Service Management to access. Include the protocol, host, and optionally include the port, URL path, and parameters.
	Test URL. Click the **Test URL** button to open the configured URL in a new browser.
	Transaction name. Enter a name for the single URL monitor. This name identifies this monitor in the view tree, in Service Health, and in reports. **Syntax exceptions:** ➤ If the transaction name exceeds 95 characters, BPM may not be able to run the script. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and **` ~ ! @ # $ % ^ & * ( )_ - + { } ; <space>**
	Use secure logon. If the URL you specify requires authentication, select the **Use secure logon** check box.
	Login name. Enter the login name required for secure logon. **Note:** This field is enabled only when you select the Use secure logon check box.
	Login password. Enter the password required for secure logon. **Note:** This field is enabled only when you select the Use secure logon check box.

UI Element	Description
Text Validation Settings	**Enable text validation.** Select the check box to enable text validation. You can configure a text check as a way of verifying that the configured URL reaches the correct page.
	<**Search area**>**.** Select whether HP Business Service Management should search for the text in the HTML source file or on the screen (the text that appears in the browser window). **Note:** ➤ If you select **in the source file**, HP Business Service Management looks for text strings as they appear in the Web page's source code. Ensure that text strings do not include hard returns or special characters. ➤ This field is enabled only when you select the Enable text validation check box.
	Enter the text to be searched for. Enter the required text string to search for. **Note:** This field is enabled only when you select the Enable text validation check box.
	<**Text condition**>**.** Specify whether the text should exist or not exist for HP Business Service Management to consider the URL successful. **Note:** This field is enabled only when you select the Enable text validation check box.
Run-time Settings	**Modem emulation.** Select the modem emulation setting that best reflects the type of connection used by your customer base. In this way, the data that HP Business Service Management collects more closely reflects the actual user experience of your customers.

Transaction Settings Tab

User interface elements are described below:

UI Element	Description
Transaction Thresholds	**OK.** The response time threshold below which the transaction's status is OK. **Note:** The default color for OK transactions in Service Health and reports is green.
	Minor. The response time thresholds between which the transaction's status is Minor. **Note:** ➤ The default color for Minor transactions in Service Health and reports is yellow. ➤ The Minor transaction threshold is automatically set to the range between the **OK** and **Critical** thresholds that you configure for the transaction.
	Critical. The response time threshold above which the transaction's status is Critical. **Note:** The default color for critical transactions in Service Health and reports is red.
	Outlier. The response time threshold above which the transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. **Note:** You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. For user interface details, see "Default Transaction Thresholds" on page 167.

UI Element	Description
Transaction Breakdown	**Enable breakdown.** Select the check box to generate transaction breakdown data when running the monitor.
	Report additional error information. Select the check box to include date, time, location, and error messages for failed transactions in applicable EUM reports. If this option is disabled, BSM reports only average error times. Disabling this option decreases the amount of data that is sent from the BPMs running the transaction breakdown to the Gateway Server and profile database. For details on the Error Log, see "Error Log" on page 886. **Note:** You can only select this check box if you have enabled breakdown.
	Perform component breakdown. Select the check box to save complete page component breakdown data for a sampling of transaction instances. By default, HP Business Service Management saves page component breakdown data to the database once per every four transaction instances. **Note**: You can only select this check box if you have enabled breakdown.
	Enable Diagnostics/TV breakdown. Select the check box to see J2EE and .Net data. This data is available in HP Diagnostics and Transaction Management reports only if you have valid HP Diagnostics and Transaction Management licenses. For details, see the *HP Diagnostics Installation and Configuration Guide* and the Transaction Management documentation.

Assigned Data Collectors Tab

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Add Data Collectors.** Opens the Add Data Collectors dialog box, where you select the data collectors you want to run the single transaction script. For user interface details, see "Add Data Collectors Dialog Box" on page 137.
	**Edit Data Collector Settings.** Opens the Edit Data Collector Settings dialog box, where you configure the schedule and advanced settings for selected data collectors for the single transaction script. For user interface details, see "Edit Data Collector Settings Dialog Box" on page 219.
	**Restore Application Data Collectors.** Restores the application's data collector settings for selected data collectors. This overrides any locally configured settings for the selected data collectors in the Single Transaction Script. **Note:** This button is enabled only when data collectors that are assigned to both the Single Transaction Script and its parent application are selected.
	**Remove Data Collectors.** Removes selected data collectors from the list of data collectors for the single transaction script.
<Custom attributes>	Displays custom attributes configured for the data collector. You can configure up to five different custom attributes for data collectors. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Host	Displays the host alias of the data collector instance as defined on the data collector machine.
Location	Displays the location of the data collector instance as defined on the data collector machine.

UI Element (A-Z)	Description
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.
Schedules	Displays the schedule configured for the data collector.
Source	Displays an icon that shows how the data collector obtains its configuration. The possible icons are: ➤ **Configured locally.** The data collector is assigned to the Single Transaction Script only. ➤ **Inherits parent application's data collector settings.** The data collector is assigned to both the application and the Single Transaction Script and the same settings are used for both. ➤ **Configured locally but can inherit parent application's data collector settings.** The data collector is assigned to both the application and the Single Transaction Script, but its settings have been changed for the Single Transaction Script. You use the **Restore Application Data Collectors** button to restore the parent application's data collector settings and override any locally configured settings. **Tooltip:** A tooltip explains the meaning of the icon.
Version	Displays the version of the data collector software installed on the data collector machine.

Unique Data Collector Values Dialog Box

This dialog box enables you to configure an application or business transaction flow’s script parameter value for a specific data collector.

To access	Select **Edit Script Settings** dialog box > **Script Parameters** tab. Select the parameters whose value you want to change and click the **View Unique Data Collector Values** button.
See also	"Script Parameter Management Overview" on page 112

User interface elements are described below:

UI Element (A-Z)	Description
	Edit Script Parameter. Opens the Edit Script Parameter dialog box, where you can edit the value, description and expiration date for a selected parameter for a specific data collector. For user interface details, see "Edit Script Parameter Dialog Box" on page 225.
	Delete Script Parameter Override. Restores the parameter value to the value configured for all data collectors. If you have not manually configured such a value, the original script parameter value is used.
DC Name	The name of the data collector configured to run the script.
Description	A free text description for the parameter.
Expiration Date	An expiration date for the parameter value. You can configure expiration dates for parameter values to help you manage parameters with frequently changing values, such as passwords. The expiration date is an indication of when you want to change a parameter’s value. **Note:** You can edit the expiration date by clicking the arrow in the relevant table cell. A calendar opens from which you can select a date.
Name	The parameter name.

UI Element (A-Z)	Description
Script Name	The name of the script in which the parameter is used.
Unique Data Collector Value	A check mark indicates that different values for the parameter have been configured for specific data collectors.
Value	The configured parameter value for the specific data collector.

Update Version Wizard

This wizard enables you to change the version of a script included in a business transaction flow, as well as to set parameter values used by the script. It also enables you to set transaction thresholds for the transactions included in the script.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select a business transaction flow. In the Content pane select **Business Process Monitor** tab > **Properties**, and in the **Scripts** pane click the **Update Version** button.
Wizard map	This wizard contains: Update Version Page > Define Script Parameters Page > Define Transaction Thresholds Page

Update Version Page

This wizard page displays the current version of the script used in the business transaction flow and enables you to select a different version.

Important information	General information about this wizard is available here: "Update Version Wizard" on page 252.

Wizard map	The Update Version Wizard contains: **Update Version Page** > Define Script Parameters Page > Define Transaction Thresholds Page
See also	"Script Repository" on page 455

User interface elements are described below:

UI Element (A-Z)	Description
Select the script version	Displays the current script version. Select the version to which you want to update the script.

Define Script Parameters Page

This wizard page enables you to configure parameter values (such as user name, password, and so forth) that are required by a script to run properly.

Important information	General information about this wizard is available here: "Update Version Wizard" on page 252.
Wizard map	The Update Version Wizard contains: Update Version Page > **Define Script Parameters Page** > Define Transaction Thresholds Page
See also	"Script Parameter Management Overview" on page 112

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Script Parameter.** Opens the Edit Script Parameter dialog box, where you can edit the value, description and expiration date for a selected parameter. For user interface details, see "Edit Script Parameter Dialog Box" on page 225. **Note:** This button is disabled for parameters containing multiple values.
	**View Unique Data Collector Values.** Opens the Unique Data Collector Values dialog box, where you can view the parameter's settings for each data collector and set specific values by data collector. For user interface details, see "Unique Data Collector Values Dialog Box" on page 251. **Note:** This button is disabled for parameters containing multiple values.
	**Restore Script Parameter Value.** Restores the original script parameter value. **Note:** This button is disabled for parameters containing multiple values.
Description	A free text description for the parameter. **Note:** You can edit the description by clicking the relevant cell in the table.
Expiration Date	An expiration date for the parameter value. You can configure expiration dates for parameter values to help you manage parameters with frequently changing values, such as passwords. The expiration date is an indication of when you want to change a parameter's value. **Note:** You can edit the expiration date by clicking the arrow in the relevant table cell. A calendar opens from which you can select a date.
Name	The parameter name.
Script Name	The name of the script in which the parameter is used.

UI Element (A-Z)	Description
Unique DC Values	A list of the BPMs for which different values of the parameter are configured. You can view the data collectors and the parameter values configured for them by clicking the **View Unique Data Collector Values** button.
Value	The parameter value. **Note:** ➤ For parameters marked sensitive, the value is not displayed and a row of black dots, indicating the number of characters in the value, is displayed instead. ➤ For parameters containing multiple values, the value is not displayed and the message [Multiple Values] is displayed instead.

Define Transaction Thresholds Page

This wizard page lists the transactions included in the scripts you add to the business transaction flow and enables you to set transaction thresholds for them.

Important information	➤ General information about this wizard is available here: "Update Version Wizard" on page 252. ➤ Select a single transaction by clicking a row in the transaction list and enter thresholds directly in the row. Use the Shift or CTRL key to select several transactions and click the **Edit Thresholds** button to open the Edit Thresholds dialog box, where you configure thresholds for all the selected transactions.
Wizard map	The Update Version Wizard contains: Update Version Page > Define Script Parameters Page > **Define Transaction Thresholds Page**

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Thresholds.** Opens the Edit Thresholds dialog box, where you configure transaction thresholds for multiple transactions. For user interface details, see "Edit Thresholds Dialog Box" on page 234.
Critical	The response time threshold above which the transaction's status is Critical. **Note:** The default color for critical transactions in Service Health and reports is red.
Minor	The response time thresholds between which the transaction's status is Minor. **Note:** ➤ The default color for Minor transactions in Service Health and reports is yellow. ➤ The Minor transaction threshold is automatically set to the range between the **OK** and **Critical** thresholds that you configure for the transaction.
OK	The response time threshold below which the transaction's status is OK. **Note:** The default color for OK transactions in Service Health and reports is green.
Outlier	The response time threshold above which the transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. **Note:** You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. For user interface details, see "Default Transaction Thresholds" on page 167.
Scripts	The transaction monitor script in which the transaction is included.
Transaction Name	The transaction name.

WebTrace Dialog Box

This dialog box enables you to add a WebTrace to a BPM application or to a business transaction flow. It also enables you to configure existing WebTrace settings. WebTrace monitors enable you to record the specific route taken from the data collector to the destination Web server or IP address, including the specific gateway servers at each hop.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select an application or business transaction flow. In the Content pane, select the **Business Process Monitor** tab > **Properties** page, and in the **WebTraces** pane click the **New WebTrace** button or **Edit Webtrace Settings** button.
Important information	BPMs earlier than version 9.00 cannot be assigned to Webtraces on the application level and do not appear as available data collectors.

Properties Pane

User interface elements are described below:

UI Element (A-Z)	Description
Destination	Enter a destination Web server address to specify the Web server on which you want the trace to be performed. You can enter the Web server address as a domain name or as an IP address. **Note:** WebTrace monitors do not support destination servers that begin with a numeric digit. IP addresses are supported. **Syntax exceptions:** Do not include the string http:// or https:// when typing the server address.
Port	Enter the port number for the destination Web server. **Default value:** 80

Data Collectors Pane

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Add Data Collectors.** Opens the Add Data Collectors dialog box, where you select the data collectors you want to run the WebTrace. For user interface details, see "Add Data Collectors Dialog Box" on page 137.
	**Edit Data Collector Settings.** Opens the Edit Data Collector Settings dialog box, where you configure the schedule and advanced settings for selected data collectors for the WebTrace. For user interface details, see "Edit Data Collector Settings Dialog Box" on page 219.
	**Restore Application Data Collectors.** Restores the application's data collector settings for selected data collectors. This overrides any locally configured settings for the selected data collectors in the business transaction flow. **Note:** This button is enabled only when data collectors that are assigned to both the business transaction flow and its parent application are selected.
	**Remove Data Collectors.** Removes selected data collectors from the list of data collectors for the WebTrace.
<Custom attributes>	Displays custom attributes configured for the data collector. You can configure up to five different custom attributes for data collectors. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Host	Displays the host alias of the data collector instance as defined on the data collector machine.
Location	Displays the location of the data collector instance as defined on the data collector machine.

UI Element (A-Z)	Description
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.
Schedules	Displays the schedule configured for the data collector.
Source	Displays an icon that shows how the data collector obtains its configuration. The possible icons are: ➤ **Configured locally.** The data collector is assigned to the business transaction flow only. ➤ **Inherits parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow and the same settings are used for both. ➤ **Configured locally but can inherit parent application's data collector settings.** The data collector is assigned to both the application and the business transaction flow, but its settings have been changed for the business transaction flow. **Tooltip:** A tooltip explains the meaning of the icon. **Note:** This element is visible only when adding data collectors to business transaction flows.
Version	Displays the version of the data collector software installed on the data collector machine.

Troubleshooting and Limitations

This section includes the following troubleshooting and limitations for BPM Administration:

SOA Transaction Breakdown Troubleshooting and Limitations

The following limitations apply when you enable SOA breakdown for a transaction monitor:

- Only scripts that are recorded in HP Virtual User Generator version 9.10 or later are supported for SOA breakdown. To use a script recorded with HP Virtual User Generator version 9.00, detach the script from a profile (if attached), open and save the script in HP Virtual User Generator version 9.10 or later, and reattach the script to the profile. Scripts recorded with HP Virtual User Generator version 8.10 FP3 and earlier are not supported and you must record the script again using HP Virtual User Generator version 9.10 or later.
- SOAP calls and REST WebServices calls are not supported for SOA data breakdown.
- WebServices calls over JMS are not supported for SOA data breakdown.
- BPM only supports WSDL version 1.1. For details on WSDL versions in Web Services protocols, see the HP Virtual User Generator documentation.
- Each Web Services script must be parsed successfully with at least one toolkit (not all scripts need to be parsed with both .NET and Axis toolkits). It is recommended to use the **Axis/Java based Web Services Framework** toolkit for Java based services and the **.NET Framework** toolkit for .NET services.

- BPM supports SOAP version 1.1 when using a .NET toolkit and SOAP version 1.2 when using an Axis toolkit.
- If you are using a version of BPM earlier than version 7.50, but all the other prerequisites are met, the check box to enable SOA breakdown for a transaction monitor is visible and can be selected in EUM Administration, but no SOA data is sent to BSM from the BPM machine running the earlier version.
- If certain major errors occur in an SOA script, the check box to enable SOA breakdown for a transaction monitor may not be visible, even though all the prerequisites are met.

Business Process Monitor Script Errors

For details of BPM script error codes, see the *LoadRunner Troubleshooting Guide* in the LoadRunner documentation.

Using Different Languages for Application, Business Transaction Flow, Transaction, and Script Names

Application, business transaction flow, transaction, and script names must be entered in the same language that is set for the operation system of the BPM on which they are run.

Samples are not Updated in Business Service Management

Samples from BPM versions earlier than 9.00 can take a few minutes before they are updated in BSM.

3

Real User Monitor Administration

This chapter includes:

Concepts

Tasks

Reference

Concepts

Real User Monitor Overview

HP Real User Monitor (RUM) monitors both user and system initiated network traffic between client machines and servers and between servers, collecting network and server performance and availability data in real time.

After having installed a RUM engine and probe (for details, see the *Real User Monitor Administration* PDF) you must configure RUM in End User Management (EUM) Administration to be able to monitor applications and end users.

The settings you configure in EUM Administration are used by the RUM engine to collect and process real-time data from the RUM probes. By comparing this data to predefined thresholds, HP Business Service Management (BSM) is able to pinpoint performance related issues as experienced by end-users. You use RUM reports to help identify the cause of delays and determine the business impact of performance issues experienced by end-users.

You use the Monitoring Page Browse tab in EUM Administration to navigate and work with the configured CI collections, applications, transactions, and end-user groups. For user interface details, see "Monitoring Page Browse Tab" on page 64.

You use EUM Administration to:

- **Define applications to be monitored.** This includes configuring applications, application events, actions, action events, and transactions.
- **Assign RUM engines and probes.** Assign the engines and probes to monitor the configured applications and related entities.

Note: RUM engines and probes are only registered and available in BSM once you have installed them and configured them in the RUM Web Console. For details, refer to the *Real User Monitor Administration* PDF.

➤ **Create end-user groups.** Note that end-user groups are not included in the Application Management view, but are included in the RUM End Users view. For details on predefined views, see "Predefined Views for End User Management" on page 37.

Frame Unification

By default, RUM considers each inline frame (that is, a frame included in another frame by use of the HTML Frame command) in a monitored page as a separate page for reporting and statistical purposes. You can configure RUM to unify the inline frames in a page so that they are treated as children of the parent frame in which they appear. You can configure frame unification for an entire application, as well as for individual pages included in a transaction.

Measurements for a unified, parent frame are calculated from its children's measurements. It is possible for a unified, parent frame's server, network, or client time to be less than the individual server, network, or client time of one of its child frames. This can occur when the download time of the frames used in the calculation overlap, but register different measurements for the same time period. For example, two inline frames may be downloading at the same time, but one registers server time while the other registers network time.

The section also includes:

➤ "Unifying Frames for an Application" on page 267

➤ "Unifying Frames for a Page in a Transaction" on page 267

Unifying Frames for an Application

You enable frame unification for Web applications when you create or edit an application in EUM Administration (for details, see "Real User Monitor Application Configuration Wizard" on page 372). In the Session Details report and the Session Replay page, pages that are part of applications for which frame unification is enabled are displayed in a hierarchical tree showing the parent frames and their children. Measurements are displayed for each child frame listed in the Session Details page and totals calculated from the children's measurements are displayed for the parent frame. For details on the Session Details report, see "Session Details Report" on page 998 and for details on the Session Replay page, see "Session Replay Page" on page 1005.

Note:

- RUM also supports frame unification for Siebel applications, which is based on a predefined list of user actions. A user action is a click in a page (for example, clicking a link or selecting an item from a drop-down list) that triggers HTTP requests. When performed, each user action is considered as a parent in the hierarchical tree and all the HTTP requests that are triggered by the action are considered its children.
- In the hierarchical tree in the Session Details report and the Session Replay page, a parent frame appears both as a parent frame (with calculated totals from its children) and as a child frame of itself.

Unifying Frames for a Page in a Transaction

You enable frame unification for a page in a transaction when you create or edit a transaction in EUM Administration (for details, see "Business Transaction Real User Monitor Configuration Page" on page 330). You must also enable frame unification for the application in which the transaction is defined. In the RUM Transaction Summary report, measurements for pages enabled for frame unification in a transaction included in the report are calculated from the frame measurements of the page's children. For details on the RUM Transaction Summary report, see "RUM Transaction Summary Report" on page 991.

Using the URL Builder

You use the URL Builder to define URLs when configuring session reset settings, applications, pages, and error page events.

When you enter the URL in the **URL** box in the upper area of the URL Builder dialog box, the URL is automatically broken down into the five following composite parts in the lower area of the URL Builder dialog box.

- **URL Protocol.** The protocol used to fetch the URL. HTTP is the standard protocol for regular communications and HTTPS is the protocol used when the URL is accessed using Secure Sockets Layer (SSL).
- **URL Host.** The name of the machine on which the file, or resource, that you want to access via the URL resides.
- **URL Port.** The port number used to connect to the URL host machine. The default port when using the HTTP protocol is 80 and when using the HTTPS protocol, the default port is 443.
- **URL Path.** The path to the file, or resource, that you want to access via the URL.
- **URL Parameters.** URL parameters form a query string that is used by the URL to narrow its search by filtering for specific values in specific parameters. Each parameter in the string includes the parameter name and the value being searched for. Parameters are separated from the rest of the URL by a question mark (**?**). Configured URLs must use the ampersand character (&) as the parameter delimiter.

Any change to the composite parts is automatically updated and displayed in the full URL in the **URL** box in the upper area of the URL Builder dialog box. Similarly, any change made to the full URL is automatically updated and displayed in the composite parts.

When configuring a URL, you can use the asterisk (*****) wildcard. For details, see "URL Wildcards" on page 269.

Note: The URL cannot exceed 2000 characters and cannot include the # sign followed by an asterisk (#*).

Example of URL Composite Parts

The following table shows the composite parts of the URL **http://www.hp.com/cgi-bin/search/search.cgi?country_code= corp&keyword=real%20user%20monitor**

URL Part	Value
Protocol	http
Host	www.hp.com
Port	80 (default)
URL Path	cgi-bin/search/search.cgi
Parameters	country_code=corp&keyword=real%20user%20 monitor

URL Wildcards

The asterisk (*) is the only valid wildcard character that can be used when defining a URL. The asterisk can be used in the URL host, the URL port, the URL path, and the URL parameters. The asterisk wildcard character represents any combination of characters and is applicable to where it is placed. For example:

- **hp*** is equivalent to any string of characters that begins with **hp**
- ***hp** is equivalent to any string of characters that ends with **hp**
- ***hp*** is equivalent to any string of characters that has **hp** in it somewhere
- **h*p** is equivalent to any string of characters that begins with **h** and ends with **p**

By default, an asterisk is considered to be a wildcard. If you want to use an asterisk as a literal in a string and not as a wildcard, precede it with a backslash (\). For example, the string **my*str*** is matched with **my*str123**, but is not matched with **my123str123**.

Note:

- The asterisk wildcard character cannot be used in the URL port when defining an application URL.
- The asterisk wildcard character can be used in the value part of a parameter, but cannot be used in the parameter name.
- If the URL parameter string contains only an asterisk wildcard character and nothing else, this indicates that the URL must contain at least one parameter, but it does not matter what the parameter name or the value is.

Correlating Collected Data with Configured Pages

In addition to correlating wildcard expressions (for details, see "URL Wildcards" on page 269), RUM uses other guiding principles, or rules in correlating recorded URLs collected by the probes with the URLs you configure in EUM Administration. You can reconfigure some of the default correlation rules according to which RUM operates, in the RUM engine. For details, see "URL Correlation Parameters" in the *Real User Monitor Administration* PDF.

This section includes:

- "Correlating URLs Without URL Paths" on page 273
- "Correlating URLs Ending with a Directory" on page 273
- "Correlating Ports" on page 274
- "Correlating URLs Containing Basic Authentication" on page 274
- "Correlating Parameters" on page 274

Correlating Session ID Parameters

By default, RUM takes the session ID parameters of the recorded URL into consideration when correlating the recorded URL with a configured URL. It looks to match the recorded URL to a configured URL containing the identical session ID parameter values. In addition, RUM treats URLs with non-identical session ID parameter values as separate entities when calculating global statistics such as Most Popular Pages.

You can instruct RUM to ignore session ID parameters when correlating a recorded URL with a configured URL by configuring the **HPRUM\conf\configurationmanager\Application_Server_Types_configuration.xml** file on the RUM engine machine (for details, see "URL Correlation Parameters" in the *Real User Monitor Administration* PDF). For example, if you set the application server as **BroadVision**, RUM ignores the **BV_SessionID** and **BV_EngineID** parameters in the following URL:

http://www.hp.com/~anand/Ticket_Confirm.jsp?BV_SessionID=@@@@1812057630.1043567934@@@@&BV_EngineID=cccdadchgidfmlmcefecehidfhfdffk.0&value=0000144976

The URL is translated as follows:

http://www.hp.com/~anand/Ticket_Confirm.jsp?BV_SessionID=*&BV_EngineID=*&value=0000144976

As a result, the recorded URL can be correlated with a configured URL that contains different **BV_SessionID** and **BV_EngineID** parameters.

The different **BV_SessionID** and **BV_EngineID** parameter values are also ignored when RUM calculates global statistics such as Most Popular Pages. In the above example, all BroadVision sessions are recorded as http://www.hp.com/~anand/Ticket_Confirm.jsp?BV_SessionID=*&BV_EngineID=*&value=0000144976 for global statistic purposes.

Note:

➤ Vugen and Business Process Monitor (BPM) transactions that do not contain a session ID in either a header cookie or the URL, cannot be correlated as individual sessions. Vugen and BPMs should be configured to include a session ID in a header cookie, or the URL, in transactions.

➤ If the interval between BPM samples is greater than the session time-out configured for the RUM engine in EUM Administration, the open session is closed and a new session started for the next sample, even if a session ID is not included in the sample.

Correlating URL Suffixes

By default, RUM considers a URL with the suffix of **index.html** to be the same as the root URL. For example, http://www.hp.com/index.html is considered to be the same as http://www.hp.com/. To instruct RUM to consider other suffixes as being the same as the root URL, or to instruct RUM to consider all URL suffixes as being different from the root URL, you can set the **adaptIndexurl** and **urlIndexStrings** parameters in the RUM engine (for details, see "URL Correlation Parameters" in the *Real User Monitor Administration* PDF).

Correlation and Case-Sensitivity

By default, RUM URL correlation is case insensitive—that is, a recorded URL such as http://www.hp.com/rumEnginePage.html is correlated with the configured URL http://www.hp.com/rumenginepage.html. However, you can instruct RUM to use case-sensitive URL correlation (for all but the host and protocol parts of a URL) by setting the **adaptCaseSensitive** parameter in the RUM engine (for details, see "URL Correlation Parameters" in the *Real User Monitor Administration* PDF).

Correlating Parameters Without Values

RUM correlates a URL even if it contains a parameter key without a value. For example, a recorded URL such as http://www.hp.com/cgi-bin/search/search.cgi?country_code is still correlated even though no value has been specified for the **country_code** parameter.

Correlating URLs Containing Bookmarks

RUM ignores bookmarks when performing URL correlation. For example, the recorded URL http://www.hp.com:80/?A=2#bookmark3 is correlated with the configured URL http://www.hp.com:80/?A=2.

Correlating URLs Without URL Paths

RUM considers URLs that do not contain URL paths to be identical to URLs that contain a slash following the host part of the URL. For example, the recorded URL http://www.hp.com is correlated with the configured URL http://www.hp.com/.

Correlating URLs Ending with a Directory

RUM does not consider URLs that contain a double slash representing a directory to be identical to URLs that contain a single slash following the host part of the URL. For example, the recorded URL http://www.hp.com// is not correlated with the configured URL http://www.hp.com/.

Correlating Ports

RUM assigns a default port to a recorded URL in which a port number is not specified. For example, a recorded URL such as http://www.hp.com is correlated with the configured URL http://www.hp.com:80.

Correlating URLs Containing Basic Authentication

By default, RUM ignores basic authentication when performing URL correlation. For example, the recorded URL http://bob:my_password@www.hp.com is correlated with the configured URL http://www.hp.com. However, you can instruct RUM to consider basic authentication when performing URL correlation by setting the **basicAuthentication** parameter in the RUM engine (for details, see "URL Correlation Parameters" in the *Real User Monitor Administration* PDF).

Correlating Parameters

By default, RUM query parameter correlation is not order sensitive. For example, the recorded URL http://www.hp.com:80/?a=2&b=2&c=3 can be correlated with the configured URL http://www.hp.com:80/?b=2&c=3&a=2 or the configured URL http://www.hp.com:80/?b=2&a=2&c=3.

Correlation Algorithm for Multiple URL Matches of Business Critical Pages

This section describes the algorithm that RUM uses to determine with which URL definition a recorded URL is correlated, if several URL definitions match the recorded URL. A URL can be correlated with only one configured page.

If a recorded URL matches several URL definitions, RUM determines which configured page to correlate with the recorded URL based on the placement of the asterisk (*) wildcard character in the configured URL. URLs include up to five parts, separated by delimiters (for details of the different parts, see "Using the URL Builder" on page 268). RUM first tries to match the recorded URL to a defined URL with an asterisk in the last part of the defined URL. If no match can be made, RUM then tries to match the recorded URL to a defined URL with an asterisk in the one but last part of the defined URL. In this manner it keeps trying to find a match up to an asterisk, moving backwards from part to part in the defined URL. For example, if you configured the following two URLs:

- http://www.hp.com/cgi-bin/search/search.cgi?*
- http://www.hp.com/cgi*

and the following URL is recorded:

http://www.hp.com/cgi-bin/search/search.cgi?country_code=corp&keyword=real+user+monitor

the recorded URL is correlated with http://www.hp.com/cgi-bin/search/search.cgi?* because the asterisk is located in the last part (query parameters), rather than in a preceding part of the URL.

If two configured URLs both contain asterisks in the same part of the URL, the RUM matches the recorded URL to the configured URL with which it shares the greatest number of consecutive joint characters from the beginning of the URL. For example, if you configured the following two URLs:

- http://www.hp.com/cgi*
- http://www.hp.com/cgi-bin*

and the following URL is recorded:

http://www.hp.com/cgi-bin/search/search.cgi?country_code=corp&keyword=real+user+monitor

the recorded URL is correlated with http://www.hp.com/cgi-bin*.

User Name Translation

When configuring a Web or SOAP application to be monitored in EUM Administration, you can select a user name translation file if you want RUM to translate a user’s login name located in monitored data to a real name.

An empty name translation file called **UserLoginNames.csv** is located in the <**RUM engine root directory**>**conf****resolver** directory. To add a user for name translation, edit the file and enter the user's login name in the first column and the user's real name in the second column.

For details on configuring a user name translation file in an application, see "User Name Detection Area" on page 411.

Host Aliases Overview

You can create host aliases for RUM applications. For analysis purposes, it is often helpful to group several hosts and monitor these hosts together, as a unit. This enables you to monitor pages that are located on multiple servers as the same page and view them as such in the RUM reports. For example, if your organization has different Web sites in a number of countries, each showing similar information such as company profile, events, products, and so forth, you could create a host alias for all of the required pages so that they would appear as one unit in the RUM reports. The host unit is known as a host alias, which you configure and manage in the Real User Monitor Application Data Collection page. For user interface details, see "Host Aliases Area" on page 397.

End-User Groups Overview

You create end-user groups to configure RUM to collect and report data for specific end users. Each end user for whom you want RUM to collect and report data must belong to an end-user group. Data collected for end-users who do not belong to a configured end-user group are included in a default end-user group called **Others**. An end-user group can contain multiple end users or a single end user.

By default, RUM collects data for the end users included in an end-user group, but you can configure RUM to ignore the data for the end users included in a specific end-user group and not collect or report such data.

You configure end-user groups by user names, IP ranges, or session properties. Once configured, you cannot change the way end users are identified for an end-user group (for example, you cannot change user names to IP ranges for a configured end-user group), but you can change the configuration for the identification method (for example, you can change the IP addresses configured for an end-user group).

Configured end-user groups are applicable for all the defined applications in EUM that are monitored by RUM, but the users included in an end-user group are determined in the context of a single application. It is possible that an end user is a member of one group in an application, but is a member of a different group in another application.

If an end user belongs to more than one end-user group within the context of an application, RUM determines in which end-user group to include the end user by user name, IP address, or session properties, in that order. If an end user belongs to more than one group based on session properties within the context of an application, the order of the session properties as configured for the application determine in which end-user group the end user is included (with the highest session property used).

RUM automatically creates end-user subgroups, which are displayed in EUM reports, according to the IP resolution configured for the end-user group.

For user interface details on configuring end-user groups, see "Add End User Group with Real User Monitor Configuration Dialog Box" on page 322.

Exporting and Importing Real User Monitor Configurations

You can export and import RUM configurations for applications and end-user groups, so that you can transfer them from one system to another (for example, from a testing environment to a production environment).

Note: You cannot export and import RUM configurations between different versions of BSM.

You can export individual or multiple selections of applications or end-user groups, but can only export one entity type at a time (that is, you cannot export applications and end-user groups in the same operation). The exported data is saved in an xml file on your client machine.

When you import a previously exported xml file you have the option of overriding existing, duplicate entities (that is, a CI of the same type with the same name) or not. If you choose to override existing entities, the existing CI is deleted and a new one is created in its place.

To export applications or end-user groups you must have View permissions for RUM configurations for all the selected entities. To import applications or end-user groups you must have Real User Monitor Administrator or Administrator permissions. For details on assigning permissions, see "User Management" in *Platform Administration*.

Caution: Changing the contents of an exported xml file may result in unexpected results when the file is imported.

This section also includes:

➤ "Exporting and Importing RUM Applications" on page 279

➤ "Exporting and Importing RUM End User Groups" on page 281

Exporting and Importing RUM Applications

You can export a single application in a view, multiple applications in a view, or all the applications in a view. For user interface details, see "Monitoring Page Browse Tab" on page 64 and "Import RUM Applications/End User Groups Configuration Wizard" on page 357.

The following notes and limitations are applicable when exporting and importing RUM applications.

Exporting RUM Applications

When you export a RUM application, an xml file of the RUM application configuration is created in the specified directory and with the specified name. The application is exported with its CI hierarchy. The following table lists an application's linked entities and shows which are included in the export and which are excluded:

Linked Entity	Included in Export	Excluded from Export
Configuration tiers (front- and back-end with full configuration)	✔	
Business transaction flows with all linked CIs	✔	
Transactions with or without RUM configuration	✔	
Logical groups with all linked CIs	✔	
Profile database name		✔
APM 360 with SLM licenses		✔
RUM engines		✔
All entity IDs		✔
Tier names		✔
Host aliases		✔
BPM configurations		✔

Importing RUM Applications

When you import a RUM application, internal validations are made on the data being imported. If the validation is not successful, partial importation of certain entities may occur. Details of such errors are available in the following log files:

- **<HPBSM root directory>\logs\EJBContainer\ma-app.log** (all EUM Administration errors)
- **<HPBSM root directory>\logs\EJBContainer\ma-app-msg.log** (information messages)

Search for log entries that include the text Failed to import.

Exporting and Importing RUM End User Groups

You can export a single end-user group or CI collection in a view, multiple end-user groups or CI collections in a view, or all the end-user groups or CI collections in a view.

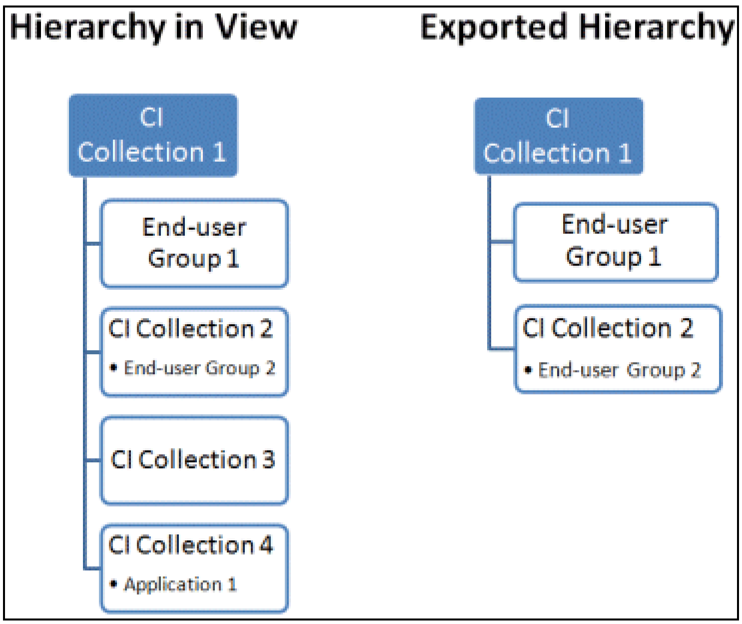
For user interface details, see "Monitoring Page Browse Tab" on page 64 and "Import RUM Applications/End User Groups Configuration Wizard" on page 357.

The following notes and limitations are applicable when exporting and importing RUM end-user groups.

Exporting RUM End User Groups

When exporting CI collections, only CI collections that contain end-user groups configured for RUM are exported. End-user groups are exported with their CI collection hierarchy, so that if an end-user group with a RUM configuration is included in a CI collection, the CI collection is also exported.

The following example shows a hierarchy of end-user groups and CI collections as defined in a view, and the hierarchy that is exported:



Importing RUM End User Groups

When you import a RUM end-user group, the following validations are made, which may result in an import failure:

➤ IP ranges. Different end-user groups cannot have overlapping IP ranges, unless one range is completely contained in the other.

➤ Session properties. When you import an end-user group that is defined by session properties, you must have a RUM application in the receiving system for which the same session properties are configured.

➤ End-user names. End-user names cannot be included in more than one end-user group.

Tasks

How to Set up Real User Monitors

This task describes the working order required to set up and use RUM to collect data on the performance of real users accessing defined applications.

This task includes the following steps:

➤ "Prerequisites" on page 283

➤ "Install RUM components" on page 284

➤ "Load SSL keys" on page 284

➤ "Discover and configure applications" on page 284

➤ "Install and assign RUM licenses" on page 284

➤ "Detect session IDs and configure sessions for Web applications" on page 285

➤ "Configure user name detection - optional" on page 285

➤ "Configure application related entities" on page 285

➤ "Grant permissions" on page 286

➤ "View Real User Monitor data in reports and in Service Health" on page 286

1 Prerequisites

If you are installing RUM probes for port mirroring, ensure that your network administrator advises you where to install the probes.

If you are loading SSL keys, ensure that you obtain the necessary private keys from your security officer.

2 Install RUM components

Install the RUM engine, probe, and MySQL database. For task details, see "How to Install Real User Monitor Components" on page 286.

3 Load SSL keys

If the RUM probe monitors SSL encrypted traffic, in the RUM Web console load the keys necessary to monitor such traffic. For details, see "SSL Keystore Management" in the *Real User Monitor Administration* PDF. For a use-case scenario related to this step, see "How to Load SLL Keys - Use-Case Scenario" on page 298.

4 Discover and configure applications

In the RUM Web console, automatically discover the servers and domains being accessed by the traffic to which a probe is listening and in EUM Administration, configure the applications to be monitored. For task details, see "How to Discover and Define Real User Monitor Applications" on page 287.

5 Install and assign RUM licenses

For task details, see "How to Install and Assign Real User Monitor Licenses" on page 499.

Note: You can use the default evaluation licenses for a period of 60 days, but once expired, you must install and assign valid licenses for monitoring to be enabled.

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6 Detect session IDs and configure sessions for Web applications

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Note: This step applies to Web applications only.

In the RUM Web console, automatically detect session IDs in monitored traffic and use the settings to configure monitored Web applications in EUM Administration. For task details, see "How to Detect and Configure Session IDs" on page 295.

7 Configure user name detection - optional

In EUM Administration, configure where to search for a user name in a monitored application so that the data for the sessions associated with the application contain the names of the session users. For user interface details, see, "User Name Detection Area" on page 411.

Tip:

- Ensure that sensitive password data is not extracted together with the user name. For user interface details, see "Sensitive Data Setting Dialog Box" on page 436.
- You can determine in which parameter the user name is located for an application by looking at a relevant action (for example, a login action) in the Session Details report. For user interface details, see "Session Details Report" on page 998.

---

8 Configure application related entities

In EUM Administration, configure the application related entities for monitoring. For task details, see "How to Configure Application Related Entities" on page 296.

9 Grant permissions

Grant permissions so that users can view and modify the RUM related configuration settings in EUM Administration. For concept details, see "Permissions Overview" in *Platform Administration*.

10 View Real User Monitor data in reports and in Service Health

Once data on the configured applications, actions, transactions, events, and end-user groups has been collected and aggregated, you can view the data in EUM reports and in Service Health.

For details on EUM reports, see "End User Management Reports Overview" on page 673.

For details on viewing RUM data in Service Health, see "How to Monitor Your Environment Using Service Health" in *Using Service Health*.

How to Install Real User Monitor Components

This task describes the working order for installing the RUM data collector components.

Note: This task is part of a higher-level task. For details, see "How to Set up Real User Monitors" on page 283.

This task includes the following steps:

- "Install the RUM engine and database" on page 287
- "Install the RUM probe" on page 287

1 Install the RUM engine and database

Install the RUM engine and MySQL database. For details, see "Installing the HP Real User Monitor Engine" in the *Real User Monitor Administration* PDF.

Use the RUM engine Web console to administer connection parameters between RUM and BSM and for other engine administration tasks.

2 Install the RUM probe

Install the RUM probe in one of the following configurations:

- **Span port and tap.** For details, see "Installing the HP Real User Monitor Probe" in the *Real User Monitor Administration* PDF.
- **VMware.** For details, see "Duplicating Traffic for HP Real User Monitor with VMware" in the *Real User Monitor Administration* PDF.
- **Directly on a Web server.** This configuration is intrusive and is not recommended.

How to Discover and Define Real User Monitor Applications

This task describes the working order for automatically discovering applications and defining them in EUM Administration.

Note:

- This task is part of a higher-level task. For details, see "How to Set up Real User Monitors" on page 283.
- For a use-case scenario related to this task, see "How to Discover a Real User Monitor Application - Use-Case Scenario" on page 288.

This task includes the following steps:

➤ "Run probe traffic discovery" on page 288

➤ "Define the applications" on page 288

1 Run probe traffic discovery

In the RUM engine Web console, run probe traffic discovery to automatically discover the servers and domains being accessed by the traffic to which a probe is listening. For details, see "Probe Traffic Discovery" in the *Real User Monitor Administration* PDF.

2 Define the applications

In EUM Administration, define the applications discovered by the probe traffic discovery. For user interface details, see "Real User Monitor Application Configuration Wizard" on page 372.

Tip: When possible, it is recommended to configure applications by IP addresses and not by URLs.

How to Discover a Real User Monitor Application - Use-Case Scenario

This use-case scenario describes how to discover the applications monitored by a RUM probe and use this information to configure applications in EUM Administration.

The Acme Manufacturing corporation has installed a RUM engine and probe that reports to its BSM system. Rachel, the corporation's RUM administrator, wants to detect the applications monitored by the probe and use the information to configure the applications in EUM Administration.

Note: For a task related to this scenario, see "How to Discover and Define Real User Monitor Applications" on page 287.

This scenario includes the following steps:

➤ "Select a probe" on page 289

➤ "Start probe traffic discovery" on page 290

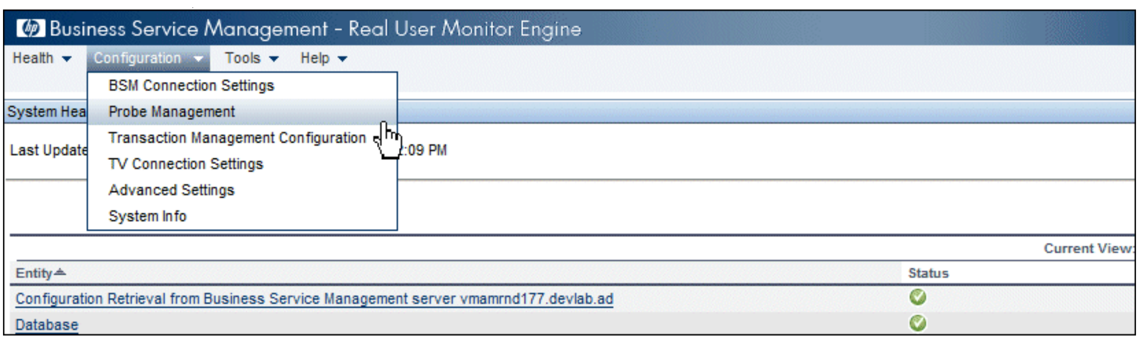
➤ "View protocol traffic distribution" on page 292

➤ "Copy application server details" on page 293

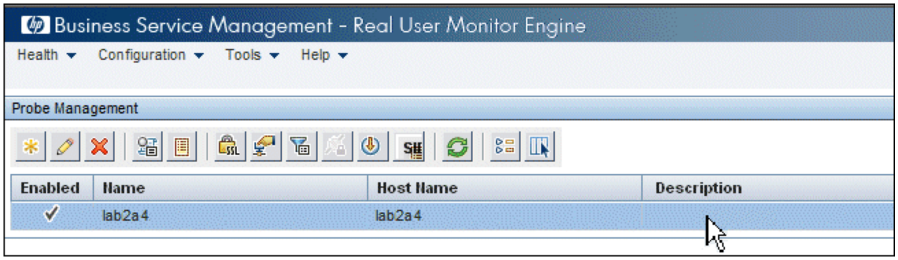
➤ "Configure an application in EUM Administration" on page 294

1 Select a probe

Rachel accesses the Probe Management page in the RUM engine Web console, to view the probes attached to the RUM engine.

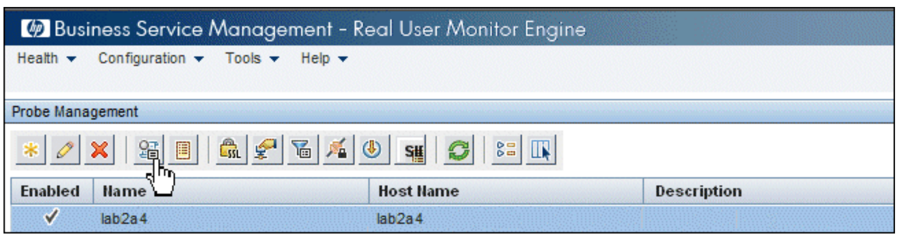


The Probe Management Page opens and Rachel selects the probe whose traffic she wants to discover.

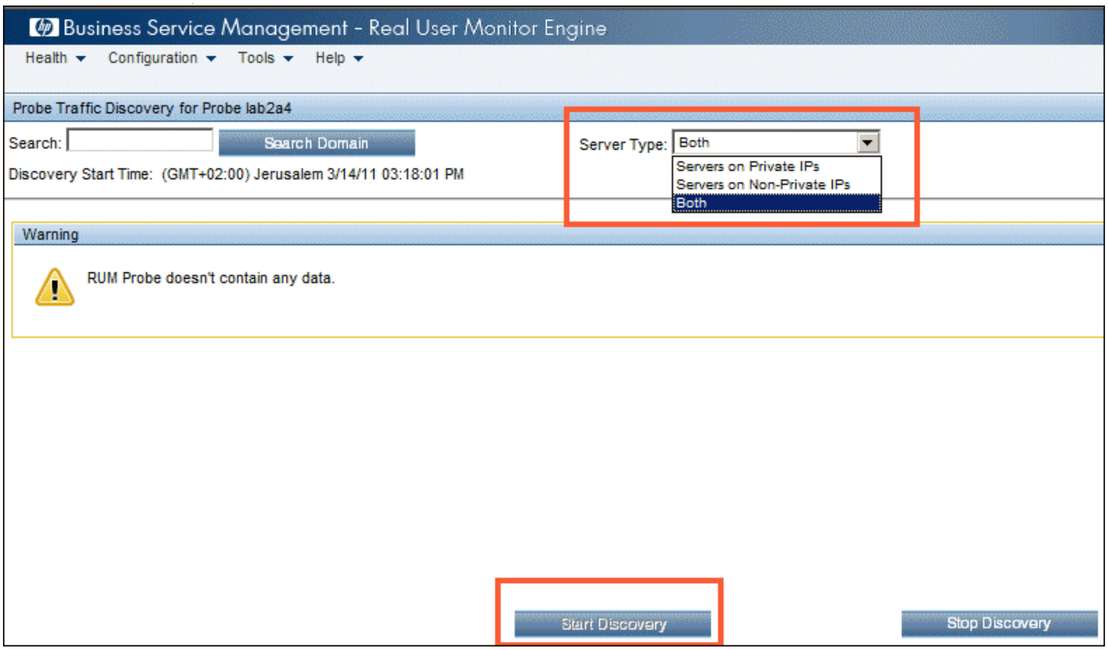


2 Start probe traffic discovery

Rachel clicks the Probe Traffic Discovery icon to open the Probe Traffic Discovery page.



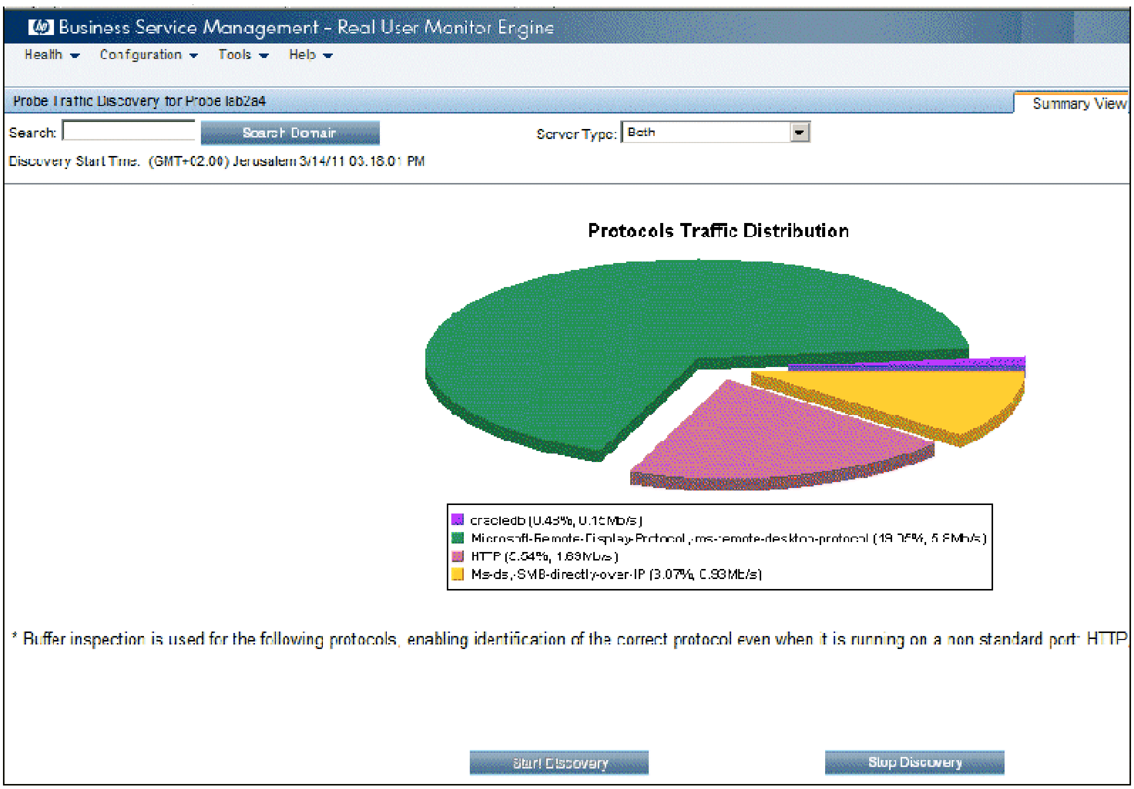
On the Probe Traffic Discovery page, Rachel selects Both in the Server Type field and then clicks the Start Discovery button. Probe traffic discovery starts running.



3 View protocol traffic distribution

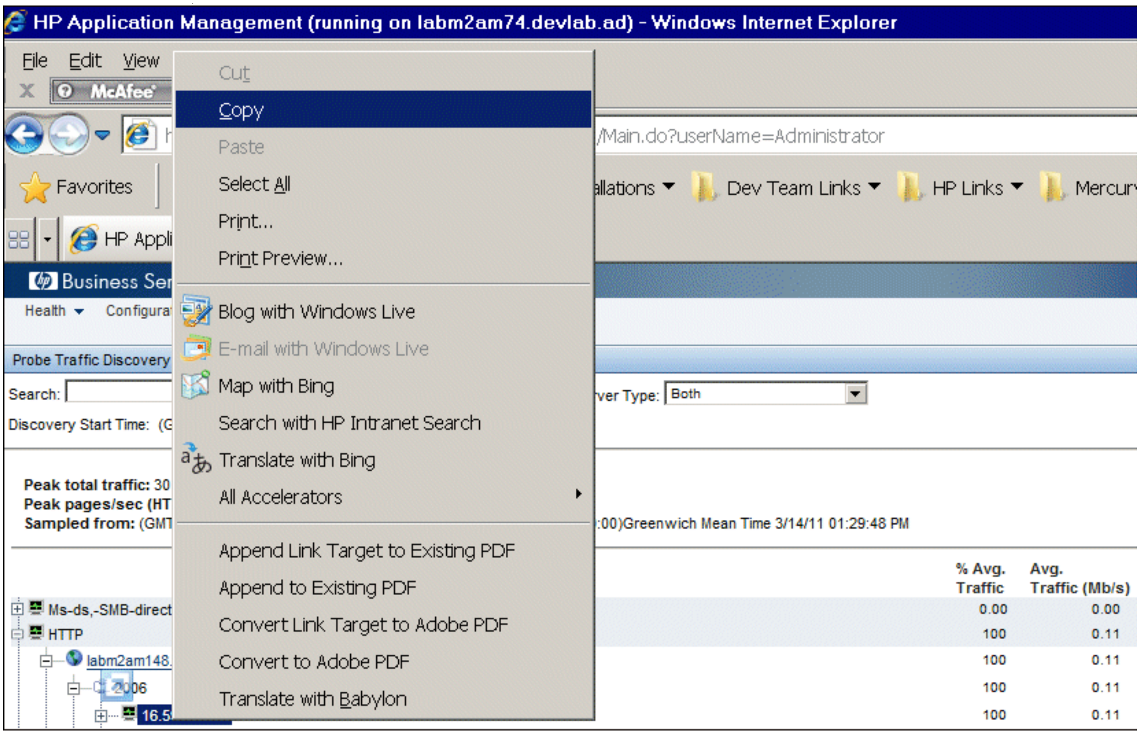
Rachel views the discovered traffic distributed by protocol, in the Summary View tab.

Note: Full results are displayed when the probe traffic discovery is complete, but you can view partial results by clicking the **Refresh** button.



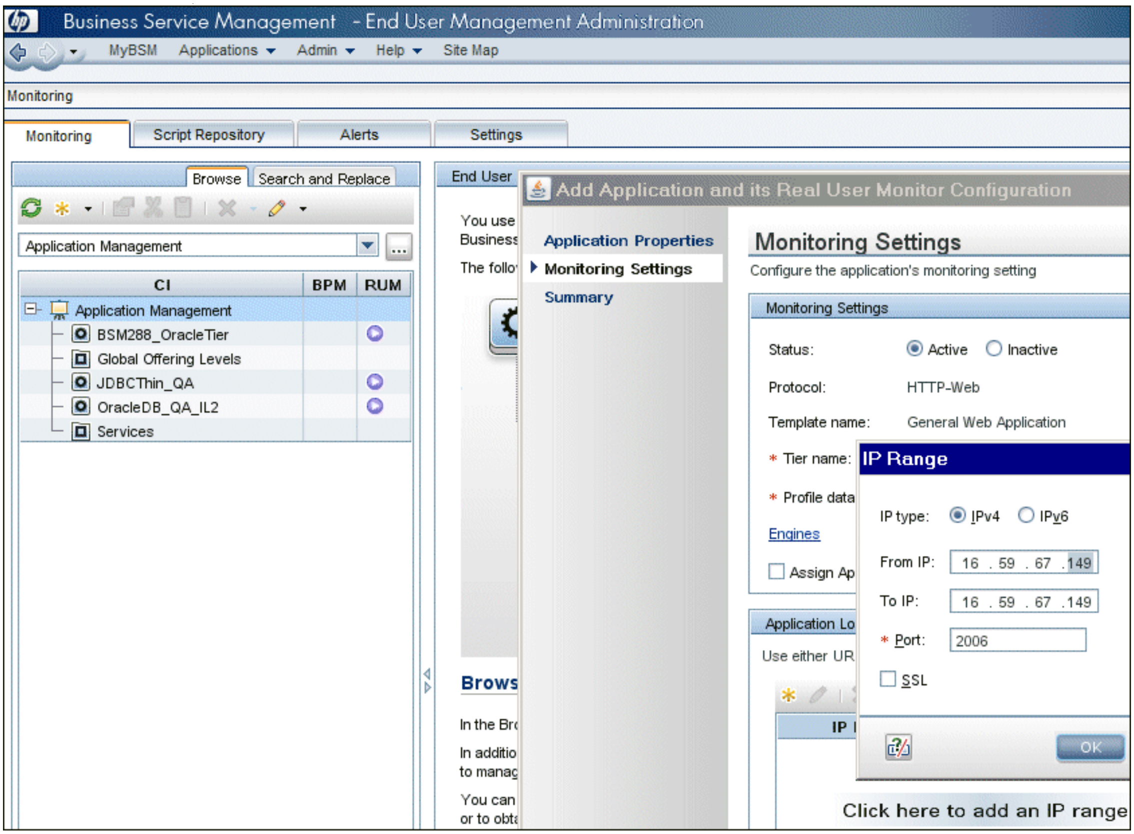
4 Copy application server details

In the Domain View tab, Rachel views detailed domain information. Rachel identifies the server for a specific application and copies the server IP address (and later the port number) for use in configuring the application in EUM Administration.



5 Configure an application in EUM Administration

In EUM Administration, Rachel configures the application and when configuring the application location, pastes the server IP address and port number that she copied from the probe traffic discovery results.



How to Detect and Configure Session IDs

This task describes the working order for automatically detecting session IDs in monitored Web applications, and using them to configure monitored applications in EUM Administration.

Note: This task is part of a higher-level task. For details, see "How to Set up Real User Monitors" on page 283.

This task includes the following steps:

➤ "Run session ID detection" on page 296

➤ "Configure applications" on page 296

1 Run session ID detection

In the RUM engine Web console, run session ID detection to automatically discover the session IDs in the Web traffic monitored by a probe. For details, see "Session ID Detection" in the *Real User Monitor Administration* PDF.

2 Configure applications

In EUM Administration, configure the session ID parameters for the monitored Web applications. For user interface details, see "Real User Monitor Application Session Page" on page 422.

How to Configure Application Related Entities

This task describes the working order for configuring the various related entities for applications configured for monitoring in EUM Administration.

Note: This task is part of a higher-level task. For details, see "How to Set up Real User Monitors" on page 283.

This task includes the following steps:

- "Define actions/pages" on page 297
- "Define transactions" on page 298
- "Configure events - optional" on page 298
- "Create end-user groups - optional" on page 298
- "Set location aware thresholds - optional" on page 298

1 Define actions/pages

You configure actions (generic actions or queries) for non-HTTP-based applications and pages or operations for HTTP-based applications. The type of action you define for an application depends on the application's protocol.

For high traffic systems, it is recommended to configure discovered actions directly from the **RUM Action Summary report.** For user interface details, see "General Report Content" on page 921.

For low traffic systems, it is recommended to configure discovered actions from the:

- **Session Details report.** For user interface details, see "Actions" on page 1002.
- **RUM Global Statistics report.** For user interface details, see one of the Action components in "RUM Global Statistics Report" on page 811.

Note:

- You can also configure actions manually in EUM Administration. For user interface details on creating actions, see "Action Description Builder" on page 318. For user interface details on creating pages and operations, see "URL Builder" on page 449.
- You do not need to configure actions for an application that is configured for action discovery. For user interface details, see "<Action> Discovery Configuration Area" on page 418.

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2 Define transactions

In EUM Administration, define the transactions to be monitored by RUM. For user interface details, see "Business Transaction Real User Monitor Configuration Page" on page 330.

3 Configure events - optional

In EUM Administration, define RUM events for applications. The type of events you can define for an application depend on the application's protocol. For user interface details, see "Real User Monitor Application Events Page" on page 397.

4 Create end-user groups - optional

In EUM Administration, create the end-user groups to be monitored by RUM. End users not included in a configured end-user group are automatically included a default group called **Others**. You can define end-user groups by IP addresses, user names, or by session properties (for HTTP applications and session aware non-HTTP applications). For user interface details, see "Add End User Group with Real User Monitor Configuration Dialog Box" on page 322.

5 Set location aware thresholds - optional

In EUM Administration, set threshold offsets for specific locations. You can set a threshold offset to be added to configured thresholds for all the traffic monitored from a specific location. For user interface details, see "Location Aware Thresholds Dialog Box" on page 362.

How to Load SLL Keys - Use-Case Scenario

This use-case scenario describes how to load SSL keys so that a RUM probe can monitor SSL encrypted traffic.

The Acme Manufacturing corporation has installed a RUM engine and probe that reports to its BSM system. Rachel, the corporation's RUM administrator, wants to load an SLL key for the probe.

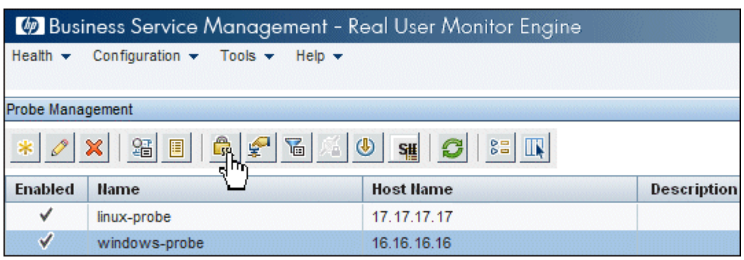
Note: For a task related to this scenario, see "How to Set up Real User Monitors" on page 283.

This scenario includes the following steps:

- ➤ "Access the SLL Keystore Management page" on page 299
- ➤ "Add an SSL key" on page 300
- ➤ "Results" on page 301

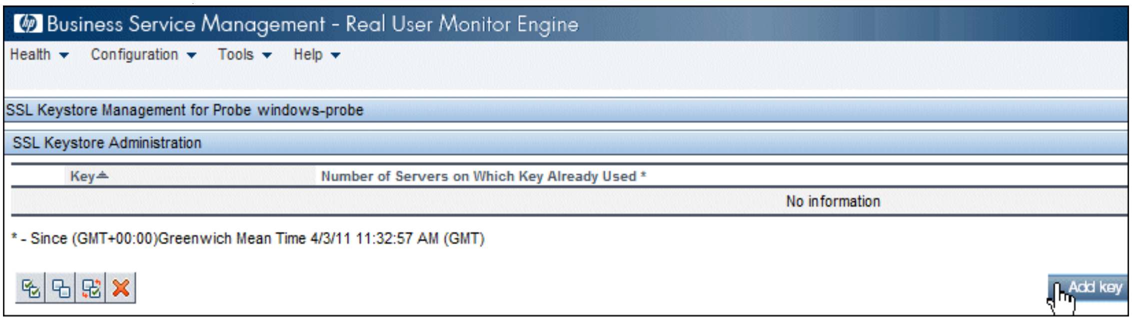
1 Access the SLL Keystore Management page

Rachel accesses the Probe Management page in the RUM engine Web console by selecting **Configuration** > **Probe Management**. In the Probe Management page, Rachel selects the probe and clicks the SSL Keystore Management button. The SSL Keystore Management page opens.

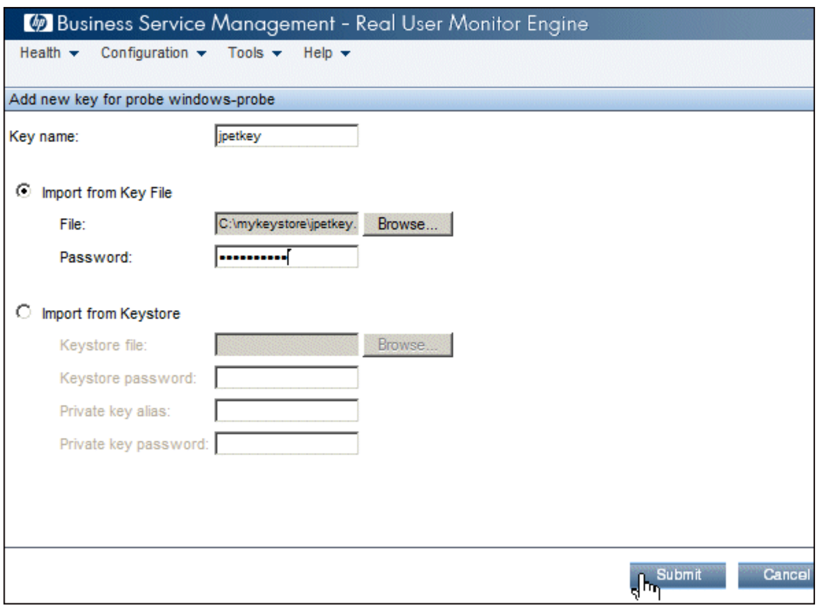


2 Add an SSL key

In the SSL Keystore Management page, Rachel clicks the **Add Key** button.

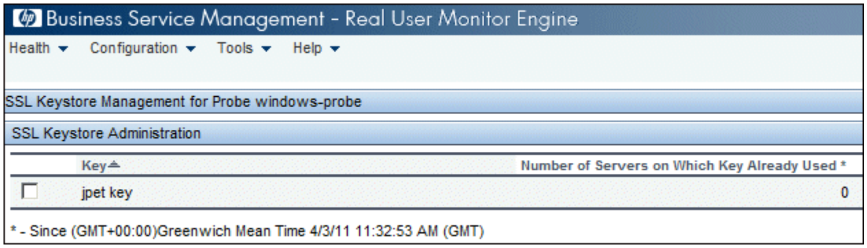


The Add new key for probe page opens. Rachel selects an SLL key file and clicks **Submit**.



3 Results

The key file is loaded and the probe can now use the SSL key contained in the file to monitor SSL traffic.



Reference

Transaction Matching

When you configure a transaction, there are a number of settings that determine how a transaction is matched by RUM. For user interface details, see "Business Transaction Real User Monitor Configuration Page" on page 330.

Transaction Settings

The following table lists the settings that determine how a transaction is matched by RUM, and their options:

Setting	Description	Options	Default
Ignore page order	Configures RUM to ignore the order of all the pages included in a transaction, except for the first page, and to record a transaction provided that all of the included pages are accessed.	**Selected.** Ignores the page order, except for the first page, and matches a transaction if all the included pages are accessed.	Not selected
		Not selected. All the included pages must be accessed in the order configured for a transaction to be matched.	

<table>
<tr><th>Setting</th><th>Description</th><th>Options</th><th>Default</th></tr>
<tr><td rowspan="2">Include intermediate pages in measurements</td><td rowspan="2">Configures RUM to include all the pages that are accessed in a transaction between the first and last configured pages when calculating transaction measurements, whether or not they are configured as included pages.</td><td>Selected. Includes all the pages accessed in a transaction, between the first and last configured pages.</td><td rowspan="2">Not selected</td></tr>
<tr><td>Not selected. Includes only the configured pages.</td></tr>
<tr><td rowspan="2">With Descendants</td><td rowspan="2">Configures RUM to unify the frames of an included page, so that they are considered children of the page in which they appear. The parent page uses a calculated total of its children in the measurements included in the RUM Transaction Summary report.

Note: This option is only available if frame unification is enabled for the front-end tier of the application in which the transaction is included.</td><td>Selected. Includes descendent pages in the transaction match and transaction measurements.</td><td rowspan="2">Not selected</td></tr>
<tr><td>Not selected. Includes only the configured page without a breakdown of its parts.</td></tr>
</table>

Setting	Description	Options	Default
Measure first/last page instance	Configures RUM to report data for either the first or last instance of a page in a transaction, if the page was included more than once sequentially in the transaction (that is, with no other included pages between occurrences). The same page can be included more than once in a transaction, either because it was accessed more than once, or due to a page refresh.	**First page.** Uses the first instance of a configured page for transaction matching. **Last page.** Uses the last instance of a configured page, before the first instance of the next configured page, for transaction matching.	First page

Examples of Transaction Matching

The following tables list an accessed page sequence and examples of configured transactions and the transaction match to the accessed page sequence:

Accessed Page Sequence

Accessed Page	Descendant of
P1	
P1	
P2	
P3	
P4	P2
P5	P2
P6	P1 (second instance)
P1	
P7	P6
P8	P6
P9	
P10	P8
P11	
P12	

Transaction Matches

Configured Page Sequence	Ignore page order	Include intermediate pages	Measure first/last page instance	Transaction Match (in bold)
Page-1 (with descendants)			First	**P1**, P1, P2, P3, P4, P5, P6, P1, P7, P8, P9, P10, P11, P12
Page-1, Page-3, Page-2	✔		First	**P1**, P1, **P2**, **P3**, P4, P5, P6, P1, P7, P8, P9, P10, P11, P12
Page-1, Page-2, Page-3			First	**P1**, P1, **P2**, **P3**, P4, P5, P6, P1, P7, P8, P9, P10, P11, P12
Page-1 (with descendants), Page-3 (with descendants),	✔		First	**P1**, P1, P2, **P3**, P4, P5, P6, P1, P7, P8, P9, P10, P11, P12
Page-1 (with descendants), Page-3 (with descendants),	✔		Last	P1, **P1**, P2, **P3**, P4, P5, **P6**, P1, **P7**, **P8**, P9, **P10**, P11, P12
Page-1 (with descendants), Page-3 (with descendants)	✔	✔	First	**P1**, **P1**, **P2**, **P3**, **P4**, **P5**, **P6**, **P1**, **P7**, **P8**, **P9**, **P10**, P11, P12
Page-1, Page-1, Page-1			First	**P1**, **P1**, P2, P3, P4, P5, P6, **P1**, P7, P8, P9, P10, P11, P12
Page-1, Page-1 (with descendants), Page-1			First	**P1**, **P1**, P2, P3, P4, P5, **P6**, **P1**, **P7**, **P8**, P9, **P10**, P11, P12

Configured Page Sequence	**Ignore page order**	**Include intermediate pages**	**Measure first/last page instance**	**Transaction Match (in bold)**
Page-1 (with descendants)		✔	First	**P1**, P1, P2, P3, P4, P5, P6, P1, P7, P8, P9, P10, P11, P12
Page-1 (with descendants)		✔	Last	P1, **P1**, **P2**, **P3**, **P4**, **P5**, **P6**, **P1**, **P7**, **P8**, **P9**, **P10**, P11, P12
Page-1, Page-2, Page-3	✔	✔	First	**P1**, **P1**, **P2**, **P3**, P4, P5, P6, P1, P7, P8, P9, P10, P11, P12

Real User Monitor Administration User Interface

This section includes (in alphabetical order):

<Action> Dialog Box

This dialog box enables you to configure an <action> to be stored in a RUM application's <action> repository. You assign <actions> from the <action> repository when you configure an application's transactions and events.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **<Actions>** and in the **<Folder content>** area, click the **New <Action>** or **Edit <Action>** button. ➤ In the **Business Transaction Real User Monitor Configuration** dialog box, select an <action> in the **Transaction Page Settings** area, click the **Edit <Action>** button.
Important information	➤ The protocol used by an application determines the type of action (generic action, page, query, or operation) that you configure for the application. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type. ➤ Actions can only be configured for an existing application.

General Settings Area

User interface elements are described below:

UI Element (A-Z)	Description
Auto discovered	Displays whether the action was automatically discovered by RUM.
Description	Enter the description of the <action>, which you can view in EUM only. **Syntax exceptions:** Cannot exceed 2000 characters.

UI Element (A-Z)	Description
Exclude <action> from measurements	Select this check box to configure RUM to exclude the <action's> measurements from Global Statistics, event, and Session Analyzer measurements in RUM reports. **Note:** If this check box is selected for an <action> that is included in a transaction, the transactions that include the action are not reported to BSM.
Name	Enter the name you want to assign the <action>. **Syntax exceptions:** Cannot exceed 100 characters. **Note:** The name must be unique within an application's <action> repository.
Status	Select the relevant radio button to configure whether the action configuration is active. **Default value:** Active **Note:** A transaction that includes an inactive action will not be matched.

Threshold Settings Area

User interface elements are described below:

UI Element (A-Z)	Description
<Action> time (seconds)	The total time threshold for the <action>, in seconds. If the total time for an <action> falls within this threshold, the <action's> total time is displayed in green in the RUM reports, otherwise it is displayed in red. **Note:** This element is called **Page time** for pages and **Total time** for all other action types. **Default value:** The <action> total time threshold you configured for the application in the Real User Monitor Application General page.
Server time (seconds)	The server time threshold for the <action>, in seconds. If the server time for an <action> falls within this threshold, the <action's> server time is displayed in green in the RUM reports, otherwise it is displayed in red. **Note:** This threshold must be lower than the **<Action> time** threshold. **Default value:** The action server time threshold you configured for the application in the Real User Monitor Application General page.
Suggested Thresholds Wizard	Opens the Calculate Suggested Thresholds wizard, where you can configure the formula for calculating suggested thresholds based on the <action>'s historical data, and select the suggested thresholds for use. For user interface details, see "Calculate Suggested Thresholds Wizard" on page 340. **Note:** This button is disabled when you are creating a new <action>, as there is no historical data on which to calculate suggested thresholds.

Action Description/URL Builder

This area enables you to configure an action's description or a page's URL.

For Description Builder user interface details, see "Action Description Builder" on page 318.

For URL Builder user interface details, see "URL Builder" on page 449.

<Action> Size Event Dialog Box

This dialog box enables you to configure an <action> size event for an application. An <action> size event is triggered when an <action's> size is either greater than or less than a defined number of kilobytes.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and in the **Global and Selective Events** area, click the **New Event** button and select **<Action> Size Event** from the Shortcut menu. ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and select an existing <action> size event. Click the **Edit Event** button.
Important information	The protocol used by the application determines the type of action (generic action, page, query, or operation) for which you configure a size event. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type.

User interface elements are described below:

UI Element (A-Z)	Description
	**Add <Action> to Event.** Opens the application's <Action> Repository, where you can manage the <actions> included in the application and select the <actions> to be excluded from, or included in, the <action> size event, according to the event's scope. For user interface details, see "Real User Monitor Application <Actions> Page" on page 366.
	**Remove <Action> from Event.** Removes selected <actions> from the page size event configuration.
<Action> Name	The names of the <actions> that are either excluded from, or included in, the <action> size event, according to the event's scope.
Classification	Select the relevant radio button to configure whether the event is an error event or an information event. **Default value:** Error
Name	The name of the <action> size event, which you can view in EUM only. **Note:** The name must be unique within the application. **Syntax exceptions:** Cannot exceed 100 characters.
Scope	Select the relevant radio button to configure whether the event is applied globally or selectively. A global event applies to all <actions> in the application, except for those specifically configured in the <action> size event. A selective event applies only to those <actions > configured in the <action> size event. **Default value:** Global
Status	Select the relevant radio button to configure whether the event configuration is active. **Default value:** Active

UI Element (A-Z)	Description
Trigger an event when the <action> size is	Select whether the event is triggered when the <action> size is less than (<), or greater than (>) a configured size and enter the size in kilobytes.
URL/Action	The page URLs or the action descriptions that are either excluded from, or included in, the <action> size event, according to the event's scope.

<Action> Time Event Dialog Box

This dialog box enables you to configure an <action> time event for an application. An <action> time event is triggered when an <action's> time is either greater than or less than a defined number of seconds.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and in the **Global and Selective Events** area, click the **New Event** button and select **<Action> Time Event** from the Shortcut menu. ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and select an existing <action> time event. Click the **Edit Event** button.
Important information	The protocol used by the application determines the type of action (generic action, page, query, or operation) for which you configure a size event. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type.

User interface elements are described below:

UI Element (A-Z)	Description
	**Add <Action> to Event.** Opens the application's <Action> Repository, where you can manage the <actions> included in the application and select the <actions> to be excluded from, or included in, the <action> time event, according to the event's scope. For user interface details, see "Real User Monitor Application <Actions> Page" on page 366.
	**Remove <Action> from Event.** Removes selected <actions> from the page time event configuration.
<Action> Name	The names of the <actions> that are either excluded from, or included in, the <action> time event, according to the event's scope.
Classification	Select the relevant radio button to configure whether the event is an error event or an information event. **Default value:** Error
Name	The name of the <action> time event, which you can view in EUM only. **Note:** The name must be unique within the application. **Syntax exceptions:** Cannot exceed 100 characters.
Scope	Select the relevant radio button to configure whether the event is applied globally or selectively. A global event applies to all <actions> in the application, except for those specifically configured in the <action> time event. A selective event applies only to those <actions > configured in the <action> time event. **Default value:** Global
Status	Select the relevant radio button to configure whether the event configuration is active. **Default value:** Active

UI Element (A-Z)	Description
Trigger an event when the <action> time is	Select whether the event is triggered when the <action> time is less than (<), or greater than (>) a configured time and enter the time in seconds.
URL/Action	The page URLs or the action descriptions that are either excluded from, or included in, the <action> time event, according to the event's scope.

Action Description Builder

The Action Description Builder enables you to configure an action for a RUM application. An action consists of one or more server requests related to a single, logical user action. For example, in a database protocol, an action consists of all the server requests related to the same query.

To access	Click the **New Action** or **Edit Action** button in one of the following: ➤ Real User Monitor Application wizard > Monitoring Settings page. ➤ Real User Monitor Application General page > Application Location area. ➤ Real User Monitor Application General page > User Name Detection area. ➤ Real User Monitor Application <Actions> page > <Folder content> area. ➤ Error <Action> Event dialog box. ➤ Business Transaction Real User Monitor Configuration page > Transaction <Action> Settings area. (Accessed by clicking the Edit Action button only.)

Important information	➤ You use the Description Builder to configure generic actions, or query actions for database protocols. The actions for Web protocols are pages, which you configure using the URL Builder. For user interface details, see "URL Builder" on page 449.
	➤ The protocol used by the application you are configuring determines the type of action (for example, generic action or query) you configure.
	➤ You can configure discovered actions directly from the:
	    ➤ **Session Details report.** For user interface details, see "Actions" on page 1002.
	    ➤ **RUM Action Summary report.** For user interface details, see "General Report Content" on page 921.

See also	"URL Wildcards" on page 269

User interface elements are described below:

UI Element (A-Z)	Description
Advanced	Select this radio button to enable the **Advanced Criteria** link. Click the link to open the Advanced Matching dialog box, where you can enter a regular expression to define an action description. In the **Scan for (Regular Expression)** box, enter the regular expression that represents the action description. You can test the regular expression in the **Test Expression** area. Enter test data and click **Test**. The results are displayed in the **Results** area.
Description	Select this radio button and enter the string that identifies the action. For example, if you are configuring a query action, enter the actual query string.
Properties	Select this radio button to configure specific properties that create a string for action matching.
	<Action specific properties>. The properties available depend on the action type you are configuring, which is determined by the application's protocol. For a list of the action properties applicable for each protocol, see "Protocol Action Properties" on page 319.
	Match other parameters. Select this check box to configure other parameters to include in the string for action matching. For user interface details, see "Parameter Settings" on page 321.

Protocol Action Properties

The following table lists the action properties available in the Action Description dialog box for each protocol:

Action Property	Description	Example
MySQL, MS SQL, DB2, Oracle DB		
Query	Any valid SQL query.	Select USER from DUAL

Action Property	Description	Example
IMAP		
Command	Any valid IMAP command.	STORE, FETCH, RENAME.
Mailbox	The name of a valid mailbox folder.	Sent Items
Data-items	Valid IMAP data items.	BODY, UNSEEN, +FLAGS(\Deleted).
FTP		
Command	Any valid FTP command.	CWD, LIST, PUT.
Directory	A valid directory name.	N/A
Filename	A valid file name in the directory.	N/A
Citrix ICA		
Published Application	The name of a published application to which to connect.	N/A
SMTP		
Command	Any valid SMPT command.	MAIL FROM, RCPT TO, VRFY.
Domain	The name of a valid SMTP domain.	N/A
Sender	The email address of the message sender.	N/A
Recipient	The email address of the message recipient.	N/A
POP3		
Command	Any valid POP3 command.	LIST, TOP.
Message	The message index number.	N/A

Action Property	Description	Example
Oracle Forms Over TCP		
Action	A valid Oracle action that defines a user action in the UI.	connect.button_pressed

Parameter Settings

The parameter settings area is enabled only when you select the **Properties** radio button. You must select the **Match other parameters** check box for the parameters you configure to be included in the string for action matching.

User interface elements are described below:

UI Element (A-Z)	Description
	**Add Parameter.** Adds a new row in the parameter table. Edit the fields by selecting the row and clicking the **Edit Parameter**  button, or click an individual cell in the table and edit it directly.
	**Edit Parameter.** Opens the Action Parameter dialog box, where you edit an existing action parameter's settings. For user interface details, see "Description/URL Parameter Dialog Box" on page 345. **Note:** You can edit an individual cell directly in the parameter table by clicking it.
	**Remove Parameter.** Removes selected action parameters from the list.
Name	The name of an included parameter. **Syntax exceptions:** ➤ Parameter names must be unique in an action description. ➤ Allowed characters are **any letter valid in your operating system**, **0-9**, and **; / : @ + $, - _ . ~ ' ( ) = % .**

UI Element (A-Z)	Description
Option	The option for an included parameter. Valid options are: ➤ =. Include only a specific parameter value. ➤ **All.** Include all values of the parameter.
Value	If you chose to include only a specific parameter value (by selecting = in the Option field), enter the specific value.

Add End User Group with Real User Monitor Configuration Dialog Box

This dialog box enables you to create and configure a new end-user group for which, when it accesses monitored applications, RUM collects data.

To access	Select **Admin** > **End User Management** > **Monitors** tab and in the view tree, right-click the root object, or an end-user group that is not configured for RUM, and select **End User Group with RUM Configuration**.
See also	"End-User Groups Overview" on page 277

General Settings Area

Important information	When you edit an existing end-user group's configuration in the **End User Group** page, this area is not displayed.

User interface elements are described below:

UI Element (A-Z)	Description
Description	A description of the end-user group, which you can view in EUM only. **Syntax exceptions:** Cannot exceed 260 characters.
Name	The name of the end-user group. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and **` ~ ! @ # $ % ^ & * ( ) _ - + { } ; <space>**. **Note:** The name must be unique.

Monitoring Settings Area

User interface elements are described below:

UI Element (A-Z)	Description
Exclude data of the group's end users	Select this check box to configure RUM to ignore all traffic for the end users included in the group. **Default value:** Not selected (RUM does send data to BSM for the end users included in the group.)
Latency (milliseconds)	The average network latency threshold, in milliseconds, for each end user in the group. **Default value:** 800
Status	Select the relevant radio button to configure whether the end-user group configuration is active. **Default value:** Active

Identification Settings Area

Important information	➤ When you edit an existing end-user group's configuration in the **End User Group** page, this area only includes the settings for the configured method of identifying end users (by user name, IP address, or session properties). You can edit the configured method's settings, but cannot change the identification method itself. ➤ An end-user group's IP range cannot include part of a different end-user group's IP range within the same routing domain. It can include the complete IP range of a different end-user group and in such cases, an end user that matches more than one end-user group IP range is associated to the group with the shortest matching IP range. ➤ You cannot configure end-user groups that can potentially generate more than a total of 30,000 subgroups in your BSM system. The number of potential subgroups for an end-user group is calculated from the IP range and resolution. ➤ Network connection data is not available in the RUM End User Group Summary report for end-user groups defined by session properties or user names.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Define end user group by IP ranges	
	**Add IP Range.** Opens the Add End User Group IP Range dialog box, where you configure the starting and ending IP addresses for a new IP range to include in the end-user group. **Note:** Currently, you can only configure IPv4 addresses.

UI Element	Description
	**Edit IP Range.** Opens the Add End User Group IP Range dialog box, where you configure the starting and ending IP addresses for an existing IP range included in the end-user group. **Note:** Currently, you can only configure IPv4 addresses.
	**Delete IP Range.** Deletes selected IP ranges from the end-user group.
From IP	The starting IP address of the IP range (subgroup) of the end-user group.

UI Element	Description
IP resolution	Select one of the following methods by which the subgroup is displayed in the RUM reports: ➤ **As entered.** The defined IP range is displayed in the RUM reports according to the way in which you enter it in this dialog box. ➤ **According to RFC.** The IP addresses in the range you defined are displayed in the RUM reports according to RFC class divisions (0.0.0.0 to 127.255.255.255 = Class A; 128.0.0.0 to 191.255.255.255 = Class B; 192.0.0.0 to 255.255.255.255 = Class C). ➤ **Class A.** The IP addresses in the range you defined are displayed in the RUM reports according to the Class A network IP addressing method. ➤ **Class B.** The IP addresses in the range you defined are displayed in the RUM reports according to the Class B network IP addressing method. ➤ **Class C.** The IP addresses in the range you defined are displayed in the RUM reports according to the Class C network IP addressing method. ➤ **CIDR mask.** The IP addresses in the range you defined are displayed in the RUM reports according to the mask (CIDR notations, 0 to 32) you define in the text box provided to the right of the selector. ➤ **Auto discovery.** The IP addresses in the range you defined are displayed in the RUM reports according to predefined subgroup ranges for Internet service providers (ISP). ➤ **Single IP.** The IP addresses in the range you defined are displayed in the RUM reports according to server host machines. **Note:** Use this method when the client initiating a request is a server. For example, an application server initiating a request to a database server.
To IP	The ending IP address of the IP range (subgroup) of the end-user group. **Default value:** The same range as the starting IP address, with an upper limit (in the last segment) of **255**.

UI Element	Description
Define routing domain	Select this check box to configure a different routing domain name than the default. A RUM engine will only monitor traffic for an end-user group if both the engine and the end-user group have the same routing domain. **Default value:** ➤ **Check box.** Not selected ➤ **Routing Domain.** DefaultDomain
Define end user group by user names	
<**List of end-user names**>	The list of end-user names included in the end-user group. **Note:** Separate the names with a semicolon (;).
Define end user group by session properties	
	**Add Session Properties.** Opens the Add Session Properties dialog box, where you select the session properties you want to assign to the end-user group. **Note:** In the Add Session Properties dialog box, session properties from all applications, that are not already assigned to the end-user group, are displayed, in the order in which they are configured in the application. For user interface details on configuring session properties for an application, see "Real User Monitor Application Session Page" on page 422.
	**Configure Session Properties.** Opens the Configure Session Properties dialog box, where you configure the session property values to be matched for a user to be added to the end-user group. **Note:** ➤ Separate values with a semicolon (;). ➤ The asterisk (*) wildcard can be used. ➤ You cannot configure the same property with the same value in different end-user groups.
	**Delete Session Properties.** Deletes selected session properties from the end-user group.

UI Element	Description
Application	The application for each session property configured for the end-user group.
Property	The name of each session property configured for the end-user group.
Values	The values to be matched for each session property configured for the end-user group.
<General settings>	
Perform host name resolution	Select this check box to instruct RUM to use internal methods (such as the DNS, the NIS, or other internal files) to resolve the host name of each IP address within the subgroup you are defining. **Default value:** Not selected
Set end user group location	Select this check box to assign a location to the end-user group, for reporting purposes. Click the location link to open the Select Location dialog box, where you manage and select locations. For user interface details, see "Location Manager User Interface" in *Platform Administration*. **Note:** If you do not assign a location to an end-user group, RUM tries to detect the location automatically for the client address. **Tip:** Assign a location to an end-user group that uses private IP addresses that are not publicly associated with a location.

Business Transaction Real User Monitor Configuration Dialog Box

This dialog box enables you to create a new business transaction and its RUM configuration in EUM Administration, or to add a RUM configuration to an existing business transaction (for example, to an existing business transaction that has only a BPM configuration). It also enables you to edit an existing business transaction's RUM configuration.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click a RUM application and from the Shortcut menu select **Add** > **Business Transaction with RUM Configuration**. ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click a business transaction flow for a RUM application and from the Shortcut menu select **Add** > **Business Transaction with RUM Configuration**. ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click an existing transaction that is not yet configured for RUM and from the Shortcut menu, select **Add** > **RUM Configuration**. ➤ In the **Related Transactions and Events Dialog Box**, select a transaction and click the **Edit Transaction** button.
Important information	➤ For user interface details, see "Business Transaction Real User Monitor Configuration Page" on page 330. ➤ Transactions can only be configured for an existing application. ➤ If an application does not include a session ID, it is possible that two or more simultaneous transactions originating from a single end-user may be reported by RUM as a single transaction. ➤ You can create transactions for an application directly from the application's <action> repository. For user interface details, see "Real User Monitor Application <Actions> Page" on page 366.

Business Transaction Real User Monitor Configuration Page

This page enables you to view and configure a business transaction's RUM configuration.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click a business transaction that is configured for RUM and in the Content pane, select the **Real User Monitor** tab.
Important information	➤ The same user interface is used in the Business Transaction Real User Monitor Configuration dialog box. ➤ Transactions can only be configured for an existing application. ➤ If an application does not include a session ID, it is possible that two or more simultaneous transactions originating from a single end-user may be reported by RUM as a single transaction. ➤ The protocol used by the application for which you are configuring a transaction determines the type of action (generic action, page, query, or operation) on which you base the transaction configuration. Element labels (denoted by <**action**> in the user interface descriptions), change accordingly to reflect the applicable action type.

General Settings Area

Important information	This area is visible only when you create a new business transaction in the Business Transaction Real User Monitor Configuration dialog box.

User interface elements are described below:

UI Element (A-Z)	Description
Description	Enter the description of the transaction, which you can view in EUM only. **Syntax exceptions:** Cannot exceed 600 characters.
Name	Enter the name you want to assign the transaction. **Syntax exceptions:** Cannot exceed 900 characters.

Monitoring Settings Area

Important information	The default values for all the threshold fields in this panel are the default transaction threshold values configured for the application. For user interface details, see "Real User Monitor Application General Page" on page 403.

User interface elements are described below:

UI Element (A-Z)	Description
Status	Select the relevant radio button to configure whether the transaction is active. **Default value:** Active
Thresholds:	
Availability (%)	The default transaction availability percentage threshold.

UI Element (A-Z)	Description
Determine thresholds from included actions	Select this radio button to configure RUM to calculate the net and server time thresholds dynamically for each monitored hit of the transaction. The thresholds are calculated based on the relevant thresholds of all the <actions> that comprise the specific transaction hit. **Tip:** Determining thresholds from included <actions> enables a realistic threshold to be used for transactions that include intermediate or optional <actions>. In such cases, the number of <actions> that will comprise a specific transaction hit cannot be determined in advance, so it is difficult to set a threshold manually.
Location Aware Thresholds	Opens the Location Aware Thresholds dialog box, where you configure specific net and total time thresholds for the transaction, for specific locations. For user interface details, see "Location Aware Thresholds Dialog Box" on page 362.
Manual thresholds	Select this radio button to configure the net and server time thresholds manually for the transaction.
Net time (seconds)	The default net transaction time threshold for the pages included in the transaction, in seconds. **Note:** This element is enabled only when the **Manual thresholds** radio button is selected.
Server time (seconds)	The default server time threshold for the transaction, in seconds. **Note:** This element is enabled only when the **Manual thresholds** radio button is selected.

UI Element (A-Z)	Description
Suggested Thresholds Wizard	Opens the Calculate Suggested Thresholds wizard, where you can configure the formula for calculating suggested thresholds based on the transaction's historical data, and select the suggested thresholds for use. For user interface details, see "Calculate Suggested Thresholds Wizard" on page 340. **Note:** This button is disabled when you are creating a new Business Transaction in the Business Transaction Real User Monitor Configuration dialog box, as there is no historical data on which to calculate suggested thresholds.
Timeout (seconds)	The default amount of time, in seconds, between consecutive <actions> in a transaction, after which RUM considers the transaction to have timed out.
Total time (seconds)	The default total transaction time threshold (download time + think time), in seconds.

Transaction <Action> Settings

User interface elements are described below:

UI Element (A-Z)	Description
	**Add <action> to transaction.** Opens the application's <Action> repository, where you select <actions> to add to the transaction. For user interface details, see "Real User Monitor Application <Actions> Page" on page 366. **Note:** Transactions must include at least one <action>.
	**Edit <action>.** Opens the <Action> dialog box, where you edit an existing <action's> settings for the transaction. For user interface details, see "<Action> Dialog Box" on page 310.
	**Remove <action> from transaction.** Deletes selected <actions> from the transaction.
	**Move up.** Moves an <action> higher in the transaction's <action> order.

UI Element (A-Z)	Description
	**Move down.** Moves an <action> lower in the transaction's <action> order.
<Action> Name	The <action> names included in the transaction.
Ignore <action> order	Select this check box to configure RUM to ignore the order of all the included <actions > after the first <action>, and to record a transaction provided that all the included <actions > are accessed. Clear the check box to configure RUM to record a transaction only if the included <actions > are accessed in the order in which they are listed. **Note:** In an unordered transaction (that is, the check box is selected), if a configured <action> is included more than once in a transaction match, the properties of the first instance of the <action> (for example, whether to include descendent pages) are applied to all other instances of the <action> in the transaction match. **Example:** **Configured <actions>:** P1, P2, P3 **Accessed <actions>:** P1, P4, P3, P2, P5 **Transaction match if check box selected (unordered):** The transaction is matched, as all the configured <actions> were accessed and the first configured <action> (that is, P1) was accessed first (that is, before the other configured <actions>). **Transaction match if check box not selected (ordered):** The transaction is not matched, as the configured <actions> were not matched in the configured order (that is, P3 was accessed before P2).

UI Element (A-Z)	Description
Include intermediate <actions> in measurements	Select this check box to configure RUM to include all the <actions> (whether configured or not) between the first and last configured <actions> that are accessed in the transaction, when calculating transaction measurements. Clear the check box to configure RUM to include only the configured <actions> when calculating transaction measurements. **Example:** **Configured <actions>:** P1, P2, P3 **Accessed <actions>:** P1, P2, P4, P5, P3, P6 **Transaction match if check box selected (include): P1**, **P2**, **P4**, **P5**, **P3**, P6 **Transaction match if check box not selected (do not include): P1**, **P2**, P4, P5, **P3**, P6
Optional	Select this check box to configure RUM to record a transaction whether or not the specific <action> is matched as part of the transaction. Clear the check box to make matching of the <action> compulsory for RUM to record a transaction. **Note:** If the **Ignore <action> order** check box is selected, the first <action> configured for the transaction cannot be optional.

UI Element (A-Z)	Description
With Descendants	Select this check box to configure RUM to unify the frames of an included <action>, so that they are considered children of the <action> in which they appear. The parent <action> uses a calculated total of its children in the measurements included in the RUM Transaction Summary report. Clear the check box to configure RUM to include the <action> without a breakdown of its parts. For concept details, see "Frame Unification" on page 266. **Note:** ➤ This element is not visible if Frame unification is not enabled for the front-end tier of the application in which the transaction is included, or if the application is not an HTTP Web or SOAP application. ➤ If **With Descendants** is selected, when the last <action> configured for a transaction is accessed, RUM waits for three minutes before timing out and recording the transaction, to allow for possible descendants of the last <action>. If the first configured <action> for the transaction is accessed during this time out period, a new transaction is started and the previous transaction is automatically closed and recorded. **Example:** ➤ **Configured <action>:** P1 (with descendants), P2, P3 ➤ **Accessed <action>:** P1, P4, P1, P5(descendant of P1(first instance)), P2, P3, P6(descendant of P1(first instance)), P2, P3, P7(descendant of P5) ➤ **Transaction match for first <action> instance: P1**, P4, P1, **P5**(a descendant of P1(first instance)), **P2**, **P3**, **P6**(a descendant of P1(first instance)), P2, P3, **P7**(a descendant of P5) ➤ **Transaction match for last <action> instance:** P1, P4, **P1**, P5(a descendant of P1(first instance)), **P2**, P3, P6(a descendant of P1(first instance)), P2, **P3**, P7(a descendant of P5) For details on setting first or last <action> instance, see "Advanced Settings Area" on page 337.

Advanced Settings Area

User interface elements are described below:

UI Element (A-Z)	Description
Measure first/last <action> instance	The same <action> can be included more than once in a transaction, either because it was accessed more than once, or due to an <action> refresh. Select the appropriate radio button to instruct RUM to report data for either the first or last instance of an <action> in a transaction. **Default value:** First <action> instance is reported. **Note:** ➤ When **last <action> instance** is selected, the last instance of a configured <action> before the first instance of the next configured <action> is used. For example, if P1, P2, and P3 are the configured <actions> for a transaction and P1, P2, **P2**, P3, and P2 are the accessed <actions> in a session, the second occurrence of P2 is the matched <action> for last <action> instance. ➤ If **last <action> instance** is selected, when the last <action> configured for the transaction is accessed, RUM waits for three minutes before timing out and recording the transaction, to allow for a possible <action> refresh. If the first configured <action> for the transaction is accessed during this time out period, a new transaction is started and the previous transaction is automatically closed and recorded. **Example:** ➤ **Configured <actions>:** P1, P2, P3 ➤ **Accessed <actions>:** P1, P4, P1, P2, P3, P2, P3 ➤ **Transaction match for first <action> instance:** **P1**, P4, P1, **P2**, **P3**, P2, P3 ➤ **Transaction match for last <action> instance:** P1, P4, **P1**, **P2**, P3, P2, **P3**

UI Element (A-Z)	Description
Report unavailable transaction if the user reaches <action>	Select one of the configured transaction <actions> from the drop-down list to instruct RUM to report data for an unavailable transaction, only if the transaction stream includes the selected <action>. An unavailable transaction is a transaction that does not end properly due to a session reset, a transaction timeout, or because an error in one of the transaction's <actions> prevents it from completing. **Default value:** The first <action> you added to the transaction.
User generated transaction	Select this check box to configure the transaction as a user generated transaction. For user generated transactions, the time between pages is included in the user think time, otherwise it is included in the client time. **Default value:** Enabled

Calculate Suggested Thresholds Dialog Box

This dialog box enables you to configure the time period and formula settings used to calculate suggested transaction thresholds for specific locations.

To access	In the **Location Aware Thresholds** dialog box, click the **Calculate Suggested Thresholds** button.

Time Period Settings Area

The Time Period Settings area displays a calendar in which you can click a date to select it as the starting date for the period from which suggested transaction thresholds are calculated. The period runs from the selected starting date to the current date. By default, the selected starting date is two weeks prior to the current date.

BSM calculates suggested thresholds by using multiples of the average transaction times and standard deviations for the transactions in the configured time period, according to a formula that you configure in the Formula Settings area of the dialog box.

Note:

- The time taken to calculate suggested thresholds is determined by the length of the time period you configure.
- The current date is displayed in a red box in the calendar.

Formula Settings Area

Important information	The formula for calculating suggested transaction thresholds is: m(average transaction time for the configured time period) X n(standard deviation for the configured time period)

User interface elements are described below:

UI Element	Description
<Total time formula>	Configure the multiples of the transaction average total time determined from the configured time period to use as the basis for the suggested total time threshold, and the multiples of the standard deviation to add to it.
<Net time formula>	Configure the multiples of the transaction average net time determined from the configured time period to use as the basis for the suggested net time threshold, and the multiples of the standard deviation to add to it. **Note:** This element is not available when the transaction is configured to determine thresholds from its included actions' thresholds.

Calculate Suggested Thresholds Wizard

This wizard enables you to configure the formula used to calculate suggested thresholds for a transaction or action, based on its historical data, and to select the suggested thresholds for use in the transaction/action's configuration.

To access	Click the **Calculate Suggested Thresholds** button in one of the following> ➤ **Business Transaction Real User Monitor Configuration** page > **Monitoring Settings** area ➤ **<Action>** dialog box
Important information	You cannot calculate suggested thresholds for new transactions or actions as there is no historical data on which to base the calculation.
Wizard map	This wizard contains: Set Calculation Parameters Page > Set Threshold Values Page

Set Calculation Parameters Page

This wizard page enables you to configure the formula used to calculate suggested thresholds.

Important information	General information about this wizard is available here: "Calculate Suggested Thresholds Wizard" on page 340
Wizard map	The Calculate Suggested Thresholds Wizard contains: **Set Calculation Parameters Page** > Set Threshold Values Page

Time Period Settings Area

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<**Calendar**>	Click a date in the calendar to select it as the starting date for the period from which suggested thresholds are calculated. The period runs from the selected starting date to the current date. By default, the selected starting date is two weeks prior to the current date. BSM calculates suggested thresholds by using multiples of the average times and standard deviations for the transactions or actions in the configured time period, according to a formula that you configure in the Formula Settings area of the dialog box. **Note:** ➤ The time taken to calculate suggested thresholds is determined by the length of the time period you configure. ➤ The current date is displayed in a red box in the calendar.

Formula Settings Area

Important information	The formula for calculating suggested thresholds is: m(average transaction or action time for the configured time period) X n(standard deviation for the configured time period)

User interface elements are described below:

UI Element	Description
<Total time formula>	Configure the multiples of the transaction or action average total time determined from the configured time period to use as the basis for the suggested total time threshold, and the multiples of the standard deviation to add to it. **Note:** For pages, the element is the <Page time formula>.
<Net time formula>	Configure the multiples of the transaction average net time determined from the configured time period to use as the basis for the suggested net time threshold, and the multiples of the standard deviation to add to it. **Note:** This element is not available: ➤ for transactions configured to determine thresholds from included action thresholds. ➤ for actions.
<Server time formula>	Configure the multiples of the transaction or action average server time determined from the configured time period to use as the basis for the suggested server time threshold, and the multiples of the standard deviation to add to it. **Note:** This element is not available for transactions configured to determine thresholds from included action thresholds.

Set Threshold Values Page

This wizard page enables you to select whether to use the current or suggested value for a specific threshold.

Important information	➤ General information about this wizard is available here: "Calculate Suggested Thresholds Wizard" on page 340.
	➤ Only the relevant thresholds are displayed on this page:
	  ➤ Total time for transactions configured to determine thresholds from included actions' thresholds.
	  ➤ Total, net, and server time for transactions configured with manual thresholds.
	  ➤ Page and server time for actions.
	➤ When you click the **Finish** button, the transaction's thresholds are updated with the selected values.

Wizard map	The Calculate Suggested Thresholds Wizard contains: Set Calculation Parameters Page > **Set Threshold Values Page**

User interface elements are described below:

UI Element (A-Z)	Description
<Current threshold>	For each threshold, the current value is displayed. Select this radio button to use the current value.
<Suggested threshold>	For each threshold, the calculated suggested value is displayed. Select this radio button to use the suggested value instead of the current value.

Create Transaction Per <Action> Dialog Box

This dialog box enables you to create a single action transaction for each action selected in a RUM application's <action> repository.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > <**Actions**> and in the <**Folder content**> area, select one or more <actions> and click the **Create Transaction Per Action** button.
Important information	➤ The transaction name is the same as the <action> name from which it is created. ➤ If multiple <actions> are selected, a separate transaction is created for each <action>.
See also	➤ "Real User Monitor Application <Actions> Page" on page 366 ➤ "Business Transaction Real User Monitor Configuration Page" on page 330

User interface elements are described below:

UI Element	Description
<**CI tree**>	A hierarchical tree of the application CI and its children. Select the CI under which you want to create the transactions and click **OK**. **Default value:** The application CI is selected. **Note:** You can create transaction CIs under an application, CI collection, or business transaction flow. Other CIs in the tree are disabled.

Description/URL Parameter Dialog Box

This dialog box enables you to configure a parameter to be added to, or removed from, an action's description or a URL, to be used for action matching by RUM.

To access	Use one of the following: ➤ In the **Description or URL Builder**, select a row in the list of parameters and click the **Edit Parameter** button. ➤ Select **Monitoring** page > **Search** tab and search for actions or pages. In the search results area, select an action or page, click the **Bulk Operations** button and select either **Add Parameter to Description/URL** or **Remove Parameter from Description/URL**.
Important information	When accessed from the **Monitoring** page **Search** tab, this dialog box is called the **Add Parameter to Description/URL** dialog box or **Remove Parameter from Description/URL** dialog box, as relevant.

User interface elements are described below:

UI Element (A-Z)	Description
Encode	Encodes the parameter name or value using UTF-8 encoding. **Note:** Action matching is affected by the encoding of recorded and configured actions. For recorded and configured actions to match, they must have the same encoding.
Name	The name of an included parameter. **Syntax exceptions:** ➤ Parameter names must be unique in a URL or action description. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and **; / : @ + $, - _ . ~ ' ( ) = % .**

UI Element (A-Z)	Description
Option	The option for an included parameter. Valid options are: ➤ **=.** Include only a specific parameter value. ➤ **All.** Include all values of the parameter.
Remove all parameters by parameter name	Select this check box to delete all the parameters for the selected entities that match the string in the **Name** element. **Note:** This element is only visible when you are removing a parameter as part of a bulk operation in the **Monitoring** page > **Search** tab.
Value	If you chose to include only a specific parameter value (by selecting = in the Option field), enter the specific value. **Syntax exceptions:** Allowed characters are **a-z**, **A-Z**, **0-9**, and **; / : @ + $, - _ . ~ ' ( ) = % ***. **Note:** The asterisk wildcard (*) can be used in a parameter value.

Edit Performance Event Dialog Box

This dialog box enables you to edit the default performance event for a RUM application.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select a Web or SOAP application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and select the performance event. Click the **Edit Event** button.
Important information	A default performance event is created for each Web or SOAP application. You cannot delete the performance event, nor can you create another performance event.

User interface elements are described below:

UI Element (A-Z)	Description
Name	The event name. **Default value:** Performance event **Note:** This field is disabled and cannot be edited.
Scope	The scope of the event. A global event applies to all pages in the application and a selective event applies only to specific pages. **Default value:** Global **Note:** This field is disabled and cannot be edited.
Status	Select the relevant radio button to configure whether the performance event is active. **Default value:** Active
Trigger event on	Select the relevant radio button to configure whether the event is triggered on page time or server time threshold breaches. **Note:** The following time thresholds are used: ➤ **Page configuration page/server time threshold.** For configured pages in the application. ➤ **Application configuration page/server time threshold.** For unconfigured pages in the application.

Edit SOAP Fault Event Dialog Box

This dialog box enables you to edit a default SOAP Fault event for a SOAP application.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select a SOAP application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and select an existing SOAP Fault event. Click the **Edit Event** button.
Important information	➤ By default, the following SOAP fault events (which are the standard SOAP fault codes for SOAP 1.1 and 1.2) are added to SOAP applications: ➤ Must Understand ➤ Receiver Error ➤ Sender Error ➤ Unknown Data Encoding (only relevant for SOAP 1.2) ➤ Version Mismatch ➤ SOAP faults are similar to text pattern events in their behavior, but are always searched for in the SOAP fault section of a response, instead of in the entire response. For details on text pattern events, see "Text Pattern Event Dialog Box" on page 443.

User interface elements are described below:

UI Element (A-Z)	Description
Classification	Select the relevant radio button to configure whether the event is an error event or an information event. **Default value:** Information for all, except the **Receiver Error** fault for which the default is Error.
Create snapshot for the event	Select this check box to configure RUM to create a snapshot of the page on which the event occurs. **Default value:** Enabled **Note:** For snapshots to be reported by RUM, this check box must be selected, as well as the **Collect snapshots on events** check box in the application configuration (for at least one <action> back). For user interface details, see "Snapshot Collection Area" on page 388.
Name	The name of the SOAP Fault event. **Note:** You cannot edit this field.
Scope	The scope of the event—Global (for all pages) or Selective (for specific pages). **Default value:** Global **Note:** You cannot edit this field.
Status	Select the relevant radio button to configure whether the event configuration is active. **Default value:** Active

End User Group Page

This page enables you to edit the configuration of an existing end-user group.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an end-user group.
Important information	The elements included in this page are the same as those included in the **Add End User Group with Real User Monitor Configuration** dialog box with the following exceptions: ➤ The General Settings area is not displayed. ➤ The Identification Settings area only includes the configured method of identifying end users to include in the group (that is, by user names, IP addresses, or session properties). You can edit the configured settings (that is, change the user names, IP addresses, or session properties), but cannot change the identification method used. For user interface details, see "Add End User Group with Real User Monitor Configuration Dialog Box" on page 322.
See also	"End-User Groups Overview" on page 277

Error <Action> Event Dialog Box

This dialog box enables you to configure an error <action> event for an application. An error <action> event is triggered when a specified <action> in an application encounters an error.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and in the **Global and Selective Events** area, click the **New Event** button and select **Error <Action> Event** from the Shortcut menu. ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and select an existing error <action> event. Click the **Edit Event** button.
Important information	The protocol used by the application determines the type of action (generic action, page, query, or operation) for which you configure an error event. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type.

User interface elements are described below:

UI Element (A-Z)	Description
Classification	Select the relevant radio button to configure whether the event is an error event or an information event. **Default value:** Error
Name	The name of the error <action> event, which you can view in EUM only. **Note:** The name must be unique within the application. **Syntax exceptions:** Cannot exceed 100 characters.

UI Element (A-Z)	Description
Status	Select the relevant radio button to configure whether the event configuration is active. **Default value:** Active
URL/Description Builder	Configure the <action>, which, if an error is encountered in it, triggers the event. For URL Builder user interface details, see "URL Builder" on page 449. For Description Builder user interface details, see "Action Description Builder" on page 318.

Host Alias Dialog Box

This dialog box enables you create and edit a host alias for a RUM application.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Data Collection** and in the **Host Aliases** area, click the **New Host Alias** button or the **Edit Host Alias** button.
See also	"Host Aliases Overview" on page 277

User interface elements are described below:

UI Element	Description
	**New Host.** Adds a new entry in the list of hosts.
	**Delete Host.** Deletes a selected host from the list of hosts included in a host alias.

UI Element	Description
Alias	Enter the name you want to assign the host alias. **Syntax exceptions:** ➤ Cannot exceed 260 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and _ -
Hosts	Enter the host part of the URL that you want to include in the host alias you are defining (for example, hp.com). **Note:** Each host entered must be unique.

HTTP/Protocol Error Event Dialog Box

This dialog box enables you to configure an HTTP/protocol error event for an application.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and in the **HTTP/Protocol Error Events** area, click the **New HTTP/Protocol Error Event** button. ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events**, select an existing HTTP/protocol error event and click the **Edit HTTP/Protocol Error Event** button.
Important information	➤ For HTTP-based protocols, you configure **HTTP error events** and for non-HTTP-based protocols, you configure **protocol error events**. Element labels change accordingly depending on the application's protocol. ➤ The protocol used by the application determines the type of action (generic action, page, query, or operation) on which you configure events. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type. ➤ By default, the most common HTTP/protocol error codes are predefined under different error events, according to the application protocol.

User interface elements are described below:

UI Element	Description
Create snapshot for the event	Select this check box to enable a page snapshot for the event, if it occurs in an application. **Default value:** Disabled **Note:** For snapshots to be reported by RUM, this check box must be selected, as well as the **Collect snapshots on events** check box in the application configuration (for at least one <action> back. For user interface details, see "Snapshot Collection Area" on page 388.
Name	The name of the HTTP/protocol error event. **Example:** You can create an HTTP/protocol error event called Database errors and include the applicable error codes for it in the **Included error codes** area.
Save session snapshots	Select the **Save session snapshots** check box to enable snapshots to be made of all the <actions> from the beginning of a session, up to and including the <action> on which the HTTP/protocol error event occurs. **Default value:** Disabled **Note:** ➤ Saving all the pages from the beginning of a session enables more accurate frames unification, thus improving session replay, but may adversely affect RUM probe performance. ➤ For snapshots of all the pages from the beginning of a session to be saved by RUM, this check box must be selected, as well as the **Enable session snapshot on event** check box in the application configuration. For user interface details, see "Snapshot Collection Area" on page 388.
Classification	Select the relevant radio button to configure whether the event is an error event or an information event. **Default value:** Error

UI Element	Description
Status	Select the relevant radio button to configure whether the event configuration is active. **Default value:** Active
<Excluded <actions>>	
	**Add <Action> to Event.** Opens the application's <Action> Repository, where you can manage the <actions> included in the application and select the <actions> to be excluded from the HTTP/protocol error event. For user interface details, see "Real User Monitor Application <Actions> Page" on page 366.
	**Remove <Action> from Event.** Removes selected <actions> from the HTTP/protocol error event configuration.
<Action> Name	The names of the <actions> that are excluded from the HTTP/protocol error event.
URL/Action	The URLs of the pages, or the definitions of the <actions>, that are excluded from the HTTP/protocol error event.
Included error codes	
	**New HTTP/Protocol Error Code.** Adds a new line in the list of included error codes and enter a valid error code number in the new line. **Note:** Valid error codes are between 400–599.
	**Delete HTTP/Protocol Error Codes.** Removes selected error codes from the event.
Error Code	The error codes that are included in the event. Click an existing entry to enter or change the error code number. **Note:** Valid error codes are between 400–599.

Import RUM Applications/End User Groups Configuration Wizard

This wizard enables you to import RUM applications or end-user groups configured for RUM from a previously exported file, so that you can transfer them from one system to another (for example, from a testing environment to a production environment).

To access	In the **Monitoring** page > **Browse** tab, select the entity in the tree under which you want to import the applications or end-user groups and click the **Management Operations** button in the toolbar. From the menu, select one of the following: ➤ Import RUM Applications ➤ Import RUM End User Groups
Important information	The name of the wizard depends on the entities you are importing: ➤ When importing applications, the wizard is called the Import RUM Applications Configuration wizard. ➤ When importing end-user groups, the wizard is called the Import RUM End User Groups Configuration wizard.
Wizard map	This wizard contains: Import Settings Page > Summary Page
See also	➤ "Exporting and Importing Real User Monitor Configurations" on page 278 ➤ "Monitoring Page Browse Tab" on page 64

Import Settings Page

This wizard page enables you to configure the import settings, such as the source file name, override options, and so forth.

Important information	General information about this wizard is available here: "Import RUM Applications/End User Groups Configuration Wizard" on page 357.
Wizard map	The Import RUM Applications/End User Groups Configuration Wizard contains: **Import Settings Page** > Summary Page

User interface elements are described below:

UI Element (A-Z)	Description
Do not import duplicates	Select this radio button to configure the wizard not to import an application, end-user group, or CI collection, if an application CI of the same name already exists in the system, or an end-user group or CI collection CI of the same name already exists under the parent. **Note:** Duplicate end-user groups within the xml file are imported.
Import configuration from	The path and name of the xml file from which you want to import the configurations. **Caution:** Changing the contents of an exported xml file may result in unexpected results when the file is imported. **Tip:** Use the **Browse** button to search for a file.
Import duplicates	Select this radio button to configure the wizard to import CI collection and end-user group CIs even in an existing CI of the same name already exists under the same parent. **Note:** Duplicate end-user group entries are added, but duplicate CI collection entries are merged into one entity.

UI Element (A-Z)	Description
Profile database	The profile database in which to store the imported applications' RUM information. If you are importing multiple applications, the same profile database is used for all of them. Make your selection from the drop-down list of profile databases configured in BSM. **Default value:** The default profile database configured in BSM. **Note:** This element is not visible when you are importing end-user groups.
Replace duplicates with imported items	Select this radio button to configure the wizard to import an application even if an application CI of the same name already exists. The existing application is deleted and a new one is created. **Note:** This element is not visible when you are importing end-user groups.

Summary Page

This wizard page enables you to view a summary of the RUM configuration import.

Important information	General information about this wizard is available here: "Import RUM Applications/End User Groups Configuration Wizard" on page 357.
Wizard map	The Import RUM Applications/End User Groups Configuration Wizard contains: Import Settings Page > **Summary Page**

User interface elements are described below:

UI Element (A-Z)	Description
Additional details	When an entity’s status is **Failed**, a message is displayed with details of the error.
Name	The name of the imported entity. Entities are displayed as a tree according to their hierarchy.
Status	The import status. Valid options are: ➤ Succeeded ➤ Partially Imported (The import was successful, but certain entities were not imported. For example, events linked to non existent pages.) ➤ Failed **Note:** When the status is Partially Imported, error details are available in the following log files: ➤ **<HPBSM root directory>\logs\EJBContainer\ma-app.log** (all EUM Administration errors) ➤ **<HPBSM root directory>\logs\EJBContainer\ma-app-msg.log** (information messages) Search for log entries that include the text Failed to import.
Type	The entity type.

IP Range Dialog Box

This dialog box enables you to configure a range of IP addresses of application servers associated with an application your are defining.

To access	Click the **New IP Range** or **Edit IP Range** button in one of the following: ➤ Select **Real User Monitor Application** wizard > **Monitoring Settings** page > **Application Location** pane. ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **General** > **Application Location** area.
Important information	➤ Configure application locations in such a way that <actions> cannot be associated with more than one application location (for example, configure both IP ranges and URLs/action descriptions for an application location). If an <action> is associated with more than one application location, erratic and incorrect monitoring results may be produced. ➤ You cannot configure the same IP address and port range for different front-end tier applications monitored by the same RUM engines, or for different tiers within the same application, unless you differentiate them by using an <action> description/page URL.

User interface elements are described below:

UI Element (A-Z)	Description
From IP	Enter the IP address for the start of the range of applications servers associated with the application you are defining.
IP type	Select the applicable radio button for the type of IP addresses you are using—IPv4 or IPv6.

UI Element (A-Z)	Description
Port	Enter the port number used to communicate with the application servers included in the range. **Default value:** 80 if the SSL check box is cleared, or 443 if the SSL check box is selected.
SSL	Select the SSL check box if the application servers included in the range use SSL communications. Clear the check box if they do not. **Default value:** Disabled **Note:** If the default value for the port number is used, it changes between 80 and 443 when this check box is selected or cleared.
To IP	Enter the IP address for the end of the range of applications servers associated with the application you are defining.

Location Aware Thresholds Dialog Box

This dialog box enables you to configure net and total time thresholds for RUM transactions, for specific locations.

To access	Use one of the following: ➤ Select **Business Transaction Real User Monitor Configuration** page > **Monitoring Settings** area and click the **Location Aware Thresholds** button. ➤ Select **Business Transaction Real User Monitor Configuration** dialog box > **Monitoring Settings** area and click the **Location Aware Thresholds** button.
Important information	➤ Location aware thresholds configured for a specific location for a transaction, override any location threshold offset configured for that location in the transaction's parent application. ➤ By default, the table is filtered to show those locations that are monitored by RUM (that is, those with a check mark in the **Monitored by RUM** column).

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Performance Thresholds.** Opens the Edit Location Thresholds dialog box, where you can configure the net and total time thresholds for selected locations at one time.
	**Restore location specific threshold values.** Restores threshold values for the transaction in the selected locations, based on the general threshold values for the transaction and any location offsets configured for the selected locations. For user interface details on configuring location offsets, see "Location Offset Page" on page 61.
	**Calculate suggested thresholds.** Opens the Calculate Suggested Thresholds dialog box, where you set the dates and formula for calculating suggested transaction thresholds. For user interface details, see "Calculate Suggested Thresholds Dialog Box" on page 338. **Note:** Once suggested thresholds are calculated, the **Suggested Net Time** and **Suggested Total Time** columns are displayed in the Location Aware Thresholds dialog box.
	**Accept suggested thresholds.** Accepts the suggested thresholds for selected transactions. The thresholds for the selected transactions are updated to the suggested thresholds.
	**Hide suggested thresholds.** Hides the **Suggested Net Time** and **Suggested Total Time** columns. **Note:** This button is enabled only when suggested thresholds have been calculated and are displayed.
	**Show suggested thresholds.** Shows the **Suggested Net Time** and **Suggested Total Time** columns. **Note:** This button is enabled only when suggested thresholds have been calculated, but are hidden.
Location	The location name.

UI Element (A-Z)	Description
Monitored by RUM	A check mark denotes that the location is monitored by RUM. A location is considered to be monitored by RUM if an IP range has been configured for the location, or if the location has been configured for an end-user group. For user interface details on configuring locations, see "Location Manager User Interface" in *Platform Administration*. For user interface details on configuring end-user groups, see "Add End User Group with Real User Monitor Configuration Dialog Box" on page 322.
Net Time	The transaction net time, in seconds, for the specific location. **Note:** You cannot set the net time for transactions that are configured to determine thresholds from included actions' thresholds. In such cases, the net time field displays a dash (-).
Suggested Net Time	The suggested transaction net time threshold for the specific location. **Note:** ➤ This column is displayed when you click the **Calculate Suggested Thresholds** or **Show Suggested Thresholds** button. ➤ This column is not available for transactions that are configured to determine thresholds from included actions' thresholds.
Suggested Total Time	The suggested transaction total time threshold for the specific location. **Note:** This column is displayed when you click the **Calculate Suggested Thresholds** or **Show Suggested Thresholds** button.
Total Time	The transaction total time, in seconds, for the specific location.

Parameter Extraction Dialog Box

This dialog box enables you to configure a parameter to add to an <action> name, as well as from where to extract the data to be used as the parameter's value.

You can also use extracted parameters as regular parameters when configuring other application settings, such as user names and session properties, and can include an extracted parameter in an <action> name configuration file.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **General** and in the **Parameter Extraction** area, click the **New Parameter Extraction** button or the **Edit Parameter Extraction** button.
Important information	For user interface details, see "Search Area" on page 429.

Real User Monitor Application <Actions> Page

This page enables you to configure and manage a RUM application's <actions>. The configured <actions> are stored in an <action> repository for the specific application. (You assign <actions> when you configure events and transactions for the application.)

To access	➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree select an application configured for RUM and in the Content pane, select **Real User Monitor** tab > **<Actions>**.
	➤ To access the <Action> Repository dialog box in a new window, click the **Add <action>** button in one of the following:
	  ➤ **Business Transaction Real User Monitor Configuration** dialog box > **Transaction <Action> Settings** area.
	  ➤ **HTTP/Protocol Error Event** dialog box.
	  ➤ **<Action> Size Event** dialog box.
	  ➤ **<Action> Time Event** dialog box.
	  ➤ **Text Pattern Event** dialog box.

Important information	➤ The protocol used by the application determines the type of action (generic action, page, query, or operation) included in the application configuration. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type. ➤ This page is not displayed for certain protocols, such as TCP or UDP. ➤ This user interface description is also applicable to the <Action> Repository dialog box which is accessed from other user interface pages and which opens in a new window.

Folders Area

Important information	➤ The Folders area includes two tabs—**Browse** and **Search**. The Browse tab displays a tree hierarchy of the folders in the <action> repository, and the buttons used to manage them. When you select a folder, its contents are displayed in the Folder Content pane. The Search tab enables you to search for <actions> in the <action> repository that match a given string. ➤ By default, the <action> repository contains a **Root** folder and an **Auto discovered** folder. The **Auto discovered** folder contains any <actions> that are automatically discovered and named by RUM. For details on configuring <action> names, see "Configuring Meaningful Page Names" in the *Real User Monitor Administration* PDF. ➤ When you run a search in the <action> repository, a folder called **Search Results** is added to the folder tree displayed in the Browse tab. The contents of the Search Results folder (that is, the <actions> found by the search) are displayed in the Folder Content pane. You cannot perform any actions (such as add, delete folder, or move) to the Search Results folder.

User interface elements are described below:

UI Element (A-Z)	Description
Browse Tab	
	**New Folder.** Adds a new folder under a selected folder, and enter the new folder name. **Note:** ➤ Folder names must be unique within the same parent folder. ➤ You can drag and drop a folder into another folder.

UI Element (A-Z)	Description
	**Rename Folder.** Renames a selected folder. **Note:** ➤ Folder names must be unique within the same parent folder. ➤ You cannot rename the **Root** or **Auto discovered** folders.
	**Delete Folder.** Deletes a selected folder. **Caution:** Deleting a folder also deletes its content, including <actions> already assigned to events. **Note:** ➤ You cannot delete a folder that contains <actions> already assigned to a transaction. ➤ You cannot delete the **Root** or **Auto discovered** folders.
	**Cut Folder.** Cuts a selected folder. **Note:** You cannot cut the **Root** or **Auto discovered** folders.
	**Paste Folder.** Pastes a cut folder into a different parent folder. **Note:** This button is enabled only when you have cut, and not yet pasted, a folder.
	**Refresh.** Refreshes the folder tree.
<Folder tree>	A hierarchical tree of the folders in the application's <action> repository.
Search Tab	
<Action> Name	Enter a string for which to search. Any <action> whose name includes the string is found by the search. **Syntax exceptions:** You cannot use the asterisk (*) wildcard in the search string as it will be considered as a separate character and not as a wildcard.

UI Element (A-Z)	Description
Matching page/operation URL	Enter a page or SOAP operation URL for which to search. Any page or SOAP operation whose URL matches the string is found by the search. **Note:** ➤ This element is only visible for pages and SOAP operations. ➤ A match is made against a page or SOAP operation's full URL, so you must enter the full URL in this field, including the protocol. ➤ If you enter a string in the **<Action> Name** field as well as a URL, only pages or SOAP operations that match both the name and the URL are located by the search.
Search in	Select the relevant radio button to search through the entire Action Gallery, or only in the selected folder.

<Folder Content> Area

This area enables you to view and manage the <actions> contained within a folder.

User interface elements are described below:

UI Element (A-Z)	Description
	**New <Action>.** Opens the New <Action> dialog box, where you configure a new <action> for the application. For user interface details, see "<Action> Dialog Box" on page 310. **Note:** ➤ <Action> names must be unique within an application’s <action> repository. ➤ <Action> descriptions/URLs must be unique within an application’s <action> repository. ➤ You can drag and drop an <action> from one folder to another.
	**Edit <Action>.** Opens the Edit <Action> dialog box, where you configure a selected <action’s> settings. For user interface details, see "<Action> Dialog Box" on page 310.
	**Delete <Action>.** Deletes selected <actions>. **Caution:** Deleting an <action> already assigned to an event, removes the <action> from the event’s settings. **Note:** You cannot delete an <action> that is already assigned to a transaction.
	**Cut <Action>.** Cuts selected <actions> from the folder.
	**Paste <Action>.** Pastes cut <actions> into a different folder.

UI Element (A-Z)	Description
	**Related Transactions and Events.** Opens the Related Transactions and Events dialog box, where you can view and edit the transactions and events in which a selected <action> is included. For user interface details, see "Related Transactions and Events Dialog Box" on page 428. **Note:** This button is enabled only for <actions> that are in use (that is, that are included in a transaction or an event).
	**Create Transaction Per Action.** Opens the Create Transaction Per Action dialog box, where you create a transaction for each selected action. For user interface details, see "Create Transaction Per <Action> Dialog Box" on page 344.
	**Go To Folder.** Navigates to a selected <action> found in a search. The <Action> Gallery folder containing the <action> is selected in the tree hierarchy in the Folders area, and all the <actions> in that folder are displayed in the Folder Contents area. For details on the Folders area user interface, see "Folders Area" on page 367. **Note:** This button is enabled only for <actions> found in a search.
Active	A check mark displays whether the action is active.
Auto Discovered	A check mark displays whether the action was automatically discovered by RUM.
Description	The action description. **Note:** This element is visible only for actions that are not pages or operations.
In Use	Denotes whether the <action> is included in any transaction or event. **Tooltip:** Shows if the <action> is used in a transaction, an event, or both.
Name	The <action> name.

UI Element (A-Z)	Description
Parameters	Displays the configured parameters that are included in the page's URL or <action> description for matching.
URL	The page's URL. **Note:** This element is visible for pages and operations only.

Real User Monitor Application Configuration Wizard

This wizard enables you to create a new application and its RUM configuration in EUM Administration, or to add a RUM configuration to an existing application (for example, to an existing BPM application that does not yet have a RUM configuration).

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click the root object of the view and click **Add** > **Application and its RUM Configuration**. ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, right-click an existing application that is not configured for RUM and click **Add** > **RUM Configuration**. ➤ Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree, select an existing application that is configured for RUM. In the **Real User Monitor Application General** page > **Application Monitoring Tiers** area, click the **New Monitoring Tier** button.
Relevant tasks	"How to Set up Real User Monitors" on page 283
Wizard map	This wizard contains: Application Properties Page > Monitoring Settings Page > Summary Page

Application Properties Page

This wizard page enables you to configure the CI and RUM template properties for a new RUM application.

Important information	General information about this wizard is available here: "Real User Monitor Application Configuration Wizard" on page 372.
Wizard map	The Real User Monitor Application Configuration Wizard contains: **Application Properties Page** > Monitoring Settings Page > Summary Page

CI Properties Pane

User interface elements are described below:

UI Element (A-Z)	Description
Description	Enter a description for the application CI. **Syntax exceptions:** Cannot exceed 1000 characters.
Name	The application CI name. **Note:** ➤ When you create a new application, this field is mandatory. ➤ When you add a RUM configuration to an existing application, the existing application CI name is displayed and cannot be edited. **Syntax exceptions:** Cannot exceed 884 characters.
Type	Displays the CI type that is created for the application. **Default value:** Application

Real User Monitor Properties Pane

This area enables you to select the type of application to configure. A number of the application types (for example Siebel) have predefined values for the most common, recommended configuration settings, simplifying their creation.

User interface elements are described below:

UI Element (A-Z)	Description
Description	The template description.
Protocol	The protocol used by the template.
Template Name	The template name.

Monitoring Settings Page

This wizard page enables you to configure the monitoring settings and application location for a RUM application.

Important information	General information about this wizard is available here: "Real User Monitor Application Configuration Wizard" on page 372.
Wizard map	The Real User Monitor Application Configuration Wizard contains: Application Properties Page > **Monitoring Settings Page** > Summary Page

Monitoring Settings Pane

User interface elements are described below:

UI Element (A-Z)	Description

Assign Application 360 license	Select this check box to assign a 360 license to the RUM application. Clear the check box to unassign a 360 license from the application. For concept details, see "End User Management Licenses Overview" on page 492.
	Note:
	➤ This check box is not displayed if:
	  ➤ You do not have change permissions for both RUM and BPM configurations.
	  ➤ You are configuring an additional tier for an application.
	  ➤ If the application is already configured for BPM with a 360 license assigned.
	➤ If you assign a 360 license to a RUM application that is also configured for BPM, the 360 license is also automatically assigned to the BPM application.
	➤ If you assign a 360 license to a RUM application, you do not need to assign other license types to individual probes.

UI Element (A-Z)	Description
Engines	Click **Engines** to open the Select Engines dialog box, where you select or clear the RUM engines that monitor the application. For user interface details, see "Select Engines Dialog Box" on page 433. Displays the RUM engines you select to monitor the application. Also displays whether all the probes linked to an engine, or specific (filtered) probes only monitor the application. **Note:** ➤ When you create an additional monitoring tier for an existing application, the engines currently configured for the application's main tier are configured for the additional tier by default. You can change the engine settings for the additional tier. ➤ If you add an engine to an existing application's main tier, it is not added to any existing additional monitoring tiers of the application.
Profile database	Select a profile database for storing this application's RUM information. The list includes all the profile databases defined for this BSM installation. For details on configuring profile databases in BSM, see "Database Administration" in *Platform Administration*. **Default value:** ➤ For the main tier of an application, the default profile database configured for BSM. ➤ For additional back-end tiers of an application, the profile database configured for the application's main tier. You cannot change this value.
Protocol	Displays the protocol used by the template you selected in the Application Properties page.
Status	Select **Active** to enable monitoring for the application, or **Inactive** to disable monitoring. **Default value:** Active
Template name	The name of the template you selected in the Application Properties page.

UI Element (A-Z)	Description
Tier name	The name of the tier monitored by the application. **Default value:** The protocol name, which is determined by the template you select for the application. **Note:** The tier name must be unique within the application.

Application Location Pane

This area enables you to configure the application server IP ranges, and their ports, as well as the <actions> that define the application location.

Important information	➤ For applications using certain protocols, such as TCP, you can configure only IP ranges for the application location. In such cases, the URL/<Action> pane in this area is not displayed. ➤ The protocol used by the application determines the type of action (generic action, page, query, or operation) that identifies the application location. The name of the pane and other element labels (denoted by <**action**> in the user interface descriptions), change accordingly to reflect the applicable action type. For pages and operations, the action type is denoted by the label **URL**. ➤ If you configure both application server IP ranges and <actions> for an application, RUM only matches traffic that goes to both a configured IP range and a configured <action>. ➤ Configure application locations in such a way that <actions> cannot be associated with more than one application location (for example, configure both IP ranges and URLs/action descriptions for an application location). If an <action> is associated with more than one application location, erratic and incorrect monitoring results may be produced. ➤ You cannot configure the same IP address and port range for different front-end tier applications monitored by the same RUM engines, or for different tiers within the same application, unless you differentiate them by using an <action> description/page URL. ➤ You must configure at least one IP range for all non-HTTP applications.

User interface elements are described below:

UI Element (A-Z)	Description
IP Range	**New IP Range.** Opens the IP Range dialog box, where you add details of new application servers you want to associate with the application you are defining. Repeat this procedure for each range of servers you want to add. For user interface details, see "IP Range Dialog Box" on page 361.
	Edit IP Range. Opens the IP Range dialog box, where you edit a selected IP range’s settings. For user interface details, see "IP Range Dialog Box" on page 361.
	Delete IP Range. Deletes selected IP ranges from the list.
	IP Range. Displays the IP range of application servers associated with the application you are defining.
	Port. Displays the port number used to communicate with the application servers included in the range. **Default value:** The default port number according to the template you selected for the application.
	SSL. Displays whether the application servers included in the range use SSL communications.

UI Element (A-Z)	Description
URL/<Action>	**New URL/<Action>.** Opens the URL/Description Builder, where you configure a URL or <action> that you want to associate with the application you are defining. The URL/<action> appears in the list of application URLs/<actions>. Repeat this procedure for each URL/<action> you want to add to the list. For details on the URL Builder user interface, see "URL Builder" on page 449. For details on the Description Builder user interface, see "Action Description Builder" on page 318.
	Edit URL/<Action>. Opens the URL/Description Builder dialog box, where you edit a selected URL/<action>'s settings. For details on the URL Builder user interface, see "URL Builder" on page 449. For details on the Description Builder user interface, see "Action Description Builder" on page 318.
	Delete URL/<Action>. Deletes selected URLs/<actions> from the list.
	URL/<Action>. Displays the configured URLs of the application servers associated with the application you are defining, or the configured <actions> that determine the application location.

Summary Page

This wizard page displays the status of the application you created and indicates if there were any errors during creation. Click the **Close** button to exit from and close the wizard.

Important information	General information about this wizard is available here: "Real User Monitor Application Configuration Wizard" on page 372.
Wizard map	The Real User Monitor Application Configuration Wizard contains: Application Properties Page > Monitoring Settings Page > **Summary Page**

User interface elements are described below:

UI Element (A-Z)	Description
Additional Details	Displays any additional information about the creation of the relevant CI.
Name	Displays the name of the application CI that was created.
Status	Displays an icon showing the status of the CI creation: Successful Failed

Real User Monitor Application Data Collection Page

This page enables you to view and configure a RUM application's data collection properties.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree select an application configured for RUM and in the Content pane, select **Real User Monitor** tab > **Data Collection**.
Important information	This page is not displayed for certain protocols, such as TCP or UDP.

General Area

Important information	The protocol used by the application determines the settings that are visible in this area.

User interface elements are described below:

UI Element (A-Z)	Description
Enable <action> component breakdown	Select this check box to enable component breakdown for the application's actions. For details on viewing action component breakdown, see "Page Component Breakdown Report (RUM)" on page 903. **Default value:** Disabled **Note:** ➤ This check box is enabled only when the **Enable clickstream** check box is selected. ➤ This setting is applicable for Web applications only. ➤ Enabling component breakdown increases RUM probe overhead.
Enable automatic <action> classification	Select this check box to enable automatic classification for the application's <actions>. Classifying actions automatically groups commonly repeated patterns under a one common description (for example, the same SQL query in which only a specific parameter value may vary in each request). Classifications are used to group actions in EUM reports such as the Action Summary report. They are also used by RUM in Automatic Transaction Tracking (ATT). For details, see "Real User Monitor Transaction Flow Monitoring" in the *Real User Monitor Administration* PDF. **Default value:** ➤ Disabled for HTTP based applications (Web and SOAP) ➤ Enabled for non HTTP based applications

UI Element (A-Z)	Description

Enable clickstream	Select this check box to enable snapshots of the pages and related events included in the application to be recorded, or clear the check box to disable this feature.
	Default value: Enabled
	Note:
	➤ This setting is applicable only for applications using HTTP-based protocols (Web and SOAP).
	➤ Disabling the application clickstream results in the following limitations for the application:
	  ➤ Session Details report – no data.
	  ➤ RUM Action Summary, Action Over Time, RUM End User Group by Action, and Application Infrastructure by Action reports – no data when filtered by events, user name, IP, or host.
	  ➤ Performance Analysis report – no real user data in the transaction response time breakdown component.
	  ➤ Metrics Over Time report – no data for action metrics when filtered by events, user name, IP, or host.
	  ➤ Clickstream data is not generated.
	  ➤ No integration with HP Diagnostics and TransactionVision.

Enable frame unification	Select this check box to configure RUM to enable the unification of frames for pages configured for frame unification that are included in a transaction for the application you are configuring. Clear the check box to configure RUM to record pages without a breakdown of their parts. For concept details, see "Frame Unification" on page 266. **Default value:** Disabled **Note:** This setting is visible for applications using HTTP-based protocols (Web and SOAP), but is applicable for Web applications only.

UI Element (A-Z)	Description
Exclude BPM data	Select this check box to configure RUM to ignore BPM generated traffic for the application. If RUM is monitoring an application on which BPM scripts are run, a lot of unwanted traffic may be monitored and reported, distorting the data in RUM reports. **Default value:** Disabled **Note:** ➤ This setting is applicable only for applications using HTTP-based protocols. ➤ You must set the **SendRumBeacon** parameter in the **agent1.cfg** file of the BPM running the scripts to **true**. For details, see "Business Process Monitor Configuration Files" in the *Business Process Monitor Administration* PDF.

<table>
<tr><th>UI Element (A-Z)</th><th>Description</th></tr>
<tr><td>Store all actions</td><td>Select this check box to configure RUM to store all action instances. Storing all action instances creates data for the Actions Summary report, Actions Raw Data report, and the session click stream. If the check box is cleared, these reports are not available for the specific application.
Default value: Disabled
Note:
This setting is applicable only for applications using non-Web based protocols.
Not storing all action instances results in the following limitations for the application:
Session Details report – no data.
RUM Action Summary, Action Over Time, RUM End User Group by Action, and Application Infrastructure by Action reports – no data when filtered by events, user name, IP, or host.
Performance Analysis report – no real user data in the transaction response time breakdown component.
Metrics Over Time report – no data for action metrics when filtered by events, user name, IP, or host.
Clickstream data is not generated.</td></tr>
</table>

Sensitive Data Area

This area enables you to configure settings for masking sensitive data in RUM.

Important information	➤ If a security officer is configured in BSM, this area is visible only for the user configured as the security officer. If no security officer is configured, all users can view this area. For concept details, see "Security Officer" in *Platform Administration*. ➤ The protocol used by the application for which you are configuring sensitive data settings determines the type of action (generic action, page, query, or operation) for which you configure parameters. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type.

User interface elements are described below:

UI Element (A-Z)	Description
HTTP/<Action> Parameters	**Report all parameters.** Select this radio button to report all parameters without any masking.
	Report all parameters except the following. Select this radio button and enter any parameters (such as password parameters) that you want to exclude from the page URLs or <action> names that appear in RUM reports. These parameter values are replaced with a series of asterisks (***). **Note:** ➤ You must select the radio button to be able to enter parameters. ➤ Use semicolons to separate the parameters you enter. **Syntax exceptions:** The total length of all the parameters cannot exceed 1000 characters.
	Report only the following parameters. Select this radio button and enter the parameters that you want RUM to include in the page URLs or <action> names that appear in RUM reports. All other parameter values are replaced with a series of asterisks (***). **Note:** ➤ You must select the radio button to be able to enter parameters. ➤ Use semicolons to separate the parameters you enter. **Syntax exceptions:** The total length of all the parameters cannot exceed 1000 characters.

UI Element (A-Z)	Description
Sensitive Data Settings	**New Sensitive Data Setting.** Opens the Sensitive Data Setting dialog box, where you configure a new sensitive data setting for the application. For details, see "Sensitive Data Setting Dialog Box" on page 436.
	Edit Sensitive Data Setting. Opens the Sensitive Data Setting dialog box, where you edit a selected sensitive data setting's configuration. For details, see "Sensitive Data Setting Dialog Box" on page 436.
	Delete Sensitive Data Settings. Deletes selected sensitive data configurations.
	Active. Displays whether the sensitive data configuration is active.
	Content. The specific settings within the configured search area of the <action's> request or response, used to locate the data for masking.
	Search. The area of the <action's> request or response in which RUM searches for sensitive data. **Default value:** Content (Generic)

Snapshot Collection Area

This area enables you to configure when to save snapshots of <actions>.

Important information	➤ The protocol used by the application you are configuring determines the type of action (generic action, page, query, or operation) for which you configure snapshot collection settings. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type. ➤ The elements that are visible and enabled are determined by the application template you selected.

User interface elements are described below:

UI Element (A-Z)	Description
Collect request snapshots	Select this check box to enable snapshots to be made of both requests and responses, or clear the check box to enable snapshots to be made of responses only. **Default value:** Disabled, except for SOAP applications for which it is Enabled.
Collect session data for generating VuGen scripts	Select this check box to configure RUM to take snapshots of all <actions> in a random sampling of sessions for the application (one session out of every twenty). These fully captured sessions can then be used to create VuGen scripts in the Session Details and Business Process Distribution reports. For user interface details, see "Session Details Report" on page 998 and "RUM Business Process Distribution Report" on page 1128. **Note:** This setting is applicable only for applications using http-based protocols.
Collect snapshots on events	Select this check box to enable snapshots to be made of <actions> on which events that have been configured for snapshots, occur. Clear the check box to disable snapshots of event <actions> in the application. If you select this check box, for session aware applications enter the number of pages back for which snapshots should be made when an event occurs, including the event <action> itself. Using any number greater than one may adversely affect RUM probe performance. **Note:** For snapshots to be reported by RUM, the **Save session snapshots** check box for text events or HTTP global errors, or the **Create snapshot for event** check box for SOAP faults, must be enabled. **Default value:** Enabled for one page back

UI Element (A-Z)	Description
Enable session snapshot on event	Select this check box to enable snapshots to be made of all the <actions> from the beginning of a session, up to and including the <action> on which an event, that has been configured for session snapshots, occurs. Saving all the <actions> from the beginning of a session enables more accurate frames unification, thus improving session replay, but may adversely affect RUM probe performance. **Note:** For snapshots of all the <actions> from the beginning of a session to be saved by RUM, both the **Session snapshot on event** check box for the application, and the **Save session snapshots** check box for the text event or HTTP global error, or the **Create snapshot for event** check box for the SOAP fault, must be enabled. **Default value:** Disabled **Note:** This settings is visible only for session aware applications.
Resource caching	Select this check box to store the static resources (such as images and style sheets) included in a session’s pages on the RUM probe machine. Retrieving resources from the RUM probe machine, instead of the original monitored application’s site, makes viewing snapshots and replaying sessions more reliable as the resources are always available, and does not add any extra burden on the application’s performance. **Default value:** Disabled **Note:** This setting is applicable only for applications using HTTP-based protocols.

Statistics Collection Area

This area enables you to configure the collection parameters for global reporting statistics.

Important information	The protocol used by the application determines the type of action (generic action, page, query, or operation) for which you configure statistics collection settings. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type.
See also	"RUM Global Statistics Report" on page 811

User interface elements are described below:

UI Element (A-Z)	Description
Collect <actions> with most errors	Select this check box and configure the maximum number of <actions> with most errors—that is, the <actions> on which the greatest number of errors occurred—you want RUM to collect during each five-minute period. You can define the minimum number of hits required for an <action's> data to be collected. To instruct RUM not to collect this information, clear the check box. **Default values:** ➤ Enabled ➤ 20 <actions> ➤ Minimum one hit **Note:** A maximum of 100 slowest <actions> can be collected. The minimum number of hits required cannot exceed 10,000.
Collect broken links	Select this check box and configure the maximum number of broken links you want RUM to collect during each five-minute period. To instruct RUM not to collect broken link data, clear the check box. **Default value:** Enabled for 20 broken links **Note:** ➤ This setting is visible for applications using HTTP-based protocols only. ➤ A maximum number of 200 broken links can be collected.

UI Element (A-Z)	Description
Collect most active end users	Select this check box and configure the maximum number of most active end users you want RUM to collect per hour. You can define whether activity is measured by the number of <action> hits, or the amount of bandwidth used. To instruct RUM not to collect this information, clear the check box. **Default values:** ➤ Enabled ➤ 100 users ➤ Measured by number of <action> hits **Note:** ➤ This element is only available for the front-end tier of an application. ➤ A maximum number of 100 most active end-users can be collected.
Collect most popular <actions>	Select this check box and configure the maximum number of most popular <actions>—that is, the <actions> that received the highest number of end-user requests (hits)—you want RUM to collect per hour. To instruct RUM not to collect this information, clear the check box. **Default value:** Enabled for 20 <actions> **Note:** A maximum number of 100 most popular <actions> can be collected.

UI Element (A-Z)	Description
Collect slowest <actions>	Select this check box and configure the maximum number of slowest <actions>—that is, the <actions> that took the greatest amount of time to download—you want RUM to collect during each five-minute period. You can define the minimum number of hits required for an <action'> data to be collected. To instruct RUM not to collect this information, clear the check box. **Default values:** ➤ Enabled ➤ 20 <actions> ➤ Minimum one hit **Note:** A maximum of 100 slowest <actions> can be collected. The minimum number of hits required cannot exceed 10,000.
Collect slowest end users	Select this check box and configure the maximum number of slowest end users—that is, the end users whose average network latency was highest—you want RUM to collect during each five-minute period. You can define the minimum number of hits required for an end user's data to be collected. To instruct RUM not to collect slowest end-user data, clear the check box. **Default values:** ➤ Enabled ➤ 20 end users ➤ Minimum one hit **Note:** ➤ This element is only available for the front-end tier of an application. ➤ A maximum of 100 slowest end users can be collected. The minimum number of hits required cannot exceed 10,000.

UI Element (A-Z)	Description
Collect slowest locations	Select this check box and configure the maximum number of slowest locations—that is, the locations whose average network latency was highest—you want RUM to collect during each five-minute period. You can define the minimum number of hits required for a location's data to be collected. To instruct RUM not to collect slowest location data, clear the check box. **Default values:** ➤ Enabled ➤ 20 locations ➤ Minimum one hit **Note:** ➤ This element is only available for the front-end tier of an application. ➤ A maximum of 100 slowest locations can be collected. The minimum number of hits required cannot exceed 10,000.

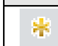
UI Element (A-Z)	Description
Collect top locations	Select this check box and configure the maximum number of top locations you want RUM to collect per hour. You can define whether activity is measured by the number of <action> hits, or the amount of bandwidth used. To instruct RUM not to collect this information, clear the check box. **Default values:** ➤ Enabled ➤ 100 locations ➤ Measured by number of <action> hits **Note:** ➤ This element is only available for the front-end tier of an application. ➤ A maximum number of 100 top locations can be collected.
Parameters to include	The parameters (such as session ID, or time stamp) that RUM should include as part of the <action> request, when assessing the <actions> that received the highest number of hits for inclusion in the RUM Global Statistics report's Most Popular <Actions> table. You can differentiate between similar <actions> (that is, <actions> with the same URI or name) by including specific parameters. For example, if no parameters are configured, two hits of a specific login <action> are considered as one <action> in the collected statistics data. However, if you configure the user parameter to be included, then if each hit of the login <action> was made by a different user, the two hits of the login <action> are considered as two different <actions> in the collected statistics. **Note:** Separate parameter names with a semicolon.

Host Aliases Area

This area enables you configure and manage host aliases for an application.

Important information	This area is visible for Web and SOAP applications only.
See also	"Host Aliases Overview" on page 277

User interface elements are described below:

UI Element (A-Z)	Description
	**New Host Alias.** Opens the Host Alias dialog box, where you configure new host aliases for the application.
	**Edit Host Alias.** Opens the Host Alias dialog box, where you edit an existing host alias for the application.
	**Delete Host Alias.** Deletes selected host aliases for the application.
Alias	The host alias name.
Hosts	The host machines included in the alias.

Real User Monitor Application Events Page

This page enables you to view and configure a RUM application's information, performance, error, and HTTP/protocol events.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree select an application configured for RUM and in the Content pane, select **Real User Monitor** tab > **Events**.
Important information	This page is not displayed for certain protocols, such as TCP or UDP.

Global and Selective Events Area

Important information	➤ The protocol used by the application determines the type of action (generic action, page, query, or operation) for which you configure events. Element labels (denoted by <**action**> in the user interface descriptions), change accordingly to reflect the applicable action type. ➤ A default performance event is created for each Web or SOAP application. You cannot create another performance event, nor can you delete the performance event, but you can edit its configuration. ➤ For each SOAP application, five default SOAP Fault events are created. You cannot create new SOAP Fault events, nor can you delete the default SOAP Fault events, but you can edit their configuration.

User interface elements are described below:

UI Element (A-Z)	Description
	**New Event.** Opens a Shortcut menu from which you select the type of event you want to create. The relevant <Event type> dialog box opens, where you configure the new event. You can create the following types of events: ➤ **Text pattern.** For user interface details, see "Text Pattern Event Dialog Box" on page 443. ➤ **Session unavailable <actions>.** For user interface details, see "Session Unavailable <Actions> Event Dialog Box" on page 441. **Note:** You can configure session unavailable <actions> events only for session aware applications. ➤ **Session <actions>.** For user interface details, see "Session <Actions> Event Dialog Box" on page 437. **Note:** You can configure session <actions> events only for session aware applications. ➤ **Error <action>.** For user interface details, see "Error <Action> Event Dialog Box" on page 351. ➤ **<Action> size.** For user interface details, see "<Action> Size Event Dialog Box" on page 313. ➤ **<Action> time.** For user interface details, see "<Action> Time Event Dialog Box" on page 315.
	**Edit Event.** Opens the relevant <Event type> dialog box for a selected event, where you can edit the event's configuration. For user interface details, see the relevant <Event type> dialog box as listed in the **New Event** element in this table. For user interface details on editing SOAP events, see "Edit SOAP Fault Event Dialog Box" on page 348. For user interface details on editing the Performance event, see "Edit Performance Event Dialog Box" on page 346.

UI Element (A-Z)	Description
	**Duplicate Event.** Duplicates a selected event within the same application. A new event with the same configuration as the original is created and is automatically given the same name as the original with the addition of a period followed by a sequential number. For example, if you duplicate an event called **myevent**, the new event is called **myevent.1**. If you then duplicate the event called **myevent.1**, the new event is called **myevent.1.1** and so forth. **Note:** You cannot duplicate default SOAP events (for SOAP applications), or the default performance event (for Web and SOAP applications).
	**Delete Event.** Deletes selected events from the application. **Note:** You cannot delete default SOAP events (for SOAP applications), or the default performance event (for Web and SOAP applications).
	**Copy Event to Application Tier.** Copies selected events to different RUM application tiers (either within the same application, or in different applications). A new window opens displaying the applications and tiers to which you can copy the selected events. In the new window, select the application tiers to which you want to copy the events and click **OK**. The events are copied to the new application tiers with their original name. **Note:** ➤ You cannot copy default SOAP events (for SOAP applications), or the default performance event (for Web and SOAP applications). ➤ Event names must be unique within an application tier.
<Actions>	The <actions> for which the event is applicable. **Note:** You can apply only text pattern, <action> size, and <action> time events to specific <actions>.
Active	Displays whether the event is active.

UI Element (A-Z)	Description
Classification	The following icons denote whether the event is an error, information, or performance event: ➤ **Error event** ➤ **Information event** ➤ **Performance event**
Event Name	The event name.
Event Type	The event type.
Scope	Displays whether the event is a global event (that is, it applies to all <actions> in an application), or a selective event (that is, it applies to specific <actions> only). **Note:** You can apply only text pattern, <action> size, and <action> time events to specific <actions>.

HTTP/Protocol Error Events Area

This area enables you to configure HTTP/protocol errors to be recorded by RUM for reporting in RUM reports.

Important information	➤ For HTTP-based protocols (Web and SOAP), you configure **HTTP error events** and for non-HTTP-based protocols, you configure **protocol error events**. Element labels change accordingly depending on the application's protocol. ➤ The protocol used by the application determines the type of action (generic action, page, query, or operation) for which you configure events. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type. ➤ By default, the most common HTTP/protocol error codes are predefined under four error events—Bad user request, Request not found, Request refused, and Server error.

User interface elements are described below:

UI Element (A-Z)	Description
	**New HTTP/Protocol Error Event.** Opens the HTTP/Protocol Error Event dialog box where you configure new error event settings. For user interface details, see "HTTP/Protocol Error Event Dialog Box" on page 354.
	**Edit HTTP/Protocol Error Event.** Opens the HTTP/Protocol Error Event dialog box where you edit existing error event settings. For user interface details, see "HTTP/Protocol Error Event Dialog Box" on page 354.
	**Delete HTTP/Protocol Error Event.** Deletes selected error events.
Classification	Select the relevant radio button to configure whether the event is an error event or an information event. **Default value:** Error
Error Codes	The error codes that are included in the error event. **Note:** Error codes for HTTP error events are validated against a default range. There is no validation for protocol error events.
Event Name	The name of the HTTP/protocol error event. For example, you can create a global error event called Database errors and include the applicable error codes for this.
Excluded <Actions>	The <actions> for which the event is not applicable.
Status	Select the relevant radio button to configure whether the event configuration is active. **Default value:** Active

Real User Monitor Application General Page

This page enables you to view and configure a RUM application's general properties.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree select an application configured for RUM and in the Content pane, select **Real User Monitor** tab > **General**.

Monitoring Settings Area

User interface elements are described below:

UI Element (A-Z)	Description

Assign Application 360 license	Select this check box to assign a 360 license to the RUM application. Clear the check box to unassign a 360 license from the application. For concept details, see "End User Management Licenses Overview" on page 492.
	Note:
	➤ This check box is not displayed if:
	  ➤ You do not have change permissions for both RUM and BPM configurations.
	  ➤ You are configuring an additional tier for an application.
	  ➤ If the application is already configured for BPM with a 360 license assigned.
	➤ If you assign a 360 license to a RUM application that is also configured for BPM, the 360 license is also automatically assigned to the BPM application.
	➤ If you assign a 360 license to a RUM application, you do not need to assign other license types to individual probes.

Downtime/Event Schedule	Click the **Downtime/Event Schedule** link to configure and manage downtime and event schedules for the application. The **Downtime Management** page opens in a new window. For user interface details, see "Downtime Management Page" in *Platform Administration*.

UI Element (A-Z)	Description
Engines	Click **Engines** to open the Select Engines dialog box, where you select or clear the RUM engines to monitor the application. For user interface details, see "Select Engines Dialog Box" on page 433. Displays the RUM engines you select to monitor the application. Also displays whether all the probes linked to an engine, or specific (filtered) probes only monitor the application.
Profile database	The profile database for storing this application's RUM information. This setting is defined when creating a new RUM configuration for an application and cannot be edited once it is set.
Protocol	The application's communication protocol. The protocol is assigned from the template you select when you create the RUM application.
Status	Select the relevant radio button to configure whether the application's RUM configuration is active.
Template name	The name of the template from which you created the application.
Tier name	The name of the tier monitored by the application.

Application Location Area

This area enables you to configure the application server IP ranges, and their ports, as well as the URLs or actions which determine the application location.

Important information	➤ For applications using certain protocols, such as TCP, you can configure only IP ranges for the application location. In such cases, the URL/<Action> pane in this area is not displayed. ➤ The protocol used by the application determines the type of action (generic action, page, query, or operation) that identifies the application location. The name of the pane and other element labels (denoted by <**action**> in the user interface descriptions), change accordingly to reflect the applicable action type. For pages, the action type is denoted by the label **URL**. ➤ If you configure both application server IP ranges and <actions> for an application, RUM only matches traffic that goes to both a configured IP range and a configured <action>. ➤ Configure application locations in such a way that <actions> cannot be associated with more than one application location (for example, configure both IP ranges and URLs/action descriptions for an application location). If an <action> is associated with more than one application location, erratic and incorrect monitoring results may be produced. ➤ You cannot configure the same IP address and port range for different front-end tier applications monitored by the same RUM engines, or for different tiers within the same application, unless you differentiate them by using an <action> description/page URL, or if the IP addresses are assigned different routing domains.

User interface elements are described below:

UI Element (A-Z)	Description
Define routing domain	Select this check box to configure a different routing domain name than the default. A RUM engine will only monitor an application to which it is assigned if both the engine and the application have the same routing domain. **Default value:** ➤ **Check box.** Not selected ➤ **Routing Domain.** DefaultDomain
IP Range	**New IP Range.** Opens the IP Range dialog box, where you add details of new application servers you want to associate with the application you are defining. Repeat this procedure for each range of servers you want to add. For user interface details, see "IP Range Dialog Box" on page 361.
	Edit IP Range. Opens the IP Range dialog box, where you edit a selected IP range's settings. For user interface details, see "IP Range Dialog Box" on page 361.
	Delete IP Range. Deletes selected IP ranges from the list.
	IP Range. Displays the IP range of application servers associated with the application you are defining.
	Port. Displays the port number used to communicate with the application servers included in the range. **Default value:** The default port number according to the template you selected for the application.
	SSL. Displays whether the application servers included in the range use SSL communications.

UI Element (A-Z)	Description
URL/Filter	**New URL/Filter.** Opens the URL/Description Builder, where you configure a URL or <action> that you want to associate with the application you are defining. The URL/<action> appears in the list of application URLs/Filters. Repeat this procedure for each URL/<action> you want to add to the list. For details on the URL Builder user interface, see "URL Builder" on page 449. For details on the Description Builder user interface, see "Action Description Builder" on page 318.
	Edit URL/Filter. Opens the URL/Description Builder dialog box, where you edit a selected URL/<action>'s settings. For details on the URL Builder user interface, see "URL Builder" on page 449. For details on the Description Builder user interface, see "Action Description Builder" on page 318.
	Delete URL/Filter. Deletes selected URLs/<actions> from the list.
	URL/Filter. Displays the configured URLs of the application servers associated with the application you are defining, or the configured <actions> that determine the application location.

Application Default Thresholds Area

This area enables you to configure default thresholds for all the <actions>, transactions, and servers included in a RUM application.

Important information	The protocol used by the application determines the type of action (generic action, page, query, or operation) for which you configure default thresholds. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type.

User interface elements are described below:

UI Element (A-Z)	Description
<Action> Thresholds	**Page time.** The total time threshold for the <action>, in seconds. If the total time for an <action> falls within this threshold, the <action’s> total time is displayed in green in the RUM reports, otherwise it is displayed in red. **Note:** This element is called **Page time** for pages and **Total time** for all other action types.
	Server time. The server time threshold for the <action>, in seconds. If the server time for an <action> falls within this threshold, the <action’s > server time is displayed in green in the RUM reports, otherwise it is displayed in red. **Note:** This threshold must be lower than the total time threshold.
	Availability. The <action> availability threshold, as a percentage. If the availability of an <action> falls within this threshold, the <action’s> availability is displayed in green in the RUM reports, otherwise it is displayed in red.
Server Thresholds	**Availability.** The server availability threshold, as a percentage. If the availability of a server falls within this threshold, the server’s availability is displayed in green in the RUM reports, otherwise it is displayed in red.

UI Element (A-Z)	Description
Transaction Thresholds	**Total time.** The total transaction time (download time + think time) threshold, in seconds. If the total time of a transaction falls within this threshold, the transaction's total time is displayed in green in the RUM reports, otherwise it is displayed in red.
	Net time. The net transaction time threshold, in seconds. If the net time of a transaction falls within this threshold, the transaction's net time is displayed in green in the RUM reports, otherwise it is displayed in red.
	Server time. The server time threshold for the transaction, in seconds. If the server time for a transaction falls within this threshold, the transaction's server time is displayed in green in the RUM reports, otherwise it is displayed in red. **Note:** This threshold must be lower than the total time and net time thresholds.
	Availability. The transaction availability threshold, as a percentage. If the availability of a transaction falls within this threshold, the transaction's availability is displayed in green in the RUM reports, otherwise it is displayed in red.
	Timeout. The amount of time, in seconds, between consecutive <actions> in a transaction, after which RUM considers the transaction to have timed out.

Application Monitoring Tiers Area

This area enables you to configure additional application tiers to be monitored by RUM.

Important information	➤ This area is visible only when viewing the configuration of the main (front-end) tier of an application. ➤ Additional monitoring tiers added to an application are considered as back-end tiers. When you select an application in the view tree, the configuration for the main (front-end) tier of the application is displayed. ➤ Once you have added additional tiers for monitoring to an application, you configure the monitoring settings by editing the monitoring tier. ➤ Not all RUM protocols support the monitoring of additional tiers. For example, you cannot add tiers for monitoring to an application initially configured for a database tier. In such instances, the Application Monitoring Tiers area is not visible. ➤ You cannot add additional tiers for monitoring to a tier that is configured as an additional tier itself. ➤ You cannot configure transactions or location aware thresholds, nor use the global search and replace feature, for additional (back-end) tiers.

User interface elements are described below:

UI Element (A-Z)	Description
	**New Monitoring Tier.** Opens the Real User Monitor Application Configuration wizard, where you configure the new tier to add to the application. For user interface details, see "Real User Monitor Application Configuration Wizard" on page 372.
	**Edit Monitoring Tier.** Opens the relevant RUM configuration pages in a new window, where you configure the monitoring settings for the tier. For user interface details, see the relevant page.

UI Element (A-Z)	Description
	**Delete Monitoring Tier.** Deletes selected tiers from the application.
Active	Displays whether the application tier is active. That is, whether the tier is monitored.
Enable tier discovery	Select this check box to enable RUM to automatically detect additional application tiers. RUM adds any automatically detected tiers as back-end tiers in the application's configuration in EUM Administration.
Protocol	The protocol used by the template.
Tier Name	The tier name.
Template Name	The name of the template on which the tier's configuration is based.

User Name Detection Area

This area enables you to configure where to search for a user name in the application you are defining, so that the data for the sessions associated with the application contain the names of the session users.

Important information	➤ This pane is displayed only for applications for which the login action is not predefined. ➤ The protocol used by the application you are configuring determines the type of action (generic action, page, query, or operation) for which you configure user name detection settings. Element labels (denoted by <**action**> in the user interface descriptions), change accordingly to reflect the applicable action type. ➤ You can configure multiple settings in which to search for a user name. RUM uses the first user name located and once a user name is located, additional areas are not searched.

User interface elements are described below:

UI Element (A-Z)	Description
	**New User Name Detection.** Opens the User Name Detection dialog box where you configure new user name detection search settings. For user interface details, see "User Name Detection Dialog Box" on page 454.
	**Edit User Name Detection.** Opens the User Name Detection dialog box where you edit existing user name detection search settings. For user interface details, see "User Name Detection Dialog Box" on page 454.
	**Delete User Name Detection.** Deletes selected user name detection search settings.
	**Move Up.** Moves a user name detection search setting higher in the search order.
	**Move Down.** Moves a user name detection search setting lower in the search order.
Active	Displays whether the user name detection search setting is active.
All <actions>	Select the radio button to configure RUM to search for the user name in all the <actions> associated with the application. **Tip:** For more efficient performance, it is recommended to configure specific login <actions> to be searched rather than configuring RUM to search all <actions>.
Content	The specific settings within the configured search area of the <action's> request or response, used to locate the user name.

UI Element (A-Z)	Description
Correlate end user names and display aliases	Select this check box to configure RUM to translate the user name it locates. **Note:** A name translation file called **UserLoginNames.csv** must be located in the **<RUM engine root directory>\conf\resolver** directory on the RUM engine machine. For concept details, see "User Name Translation" on page 276. **Default value:** Disabled

UI Element (A-Z)	Description
Login <actions>	Select the radio button to configure RUM to search for the user name in specific login <actions> that you configure. Use the following elements to configure the login <actions> to search. **Note:** The following elements are enabled only when you select the **Login <actions>** radio button. **Tip:** For more efficient performance, it is recommended to configure specific login <actions> to be searched rather than configuring RUM to search all <actions>.
	New Login URL/<Action>. Opens the URL/Description Builder, where you configure new login <actions> in which to search for user names. For URL Builder user interface details, see "URL Builder" on page 449. For Description Builder user interface details, see "Action Description Builder" on page 318.
	Edit Login URL/<Action>. Opens the URL/Description Builder, where you edit existing login <actions> in which to search for user names. For URL Builder user interface details, see "URL Builder" on page 449. For Description Builder user interface details, see "Action Description Builder" on page 318.
	Delete Login URL/<Action>. Deletes selected login <actions>.
	Login Page URL/<Action>. The URLs of the configured login pages, or the configured <actions>, in which to search for user names.
Search	The area of the <action's> request or response in which RUM searches for the user name. **Default value:** For applications using protocols that consist of actions that are not pages, the search area is limited to **Content (Generic)** only.

Operation Detection Area

This area enables you to configure the detection method to use to locate the operation name in the XML request and response. The operation name is added to a page's URL as a parameter.

Important information	This area is applicable to SOAP applications only and is not displayed for other application types.

User interface elements are described below:

UI Element (A-Z)	Description
Operation name detection method	Select the detection method to use from the drop-down list. The following detection methods can be configured: ➤ **No operation name detection** ➤ **Automatic** ➤ **Request (RPC style)** ➤ **Request (Document literal wrapped style)** ➤ **Response (First tag in body)** ➤ **HTTP header (SOAPAction)** **Note:** If you select **No Operation Name Detection**, you can configure your own operation name to be added to a page's URL as a parameter. If you configure a parameter extraction key called **RUM_OPERATION** you see the operation name in page URLs in the Session Details report, as the RUM_OPERATION key is included in the predefined page names configuration file for SOAP applications (**WS.XML**). If you configure your own operation name using a different parameter extraction key name, to see the operation name in page URLs in the Session Details report you must configure a new page names configuration file that includes the key you configured. For details on configuring parameter extraction keys, see "Parameter Extraction Area" on page 417. For details on configuring page names, see "<Action> Discovery Configuration Area" on page 418. For details on creating page name configuration files, see the *Real User Monitor Administration* PDF. **Default value:** Automatic

Parameter Extraction Area

This area enables you to configure parameters that are added to a page's URL or an <action's> description, and from where to extract the data to be used as the parameter values.

You can also use extracted parameters as regular parameters when configuring other application settings, such as user names and session properties, and can include an extracted parameter in an <action> name configuration file.

Important information	The protocol used by the application you are configuring determines the type of action (generic action, page, query, or operation) for which you configure parameter extraction settings. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type.

User interface elements are described below:

UI Element (A-Z)	Description
	**New Parameter Extraction.** Opens the Parameter Extraction dialog box where you configure new parameter extraction settings. For user interface details, see "Parameter Extraction Dialog Box" on page 365.
	**Edit Parameter Extraction.** Opens the Parameter Extraction dialog box where you edit existing parameter extraction settings. For user interface details, see "Parameter Extraction Dialog Box" on page 365.
	**Delete Parameter Extraction.** Deletes selected parameter extraction settings.
Active	Displays whether the parameter extraction setting is active.
Content	The specific settings within the configured search area of the <action's> request or response, used to locate the parameter value.

UI Element (A-Z)	Description
Extract HTTP method	Select this check box to configure RUM to extract the HTTP method name and add it to a page's URL as a parameter called **http-method-name**. **Note:** This setting is only available for applications using HTTP-based protocols.
Name	The paramater extraction setting name.
Search	The area of the <action's> request or response in which RUM searches for the parameter value. **Default value:** For applications using protocols that consist of actions that are not pages, the search area is limited to **Content (Generic)** only.

<Action> Discovery Configuration Area

This area enables you to configure how names are assigned to <actions> that have not been configured in EUM Administration. You can specify an XML file to be used by the application to assign meaningful names to <actions>, and for HTTP-based protocols can also configure the application to use page titles as names. For details on assigning meaningful names to <actions> and configuring an XML file, see "Configuring Meaningful Page Names" in the *Real User Monitor Administration* PDF.

Important information	➤ The protocol used by the application determines the type of action (generic action, page, query, or operation) to which you configure RUM to assign names. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type. ➤ If you configure an XML file to be used and also select the option to use page titles, the application first tries to assign a name to the page using the XML file and only if unsuccessful uses the page title.

User interface elements are described below:

UI Element (A-Z)	Description
<Action> discovery configuration file	Select an existing file that is available for the application from the drop-down list, or select **User defined** from the drop-down list and enter a new file name in the adjacent field. **Default value:** None. For SOAP applications, the Web Services file (ws.xml) is automatically selected. **Note:** ➤ The full file name including the extension (.xml) must be entered. ➤ The files are located on the RUM engine machine in the **<HPRUM>\conf\resolver\meaningful_pages** directory.
Use page/operation title for pages/operations without an assigned name	Select this check box to enable the application to use page/operation titles when assigning names to pages/operations. **Note:** This element is only visible for HTTP-based applications (Web and SOAP).

TCP/Network Settings Area

This area enables you to configure the TCP/network settings for a RUM application.

Important information	➤ This area is called the **TCP Settings** area for all protocols except UDP protocols, for which it is called the **Network Settings** area. ➤ The available elements displayed in this area depend on the protocol of the application you are configuring.

User interface elements are described below:

UI Element (A-Z)	Description
Collect poor request data	Select this check box to configure RUM to collect data about TCP requests that are slow or that have network errors. This data is included in the TCP Poor Requests Summary report and the TCP Requests Analyzer report. For user interface details, see "TCP Poor Requests Summary Report" on page 1013 and "TCP Requests Analyzer Report" on page 1018.
Component server time threshold	Enter the threshold, in seconds, for the total server time of a component download. **Default value:** 2 seconds
Component time threshold	Enter the threshold, in seconds, for the total time of a component download. **Default value:** 8 seconds
Enable request capturing	Select this check box to configure RUM to take snapshots of TCP requests that have network errors. **Note:** ➤ This check box is enabled only if you select the **Collect poor request data** check box. ➤ Snapshots are stored in capture files in .pcap format. ➤ Snapshots are taken no more than once per minute.
Enable requests snippets	Select this check box to configure RUM to save a snippet of the request to an application in text format, for TCP requests that are slow or that have network errors. **Note:** This check box is enabled only if you select the **Collect poor request data** check box.
Enable TCP	Select this check box to configure RUM to collect TCP data for a Web or SOAP application.

UI Element (A-Z)	Description
Network error packets threshold for poor requests	Enter the threshold for the number of packets with network errors that a TCP request must exceed to be considered a poor request. **Note:** ➤ This field is enabled only if you select the **Collect poor request data** check box. ➤ The **Packets with network errors** threshold must also be breached for the request to be considered a poor request.
Packets with client errors	Enter the threshold, in percent, for the allowed number of packets sent from the client that can have client errors. **Default value:** 2%
Packets with network errors	Enter the threshold, in percent, for the allowed number of packets with network errors, out of the total number of packets. **Default value:** 2%
Packets with server errors	Enter the threshold, in percent, for the allowed number of packets sent from the server that can have server errors. **Default value:** 2%
Server connection availability	Enter the threshold, in percent, for the number of connection attempts that must successfully connect to the server. **Default value:** 98%

Real User Monitor Application Session Page

This page enables you to configure where to search for the session ID of the application you are defining, as well as the parameters that cause a session to be closed (and reported to RUM) and a new session to be started. It also enables you to configure session properties to be tagged by RUM.

To access	Select **Admin** > **End User Management** > **Monitoring** tab. In the view tree select an application configured for RUM and in the Content pane, select **Real User Monitor** tab > **Session**.
Important information	This page is displayed only for session aware applications.

Session Identification Area

This area enables you to configure where to search for the session ID of the application you are defining. If no session ID is configured, RUM uses the client's IP address and port number by default.

Important information	➤ This pane is visible only for applications created from the HTTP (Web or SOAP) protocols. ➤ You can configure multiple settings to search for a session ID. RUM uses the first session ID located and once a session ID is located, additional areas are not searched.

User interface elements are described below:

UI Element (A-Z)	Description
	**New Session Identification.** Opens the Session Identification dialog box where you configure new session ID search settings. For user interface details, see "Session Identification Dialog Box" on page 436.
	**Edit Session Identification.** Opens the Session Identification dialog box where you edit existing session ID search settings. For user interface details, see "Session Identification Dialog Box" on page 436.

UI Element (A-Z)	Description
	**Delete Session Identification.** Deletes selected session ID search settings.
	**Move Up.** Moves a session ID search setting higher in the search order.
	**Move Down.** Moves a session ID search setting lower in the search order.
Active	Displays whether the session ID search setting is active.
Content	The specific settings within the configured search area of the page's request or response, used to locate the session ID.
Search	The area of the <action's> request or response in which RUM searches for the Session ID.

Session Reset Area

This area enables you to configure the parameters that cause a session to be reported to RUM and a new session to be started. You can configure the number of minutes that a session can be open before it is closed and a new session started and can also configure a specific URL that when accessed, causes the previous session to be closed and a new session started.

For example, in a call center, such as directory enquiries for a telephone company, a default session for an operator may be from the log-in at the beginning of a shift to the log-out at the end of a shift. However, you may want to report a separate session for each inquiry handled by the operator, so you can configure a session reset URL as the URL of the page that begins each new inquiry. Whenever that page is accessed, the previous session is closed and reported and a new session is opened.

Important information	For applications using non-HTTP-based protocols, only the **Reset session on timeout** element is visible.

User interface elements are described below:

UI Element (A-Z)	Description
	**New Session Reset URL.** Opens the Session Reset Page dialog box where you configure new session reset URLs. For user interface details, see "Session Reset Page Dialog Box" on page 439.
	**Edit Session Reset URL.** Opens the Session Reset Page dialog box where you edit existing session reset URLs. For user interface details, see "Session Reset Page Dialog Box" on page 439.
	**Delete Session Reset URL.** Deletes selected session reset URLs.
Behavior	Shows for each configured URL in the list, whether it should be included as the first page of a new session, or the last page of an old session on reset.
Reset session on timeout of ... minutes	The number of minutes that a session can be open before it is reported to RUM and a new session is started. **Note:** You cannot configure a value of less than five minutes.
URL	The configured session reset URLs.

Session Properties Area

This area enables you to configure session properties to be tagged by RUM. The tags can be used to filter sessions included in the RUM Session Analyzer report and to view the tagged properties for a session when viewing the session details. You can also create end-user groups based on session properties.

Important information	➤ A maximum of five session properties can be configured for an application. ➤ The string extracted as the session property value cannot exceed 50 characters. ➤ There are five static place holders for session properties in the profile database, whether you actually define session properties or not. If you change the definition of an existing session property, the values for the previous definition still exist and appear as values for the new definition. It is recommended not to delete, or change the order of, configured session properties.
See also	➤ "Add End User Group with Real User Monitor Configuration Dialog Box" on page 322 ➤ "RUM Session Analyzer Report" on page 977

User interface elements are described below:

UI Element (A-Z)	Description
	**New Session Property.** Opens the Session Property dialog box where you configure new session properties. For user interface details, see "Session Property Dialog Box" on page 439.
	**Edit Session Property.** Opens the Session Property dialog box where you edit existing session properties. For user interface details, see "Session Property Dialog Box" on page 439.
	**Delete Session Properties.** Deletes selected session properties.

UI Element (A-Z)	Description
	**Move up.** Moves a selected session property higher in the application’s session property order. **Note:** The order of the session properties is used to determine to which end-user group a user is added, if the user matches more than one end-user group based on session properties. For concept details, see "End-User Groups Overview" on page 277.
	**Move down.** Moves a selected session property lower in the application’s session property order. **Note:** The order of the session properties is used to determine to which end-user group a user is added, if the user matches more than one end-user group based on session properties. For concept details, see "End-User Groups Overview" on page 277.
Active	Displays whether the session property setting is active.
Content	The specific settings within the configured search area of the <action’s> request or response, used to locate the required string.
Name	The session property name.
Search	The area of the <action’s> request or response in which RUM searches for the string to be extracted. **Default value:** For applications using protocols that consist of actions that are not pages, the search area is limited to **Content (Generic)** only.

Real User Monitor Location Latency Page

This page enables you to configure a latency setting, in seconds, for RUM, for a specific location. RUM adds the configured latency to all the configured threshold settings that are relevant to all the monitored traffic for that location.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the View tree, select a location CI.

User interface elements are described below:

UI Element (A-Z)	Description
Configure specific latency	Select this radio button to configure a specific latency for the location and enter the latency in seconds.
Inherit latency from parent	Select this radio button to configure RUM to use the latency set for the selected location's parent location. **Note:** If the selected location does not have a parent location, or if no latency is configured for the parent location, the selected location is not configured with any latency.

Related Transactions and Events Dialog Box

This dialog box enables you to view and edit the transactions and events in which a selected <action> from a RUM application's <action> repository is included.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **<Actions>** and in the **<Folder content>** area, select an <action> that is in use and click the **Related Transactions and Events** button.
Important information	➤ The protocol used by the application determines the type of action (generic action, page, query, or operation) included in the application. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type. ➤ <Actions> can only be included in text pattern and page size events.
See also	➤ "Real User Monitor Application <Actions> Page" on page 366 ➤ "Real User Monitor Application Events Page" on page 397

Related Transactions Area

User interface elements are described below:

UI Element (A-Z)	Description
	Edit Transaction. Opens the Business Transaction Real User Monitor Configuration dialog box, where you configure the selected transaction's settings. For user interface details, see "Business Transaction Real User Monitor Configuration Dialog Box" on page 329.
# of <Actions>	The total number of <actions> included in the transaction.
Transaction Name	The transaction name.

Related Events Area

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Event.** Opens the relevant <Event type> dialog box, where you configure the selected event's settings. For user interface details, see: ➤ "Text Pattern Event Dialog Box" on page 443 ➤ "<Action> Size Event Dialog Box" on page 313
Event Name	The event name.
Global/Selective	The scope of the event. A global event applies to all <actions> in the application, except for those specifically configured in the event. A selective event applies only to those <actions> configured in the event.
Type	The event type.

Search Area

This area enables you to configure the settings for searching and extracting content from RUM application requests and responses, for use in various application settings.

To access	This area is included in the following: ➤ "Parameter Extraction Dialog Box" on page 365 ➤ "Sensitive Data Setting Dialog Box" on page 436 ➤ "Session Identification Dialog Box" on page 436 ➤ "Session Property Dialog Box" on page 439 ➤ "User Name Detection Dialog Box" on page 454
Important information	The availability of elements in this area, as well as the valid options for the elements, depends on the type of application you are configuring and the dialog box in which the area is included.

User interface elements are described below:

UI Element (A-Z)	Description
Extract text	**All content.** Select the radio button to configure RUM to extract all the search area content. **Note:** This element is not available when **Content (XML)** or **Content (Generic)** is selected in the **Search in** element.
	Between... and... Select the radio button to enable you to configure the strings between which the data you want to extract is located. Enter the strings in the **Between** and **and** text boxes. **Note:** This element is not available when **Content (XML)** is selected in the **Search in** element.
	Advanced. Select this radio button to enable the **Advanced Criteria** link. Click the link to open the Advanced Finding and Retrieving dialog box, where you can enter the regular expression for extracting text. In the **Scan for (Regular Expression)** box, enter the regular expression that represents the string within which you want RUM to locate text. In the **Retrieve** box, enter the phrase representing the objects to be extracted. You can test the regular expression and retrieve code you configure in the **Test Expression** area. Enter test data and click **Test**. The results, including the retrieved value, are displayed. **Note:** When you select **Content (XML)** in the **Search in** element, you configure an XPath instead of a regular expression.
	Tag search. An XML tag containing an attribute to be used as the value. **Note:** This option is only available when **Content (XML)** is selected in the **Search in** element.
	Attribute. A specific attribute in the configured XML tag, to be used as the value. **Note:** This option is only available when **Content (XML)** is selected in the **Search in** element.

UI Element (A-Z)	Description
Parameter name	The parameter name. **Note:** This element is available only when configuring a parameter extraction setting.
Property name	The session property name. **Note:** This element is available only when configuring a session property.
Scope	Where to look for the search area configured in the **Search in** element—in the request, response, or both. **Default value:** ➤ For Get/Post Parameters - Request ➤ For Content (HTML) - Response ➤ For Cookie - Request and Response ➤ For Content (Generic) when configuring sensitive data settings - Request and Response For these default values, the field is disabled for editing. **Note:** If you configure both request and response in this element, RUM looks for the search area first of all in the request and if not found, then looks in the response.

UI Element (A-Z)	Description
Search in	The area of the request or response (as configured in the **Scope** element) in which RUM searches for text to use in the configuration setting. Valid options are:
	HTTP Header. Configure a specific header name.
	Get/Post Parameters. Configure a specific parameter name.
	Content (HTML). Configure a specific tag and attribute name.
	Content (XML). Search the entire XML content.
	Content (Generic). Search the entire content. **Note:** This is the default option for sensitive data settings and cannot be changed.
	Cookie. Search the entire cookie. **Note:** This is the default option for session identification settings and cannot be changed.
Status	Select the relevant radio button to make the configuration active or inactive. **Default value:** Active

Select Engines Dialog Box

This dialog box enables you to select the RUM engines and probes that you want to monitor an application.

To access	Use one of the following: ➤ Select **Real User Monitor Application Configuration** wizard > **Monitoring Settings** page > **Engines** link ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **General** and in the **Monitoring Settings** area, click the **Engines** link. ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree area, select the **Search** tab. Run a search for applications and in the **Search Results** pane, select the applications you want to update, click the **Bulk Operations** button and select **Add an Engine or Probe** or **Remove an Engine or Probe** from the Shortcut menu. ➤ Select **Admin** > **End User Management** > **Settings** tab > **Data Collectors** > **Real User Monitor Engines**. Select engines from the list and click the **Search Applications** button. In the **Search Results** dialog box, select the applications you want to update, click the **Bulk Operations** button and select **Add an Engine or Probe** or **Remove an Engine or Probe** from the Shortcut menu.
Important information	When you access this dialog box as part of a bulk operation, the dialog box name is either **Add an Engine or Probe** or **Remove an Engine or Probe**, depending on the bulk operation selected.

User interface elements are described below:

UI Element (A-Z)	Description
	**Move to Selected Engines.** Moves selected engines from the Available Engines pane to the Selected Engines pane.
	**Move all to Selected Engines.** Moves all engines from the Available Engines pane to the Selected Engines pane.
	**Move to Available Engines.** Moves selected engines from the Selected Engines pane to the Available Engines pane.
	**Move all to Available Engines.** Moves all engines from the Selected Engines pane to the Available Engines pane.
Available Engines	**Engine.** The RUM engine name.
	Host Name. The name of the host machine on which the RUM engine is installed.
	IP. The IP address of the host machine on which the RUM engine is installed.
	Pages per Second. The average number of pages per second monitored by the RUM engine. This gives you an indication of the engine's load.
Selected Engines	**Engine.** The RUM engine name.
	Probes. Displays whether all (All) the probes associated with the engine, or only selected (Filtered) probes monitor the application. Click **All** or **Filtered** to open the Select Probes on Engine dialog box, where you select which probes associated with the engine you want to monitor the application. For user interface details, see "Select Probes on Engine Dialog Box" on page 435. **Default value:** All

Select Probes on Engine Dialog Box

This dialog box enables you to select the probes of a RUM engine to monitor an application.

To access	In the **Select Engines** dialog box, click the **All** or **Filtered** link.

User interface elements are described below:

UI Element (A-Z)	Description
Megabits per Second	Displays the average amount of traffic monitored by the probe. This gives you an indication of the probe's load. **Note:** This field is enabled only if you select the **Select specific probes** option.
Probe	Displays the probe name. **Note:** This field is enabled only if you select the **Select specific probes** option.
Select all probes (including future probes)	Select this option to configure all the probes of a RUM engine to monitor the application you are defining. Any probe added to the engine in the future will automatically monitor the application.
Select specific probes	Select this option to select specific probes of a RUM engine to monitor the application you are defining.
Selected	Select this check box to select a specific probe to monitor the application you are defining. **Note:** This field is enabled only if you select the **Select specific probes** option.
Status	Displays the status of the probe (that is, whether the probe is enabled for monitoring or not). **Note:** This field is enabled only if you select the **Select specific probes** option.

Sensitive Data Setting Dialog Box

This dialog box enables you to configure sensitive data to be removed from <action> content that is shown in snapshots by RUM.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Data Collection** and in the **Sensitive Data** area, click the **New Sensitive Data Setting** button or the **Edit Sensitive Data Setting** button.
Important information	For user interface details, see "Search Area" on page 429.

Session Identification Dialog Box

This dialog box enables you to create and edit session ID search settings for a RUM application.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Session** and in the **Session Identification** area, click the **New Session Identification** button or the **Edit Session Identification** button.
Important information	For user interface details, see "Search Area" on page 429.

Session <Actions> Event Dialog Box

This dialog box enables you to configure a session <actions> event for an application. A session <actions> event is triggered when a session in an application includes a defined number of <actions>.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and in the **Global and Selective Events** area, click the **New Event** button and select **Session <Actions> Event** from the Shortcut menu. ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and select an existing session <actions> event. Click the **Edit Event** button.
Important information	➤ The protocol used by the application determines the type of action (generic action, page, query, or operation) for which you configure a session event. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type. ➤ You can configure session actions events only for session aware applications.

User interface elements are described below:

UI Element (A-Z)	Description
Classification	Select the relevant radio button to configure whether the event is an error event or an information event. **Default value:** Error
Name	The name of the session <actions> event, which you can view in EUM only. **Note:** The name must be unique within the application. **Syntax exceptions:** Cannot exceed 100 characters.
Scope	The scope of the event—Global (for all pages) or Selective (for specific pages). **Default value:** Global **Note:** You cannot edit this field.
Status	Select the relevant radio button to configure whether the event configuration is active. **Default value:** Active
Trigger an event when the number of <actions> in the session reaches	The number of <actions> which, when reached in a session, triggers the event.

Session Property Dialog Box

This dialog box enables you to configure and edit an application session property to be tagged by RUM. You use the tags to filter sessions included in the RUM Session Analyzer report and to view the tagged properties for a session when viewing the session details.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Session** and in the **Session Properties** area, click the **New Session Property** button or the **Edit Session Property** button.
Important information	➤ For user interface details, see "Search Area" on page 429. ➤ A maximum of five session properties can be configured for an application. ➤ The string extracted as the session property value cannot exceed 50 characters.
See also	"RUM Session Analyzer Report" on page 977

Session Reset Page Dialog Box

This dialog box enables you to configure a URL that acts as session delimiters. That is, a URL that when accessed, closes a current session (which is reported to RUM) and opens a new session.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Session** and in the **Session Reset** area, click the **New Session Reset URL** button or the **Edit Session Reset URL** button.

User interface elements are described below:

UI Element (A-Z)	Description
<URL Builder>	Configure the session delimiter URL. For user interface details, see "URL Builder" on page 449.
End session with the following URL	Select this radio button to include the configured URL as the last page of the old session on reset. **Note:** By default, the URL is included as the first page of the new session on reset. **Default value:** Not selected
Start session with the following URL	Select this radio button to include the configured URL as the first page of the new session on reset. **Default value:** Selected

Session Unavailable <Actions> Event Dialog Box

This dialog box enables you to configure a session unavailable <actions> event for an application. A session unavailable <action> event is triggered when a session in an application includes a defined number of unavailable <actions>.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and in the **Global and Selective Events** area, click the **New Event** button and select **Session Unavailable <Actions> Event** from the Shortcut menu. ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and select an existing session unavailable <actions> event. Click the **Edit Event** button.
Important information	➤ The protocol used by the application determines the type of action (generic action, page, query, or operation) for which you configure a session unavailable event. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type. ➤ You can configure session unavailable actions events only for session aware applications.

User interface elements are described below:

UI Element (A-Z)	Description
Classification	Select the relevant radio button to configure whether the event is an error event or an information event. **Default value:** Error
Name	The name of the session unavailable <action> event, which you can view in EUM only. **Note:** The name must be unique within the application. **Syntax exceptions:** Cannot exceed 100 characters.
Scope	The scope of the event—Global (for all pages) or Selective (for specific pages). **Default value:** Global **Note:** You cannot edit this field.
Status	Select the relevant radio button to configure whether the event configuration is active. **Default value:** Active
Trigger an event when the number of unavailable<actions> in the session reaches	The number of unavailable <actions> which, when reached in a session, triggers the event.

Text Pattern Event Dialog Box

This dialog box enables you to configure a text pattern event for an application. A text pattern event is triggered when an <action> includes, or fails to include, a defined string of characters.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and in the **Global and Selective Events** area, click the **New Event** button and select **Text Pattern Event** from the Shortcut menu. ➤ Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **Events** and select an existing text pattern event. Click the **Edit Event** button.
Important information	The protocol used by the application determines the type of action (generic action, page, query, or operation) for which you configure a text pattern event. Element labels (denoted by **<action>** in the user interface descriptions), change accordingly to reflect the applicable action type.

General Settings Area

User interface elements are described below:

UI Element (A-Z)	Description
	**Add <Action> to Event.** Opens the application's <Action> Repository, where you can manage the <actions> included in the application and select the <actions> to be excluded from, or included in, the text pattern event, according to the event's scope. For user interface details, see "Real User Monitor Application <Actions> Page" on page 366.
	**Remove <Action> from Event.** Removes selected <actions> from the text pattern event configuration.

UI Element (A-Z)	Description
<Action> Name	The names of the <actions> that are either excluded from, or included in, the text pattern event, according to the event's scope.
Classification	Select the relevant radio button to configure whether the event is an error event or an information event. **Default value:** Error
Create snapshot for the event	Select this check box to create a snapshot of the <action> on which the event occurs. **Note:** ➤ For snapshots to be reported by RUM, this check box must be selected, as well as the **Collect snapshots on events** check box in the application configuration (for at least one <action> back). For user interface details, see "Snapshot Collection Area" on page 388. ➤ This element is not enabled for all application types and its availability is determined by the application template you selected for the application. **Default value:** Not selected
Name	The name of the text pattern event, which you can view in EUM only. **Note:** The name must be unique within the application. **Syntax exceptions:** Cannot exceed 100 characters.

<table>
<tr><th>UI Element (A-Z)</th><th>Description</th></tr>
<tr><td>Save session snapshots</td><td>Select this check box to enable snapshots to be made of all the <actions> from the beginning of a session, up to and including the <action> on which the text pattern event occurs.
Note:
➤ This setting is applicable for Web applications only.
➤ Saving all the <actions> from the beginning of a session enables more accurate frames unification, thus improving session replay, but may adversely affect RUM probe performance.
➤ For snapshots of all the <actions> from the beginning of a session to be saved by RUM, this check box must be selected, as well as the Enable session snapshot on event check box in the application configuration. For user interface details, see "Snapshot Collection Area" on page 388.
Default value: Not selected</td></tr>
<tr><td>Scope</td><td>Select the relevant radio button to configure whether the event is applied globally or selectively. A global event applies to all <actions> in the application, except for those specifically configured in the text pattern event. A selective event applies only to those <actions> configured in the text pattern event.
Default value: Global</td></tr>
<tr><td>Status</td><td>Select the relevant radio button to configure whether the event configuration is active.
Default value: Active</td></tr>
<tr><td>URL/Action</td><td>The URLs of the pages, or the defined actions, that are either excluded from, or included in, the text pattern event, according to the event’s scope.</td></tr>
</table>

Search Pattern Settings Area

User interface elements are described below:

UI Element (A-Z)	Description
Scope	Where to look for the search area configured in the **Search in** element—in the <action's> request, response, or both. **Default value:** ➤ For Get/Post Parameters - Request ➤ For Content (HTML) - Response For these default values, the field is disabled for editing.
Search in	The area of the request or response (as configured in the **Scope** element) in which RUM searches for the configured text pattern. Valid options are:
	HTTP Header. Configure a specific header name.
	Get/Post Parameters. Configure a specific parameter name.
	Content (HTML). Configure a specific tag and attribute name.
	Content (XML). Search the entire XML content.
	Content (Generic). Search the entire content. **Note:** When you are configuring a text pattern event based on actions that are not pages, this is the default value which you cannot change.

UI Element (A-Z)	Description
Trigger an event for <actions>	
Advanced	Select this radio button to enable the **Advanced Criteria** link. Click the link to open the Advanced Finding and Retrieving dialog box, where you can enter a regular expression to search for a specific text pattern. In the **Scan for (Regular Expression)** box, enter the regular expression that represents the string within which you want RUM to locate the text pattern. In the **Retrieve** box, enter the phrase representing the objects within the string in which to locate the text pattern. You can test the regular expression and retrieve code you configure in the **Test Expression** area. Enter test data and click **Test**. The results, including the retrieved value, are displayed.
Containing	Select this radio button to trigger the event when the configured text pattern is located in the <action>.
Extract the text to be displayed as the event description	Select this check box to configure string delimiters, between which the text to display as the event description in RUM reports is extracted. Enter the starting and ending delimiter expressions. **Note:** ➤ This check box is enabled only when you select the **Containing** radio button (that is, the event is triggered when the configured text pattern is located on the page) and **The string** radio button. ➤ This string is used for the event description only and does not affect the event text pattern matching. ➤ The delimiter fields are enabled only when this check box is selected.
Not containing	Select this radio button to trigger the event when the configured text pattern is not located in the <action>.
The string	Select this radio button and enter a specific string as the text pattern for event matching.

UI Element (A-Z)	Description
Trigger an event for <actions> when Content (XML) is configured as the search area:	
Advanced	Select this radio button to enable the **Advanced Criteria** link. Click the link to open the Advanced Finding and Retrieving dialog box, where you can enter an XPath for a specific text pattern. You can test the XPath you configure in the **Test** area. Enter test data and click **Test**. The results are displayed in the **Results** area.
Extract the content of tag	Select this check box to extract the content of a specific tag and attribute to use as the event description in RUM reports. Enter the specific tag and attribute name. **Note:** ➤ This check box is enabled only when you select the **Tag** radio button (that is, the event is triggered when the configured value is located in a specific attribute and tag). ➤ This string is used for the event description only and does not affect the event text pattern matching.
Tag	Select this radio button to trigger the event when a configured value is found in a specific tag and attribute. Enter the specific tag and attribute name and the value to match.

URL Builder

The URL Builder enables you to configure a URL using its composite parts when configuring RUM applications.

To access	Click the **New URL** or **Edit URL** button in one of the following: ➤ Real User Monitor Application wizard > Monitoring Settings page. ➤ Real User Monitor Application General page > Application Location area. ➤ Real User Monitor Application General page > User Name Detection area. ➤ Real User Monitor Application Session page > Session Reset area. ➤ Real User Monitor Application Pages page > <Folder content> area. ➤ Error Page Event dialog box. ➤ Business Transaction Real User Monitor Configuration page > Transaction Page Settings area. (Accessed by clicking the **Edit Page** button only.)
Important information	➤ You use the URL Builder to configure pages for HTTP-based applications. To configure actions for applications based on other protocols, you use the Description Builder. For user interface details, see "Action Description Builder" on page 318. ➤ The full URL can be up to 2000 characters long.
See also	➤ "Using the URL Builder" on page 268 ➤ "URL Wildcards" on page 269

User interface elements are described below:

UI Element (A-Z)	Description
Host	Enter the URL host, which is the name of the machine on which the file, or resource, that you want to access via the URL resides. **Syntax exceptions:** The host name can be up to 260 characters long and contain alphanumeric characters as well as the following: **_ / ~ ' ( ) - . ***. **Note:** The asterisk wildcard (*****) can be used in a host value.
Parameters	Select one of the following parameter options: ➤ **None.** This option does not define any parameters. ➤ **None or more.** This option specifies that either no parameters, or any combination of parameters are valid. ➤ **Only the parameters listed below.** This option allows you to specify specific parameters and values that must be matched. ➤ **The parameters listed below as well as other parameters.** This option allows you to specify specific parameters and values that must be matched, but also accepts any other additional parameters and values. ➤ **At least one parameter.** This option indicates that the URL must contain at least one parameter, but it does not matter what the parameter name, or the value, is. **Note:** If you select **Only the parameters listed below**, or **The parameters listed below as well as other parameters**, you must configure specific parameters. For user interface details, see "Parameter Settings" on page 453. **Syntax exceptions:** The total length of all the parameters cannot exceed 2000 characters.

UI Element (A-Z)	Description
Port	**Use default port.** Select this option to use the default port to connect to the URL host machine. The default port number is 80 for the HTTP protocol or 443 for the HTTPS protocol. **Note:** This option is disabled if you select **HTTP or HTTPS** as the protocol and the appropriate default port is used automatically.
	Use custom port. Select this option to configure a custom port number to connect to the URL host machine and enter a port number between 0 and 65535. The asterisk wildcard character can be used when you configure a page URL. For example, if you enter 44* as the URL port, any port that begins with 44 can be correlated with the configured URL. **Note:** This option is disabled if you select **HTTP or HTTPS** as an asterisk wild card is automatically entered so that any port is valid. **Syntax exceptions:** You cannot use the asterisk wildcard character when you configure an application URL.
Protocol	Select the URL protocol used to fetch the URL. Available options are: ➤ **http.** The standard protocol for regular communications. ➤ **https.** The protocol used when the URL is accessed using Secure Sockets Layer (SSL). ➤ **http or https.** Either option is valid. If you select this option, you cannot configure a port and an asterisk wild card is automatically entered so that any port is valid.

UI Element (A-Z)	Description
URL	Enter the URL you want to configure. You can enter a URL by typing it in the **URL** box directly, or by copying a URL from an external source and pasting it in the **URL** box. When you enter a URL, it is broken down into its composite parts, which are displayed under the URL. You can use wildcards when defining a URL. For details, see "URL Wildcards" on page 269. **Syntax exceptions:** The full URL can be up to 2000 characters long.
URL path	Enter the URL path to the file, or resource, that you want to access via the URL. The asterisk wildcard character can be used. For example, if you enter **cgi*search.cgi** as the URL path, any path that begins with **cgi** and ends with **search.cgi** can be correlated with the configured URL. **Syntax exceptions:** The URL path can be up to 2000 characters long and contain alphanumeric characters as well as the following: **/ - _ . ! ~ ' ( ) % * : ; @ & = + $,**.

Parameter Settings

The parameter settings area is visible only when you select the **Only parameters listed below** or **The parameters listed below as well as other parameters** option in the Parameters element of the URL Builder.

User interface elements are described below:

UI Element (A-Z)	Description
	**Add Parameter.** Adds a new row in the parameter table. Edit the fields by selecting the row and clicking the **Edit Parameter**  button, or click an individual cell in the table and edit it directly. **Note:** Parameter names must be unique in a URL.
	**Edit Parameter.** Opens the URL Parameter dialog box, where you can edit an existing URL parameter. For user interface details, see "Description/URL Parameter Dialog Box" on page 345.
	**Remove Parameter.** Removes selected URL parameters from the list.
Name	The name of an included parameter. **Syntax exceptions:** Allowed characters are **any letter valid in your operating system**, **0-9**, and **; / : @ + $, - _ . ~ ' ( ) = %** .
Option	The option for an included parameter. Valid options are: ➤ **=.** Include only a specific parameter value. ➤ **All.** Include all values of the parameter.
Value	If you chose to include only a specific parameter value (by selecting = in the Option field), enter the specific value. **Syntax exceptions:** Allowed characters are **any letter valid in your operating system**, **0-9**, and **; / : @ + $, - _ . ~ ' ( ) = % ***. **Note:** The asterisk wildcard (*****) can be used in a parameter value.

User Name Detection Dialog Box

This dialog box enables you to configure where RUM searches for a user name in an application.

To access	Select **Admin** > **End User Management** > **Monitoring** tab and in the view tree, select an application that is configured for RUM. In the Content pane, select **Real User Monitor** tab > **General** and in the **User Name Detection** area, click the **New User Name Detection** button or the **Edit User Name Detection** button.
Important information	For user interface details, see "Search Area" on page 429.

4

Script Repository

This chapter includes:

Concepts

Tasks

Reference

Concepts

Script Repository Overview

The Script Repository is the central storage in which all your organization's Business Process Monitor (BPM) scripts are added and stored. The repository enables you to organize your scripts into logical groups and to view and manage the properties of those scripts. The repository also enables version control and version updates.

The Script Repository enables you to:

- Create and manage user-defined folders for organizing your scripts.
- Upload scripts to a repository folder for use when creating monitors.
- Manage the scripts that have been uploaded to the repository.
- Control the versions of the scripts with check in and check out functionality, including downloading script content onto your local system for editing.

To generate business process data, you must create Business Process Transactions Flows to run scripts that include those processes you want monitored. When you add a transaction monitor to a flow in End User Management (EUM) Administration, you can add only those scripts that have been stored in the Script Repository. For details on creating business transaction flows, see "Business Transaction Flow Configuration Wizard" on page 207.

To access the Script Repository, select **Admin** > **End User Management** > **Script Repository**. For user interface details, see "Script Repository Page" on page 478.

Uploading Scripts to the Script Repository

To create scripts for use in HP Business Service Management, you must record BPM scripts using the HP Virtual User Generator recording tool. For details, see "VuGen Recording Tips" on page 125.

Once these scripts are recorded and saved as .zip files, you upload them to the Script Repository. They must be uploaded into an existing folder in the Script Repository.

Tip: When zipping a script in HP Virtual User Generator for upload to the Script Repository, it is recommended that you zip only the script's run-time files.

You create the Business Transactions Flows in EUM Administration to collect performance data on the transactions within the scripts. For details on creating Business Process Transactions Flows, see "Business Transaction Flow Configuration Wizard" on page 207.

Script Verification for HP Software-as-a-Service Customers

Note: This section applies to HP Software-as-a-Service customers only.

When you upload a script to the script repository, HP Business Service Management runs a verification process to verify that the script executes properly when it is run as part of a business transaction flow. You can add a script to a business transaction flow only if it has been successfully verified (that is, its verification status is **Verified** or **Verified without sandbox**). You can add only scripts with a status of **Verified** to run on public POPs (that is, data collectors managed by HP Software-as-a-Service for multiple customers). You can add scripts with a status of **Verified** or **Verified without sandbox** to run on your private POPs (that is, to data collections that are run privately for your company).

The script verification status (Failed, Not yet verified, Verified, or Verified without sandbox) is displayed in the **Script Versions** and **Version Properties** dialog boxes, and also in the **Folder Content** pane.

For details on the checks made during the verification process, see "Script Verification Checks" on page 463.

Tasks

How to Upload Scripts

This task describes how to upload scripts to the Script Repository.

This task includes the following steps:

- "Create Scripts" on page 459
- "Create Script Repository Folders" on page 459
- "Upload scripts to the Script Repository" on page 459
- "Grant Permissions" on page 459
- "Results" on page 460

1 Create Scripts

Use HP Virtual User Generator (VuGen) to record scrips. For details on working with VuGen, refer to the *HP Virtual User Generator User's Guide*.

2 Create Script Repository Folders

Create a hierarchy of folders within the Script Repository in which to organize scripts. For user interface details on creating and managing folders, see "Folders Pane" on page 473.

3 Upload scripts to the Script Repository

Upload scripts to the Script Repository folders. For user interface details, see "Add Script Dialog Box" on page 466.

4 Grant Permissions

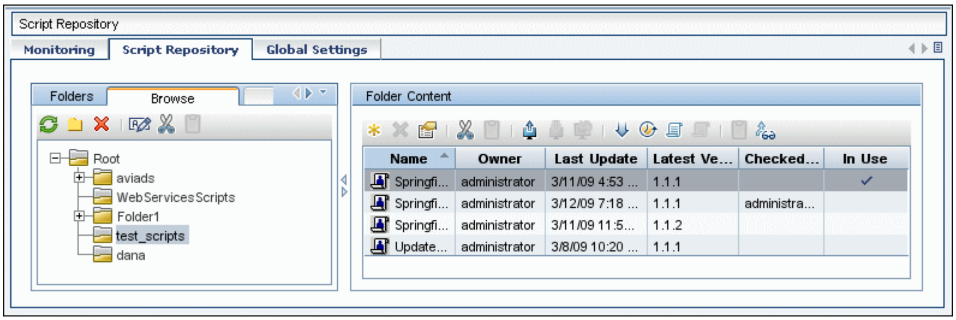
Grant permissions so that users can view and manage scripts and folders in the Script Repository. For concept details, see "Permissions Overview" in *Platform Administration*.

5 Results

The various scripts you upload to the Script Repository are displayed in the Folder Content pane.

For user interface details, see "Folder Content Pane" on page 468.

Example:



How to Work with Scripts

This task describes how to work with scripts in the Script Repository. For user interface details for the various steps in this task, see "Folder Content Pane" on page 468.

This task includes the following steps:

- "Prerequisites" on page 461
- "Check out a version" on page 461
- "Download a script" on page 461
- "Edit a script" on page 461
- "Check in a script" on page 461
- "Undo a checkout" on page 461
- "Results" on page 461
- "Search Script Assignments" on page 462

1 Prerequisites

You must upload a script to the Script Repository. For task details, see "How to Upload Scripts" on page 459.

2 Check out a version

You can check out a version of a script to lock it, so that no other user makes changes to this version of the script while you are editing it. For details on script versions and managing them, see "Script Versions Dialog Box" on page 480.

3 Download a script

You download a script to edit it. It is good practice to check out the script before downloading it to lock it, thereby ensuring that another user simultaneously edits the same script.

4 Edit a script

Once you have checked out a script, you can edit it using HP Virtual User Generator (VuGen). For details of working with VuGen, refer to the *HP Virtual User Generator User's Guide*.

5 Check in a script

You check the script back into the Script Repository once you have finished editing it and saving the .zip file in your file system.

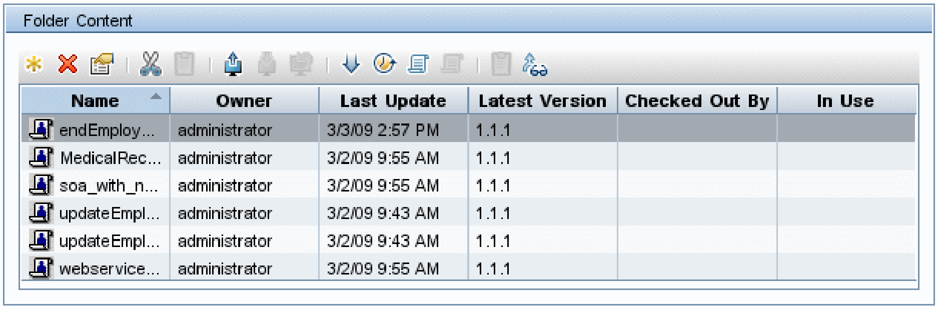
6 Undo a checkout

You can undo a checkout to prevent the Script Repository from creating a new version.

7 Results

Your scripts appear in the Folder Content pane on the right side of the page.

Example:



Name	Owner	Last Update	Latest Version	Checked Out By	In Use
endEmploy...	administrator	3/3/09 2:57 PM	1.1.1		
MedicalRec...	administrator	3/2/09 9:55 AM	1.1.1		
soa_with_n...	administrator	3/2/09 9:55 AM	1.1.1		
updateEmpl...	administrator	3/2/09 9:43 AM	1.1.1		
updateEmpl...	administrator	3/2/09 9:43 AM	1.1.1		
webservice...	administrator	3/2/09 9:55 AM	1.1.1		

8 Search Script Assignments

You can search for the business transaction flows in which selected scripts are used and perform various actions on the search results. For user interface details, see "Search Results Dialog Box" on page 483.

Reference

Script Verification Checks

The following table describes the various checks made when verifying a script:

Running Verifications	Rule	Actual Result
Disallowed function calls: system;lr_load_dll	Do not use the function calls that are listed.	Lists the actual function calls used in the script.
Download size must be less than 3000000 bytes	The maximum size of the download.	Indicates the actual download size.
Execution must be less than 300 seconds	The maximum execution time of the script.	Indicates the actual execution time of the script.
Expected protocol: QTWeb; NCA; WinSock; Sap_web; SapGui; Siebel_Web; HTTP; SOAP; PS8; PS8WebJS; WinSockWeb; Oracle_NCA; OracleWebJS; WebJS; WinSockWeb; Tulip; Citrix_ICA; OracleWebJS; General-vbs; General-Js SMTP; POP3; IMAP; Oracle; ODBC; FTP; EJB-Testing; MLDAP; Rmi-Java; Java_protocols	Only use the listed protocol types.	Indicates the actual protocol type used in the script.
Extra files with the following extensions are allowed: ini;h;tst	Only use extra files with the listed extensions.	Lists the actual extensions used in the script.
Failed transactions are disallowed	Do not use failed transactions.	Indicates whether there were failed transactions in the script.

Running Verifications	Rule	Actual Result
Maximum number of dynamic transactions allowed:0	Do not use more dynamic transactions than the allowed maximum number.	Indicates the number of dynamic transactions in the script. Dynamic transactions are the transactions that are not defined in the USR file; meaning their name has been generated dynamically (for example: Transaction + i == Transaction 1,Transaction 2, and so forth).
Maximum number of iterations allowed:1	Do not use more iterations than the allowed maximum number.	Indicates the number of time each action in a script is run. Every script is composed of actions (.c code files) which can be run more than once during one running of the script (a feature used mainly in LoadRunner and not in HP Business Service Management). This iteration number must be limited so that duplicate transactions are not reported.
Maximum number of transaction instances allowed:1	Do not use more transaction instances than the allowed maximum number.	Indicates the number of transaction instances in the script.
Maximum number of transactions allowed:100	Do not use more transaction than the allowed maximum number.	Indicates the number of transactions in the script.
Total size must be less than 600000 bytes	The maximum total size of the script.	Indicates the actual total size of the script.

Script Repository User Interface

This section includes (in alphabetical order)

Add Script Dialog Box

This dialog box enables you to upload a script and add it to a selected folder.

To access	Select **Admin** > **End User Management** > **Script Repository** tab and in the **Folder Content** pane click the **Add Script** button.
Important information	➤ Select the folder from the Folder pane in which you want to upload and add a script. ➤ You can also upload a script by dragging and dropping a script .zip file directly into the Folder Content pane. ➤ The total path of the script you want to upload cannot exceed 900 characters.
Relevant tasks	"How to Upload Scripts" on page 459

User interface elements are described below:

UI Element (A–Z)	Description
Content	The path of the .zip file containing the script. Click **Browse** to locate and select the .zip file in your file system. **Syntax exceptions:** The total path of the script cannot exceed 900 characters.
Description	Optionally, add a description for the script. The description appears in the Script Properties.

UI Element (A–Z)	Description
Name	The name of the content or .zip file specified in the **Content** field. **Note:** This field is displayed automatically when you complete the Content field. You cannot edit this field manually.
Type	Choose the type of script you want to add to the Script Repository from the drop-down Type list. **Note:** ➤ If you select AUTO-DETECT, the script type is determined during the upload. ➤ Currently, the following types are supported in HP Business Service Management: AUTO-DETECT, VUGEN SCRIPT, and QTP SCRIPT.

Check In Dialog Box

This dialog box enables you to check in a script, thereby creating a new version of the script.

To access	Select **Admin** > **End User Management** > **Script Repository** tab, and in the **Folder Contents** pane click the **Check In** button.
Relevant tasks	"How to Work with Scripts" on page 460

User interface elements are described below:

UI Element (A–Z)	Description
Content	The path of the .zip file containing the script. ➤ Click the **Browse** button to locate the .zip file containing the script in your file system. ➤ Click the **Open** button to enter the path and click **OK**.
Description	Optionally, add a description for the script. The description appears in the Script Properties.
Name	The name of the content or .zip file specified in the **Content** field. You cannot fill this field in manually.

Folder Content Pane

This pane displays, in table format, the scripts that have been uploaded to the folder selected in the folder tree and enables you to perform various actions to manage them.

To access	Select **Admin** > **End User Management** > **Script Repository**
Relevant tasks	➤ "How to Upload Scripts" on page 459 ➤ "How to Work with Scripts" on page 460
See also	"Script Repository Overview" on page 456

User interface elements are described below:

UI Element (A–Z)	Description
	**Add Script.** Opens the Add Script dialog box and select a script to upload. For details, see "Add Script Dialog Box" on page 466. **Note:** You can also upload a script by dragging and dropping a script .zip file directly into the Folder Content pane.
	**Delete Script.** Deletes selected scripts.
	**Script Properties.** Opens the Script Properties dialog box, enabling you to view the properties of a selected script and add a description. For user interface details, see "Script Properties Dialog Box" on page 477.
	**Cut Script.** Cuts a selected script from the folder.
	**Paste Script.** Pastes the previously cut script into another folder. **Note:** ➤ You cannot paste a script to the same location from which it was cut. ➤ A script's name must be unique within a folder.
	**Check Out.** Checks out a selected script for editing. **Note:** ➤ Checking out a script ensures that no other user makes changes to this version while you are editing it. ➤ Once a script is checked out, only the user who checked it out can edit it, check it in, delete it, or create a new version. ➤ When a script is checked out, it can still be added as a transaction monitor while working in EUM Administration.

UI Element (A–Z)	Description
	**Check In.** Opens the Check In dialog box and create a new version of the selected script. For details, see "Check In Dialog Box" on page 467. **Note:** ➤ This button is enabled only for scripts that have been checked out. ➤ When you check in a script, the Script Repository automatically creates a new version number for it. For example, if you checked out version number 1.1.1, the Script Repository creates version number 1.1.2 as a result of checking the script back into the Script Repository. The previous version is still accessible and its script can be added to transaction monitors in EUM Administration, but the latest version becomes the default version.
	**Undo Check Out Script.** Undoes a previous check out for a selected script. **Note:** ➤ This button is enabled only for scripts that have been checked out. ➤ Undoing a checkout prevents the Script Repository from creating a new version. ➤ If you have made modifications to a script that you do not want saved, undo the checkout to restore the unedited version.
	**Download Script.** Downloads scripts for editing. **Tip:** It is good practice to check out a script before downloading it to ensure that another user is not simultaneously editing it.
	**Script Versions.** Opens the <script> Versions dialog box where you can view a selected script's version history. For user interface details, see "Script Versions Dialog Box" on page 480.
	**Script Transactions.** Displays the order and names of the transactions in a selected script, in a new window.

UI Element (A–Z)	Description
	**Script Operations.** Displays the operations monitored by a selected script, in a new window. **Note:** This button is enabled only for Web service scripts.
	**Script Parameters.** Opens the Script Parameters dialog box, which enables you to view the parameters used in the selected script, and their values. For user interface details, see "Script Parameters Dialog Box" on page 476. **Note:** This button is enabled only when a single script is selected.
	**Go To Folder.** Navigates to a selected script found in a search. The Script Repository folder containing the script is selected in the tree hierarchy in the Folders pane, and all the scripts in that folder are displayed in the Folder Contents pane. For details on the Folders pane user interface, see "Folders Pane" on page 473. **Note:** This button is enabled only for scripts found in a search.
	**Search Script Assignment.** Locates the applications in which a selected script is in use. The results are displayed in the Search Results dialog box. For user interface details, see "Search Results Dialog Box" on page 483. **Note:** This button is enabled only for scripts currently in use.
	**Remove Unused Versions.** Removes all the unused versions of selected scripts from the Script Repository. An unused script version is one that is not included in any of the BPM configurations in EUM Administration.
Checked Out By	The user to whom the script is currently checked out. **Note:** If a script is not checked out, this column is blank.
In Use	Displays a check mark when the script is in use by any application.

UI Element (A–Z)	Description
Last Update	The date when a script was last checked into the repository. **Note:** If the script has never been checked out, the date the script was first uploaded is displayed.
Latest Version	The latest version number of a script. **Note:** Older versions are still accessible but the latest becomes the default version.
Name	The name given to a script when it was uploaded. An icon denotes the type of script. ➤  Denotes a HP Virtual User Generator (VuGen) script. ➤  Denotes a QuickTest Professional script. **Tooltip:** Displays the full name of a script which is truncated when longer then the width of its column in the table.
Owner	The user who uploaded the script.
Verified	The verification status of the latest script version. **Note:** This column is only visible for HP Software-as-a-Service customers.

Folders Pane

This pane enables you to view and manage the Script Repository folders. You can also search the folders for scripts whose name contains a specified string.

To access	Select **Admin** > **End User Management** > **Script Repository**
Important information	➤ The Folders pane displays the title Search Results (instead of Folder Content) when it displays the contents of the Search Results folder. ➤ You can hide and view the Folders pane and Folder Content pane by clicking the appropriate icon between them.
Relevant tasks	"How to Upload Scripts" on page 459
See also	"Script Repository Overview" on page 456

This section also includes:

➤ "Browse Tab" on page 473

➤ "Search Tab" on page 475

Browse Tab

This tab displays a tree hierarchy of the folders in the Script Repository, and the buttons used to manage them. When you select a folder, its contents are displayed in the **Folder Content** pane. For user interface details, see "Folder Content Pane" on page 468.

To access	Select **Admin** > **End User Management** > **Script Repository** > **Folders** pane > **Browse** tab
Important information	You perform actions on the folders in the tree by selecting a folder and clicking an action button in the tool bar, or by right-clicking a folder in the tree and selecting an option from the Shortcut menu that opens.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
	**Refresh.** Refreshes the displayed folder tree. **Tip:** Refresh the tree to load the folder data that may have been modified by other users. **Note:** The tree refreshes automatically when you perform any of the folder operations, so it is unnecessary to refresh it manually after such operations.
	**Create New Folder.** Creates a new folder under a selected folder in the tree. The Create New Folder dialog box opens, where you enter the new folder name. **Note:** ➤ A folder's name must be unique within its parent folder. ➤ You can create up to ten levels of sub folders.
	**Delete Folder.** Deletes a selected folder and its contents. Note: You cannot delete a folder that contains scripts that are in use.
	**Rename Folder.** Renames a selected folder, and enter the new name for the folder in the Rename Folder dialog box.
	**Cut.** Cuts the selected folder from its place in the tree hierarchy.
	**Paste.** Pastes a previously cut folder to a new location in the tree hierarchy. **Note:** You cannot paste a folder into the same folder from which it was cut.
<Folder tree hierarchy>	Displays the folders that are included in the Script Repository in a hierarchical tree.

Search Tab

This tab enables you to search for a script in the Script Repository.

To access	Select **Admin** > **End User Management** > **Script Repository** > **Folders** pane > **Search** tab
Important information	➤ A folder called **Search Results** is added to the folder tree displayed in the Browse tab. For user interface details, see "Browse Tab" on page 473. The contents of the Search Results folder (that is, the scripts found by the search) are displayed in the Search Results pane. For user interface details, see "Folder Content Pane" on page 468. ➤ To display the folder and its contents of a found script, select the script and click the **Go To Folder** button in the Search Results pane. The relevant folder is selected in the tree hierarchy in the Browse tab. For user interface details, see "Browse Tab" on page 473.

User interface elements are described below:

UI Element (A-Z)	Description
	**Browse.** Opens the Browse Tree dialog box where you select the folder in which to search for a script. **Note:** This option is disabled if you choose to search the entire Script Repository.
Look In	Select the relevant radio button to search through the entire Script Repository or to select a specific folder in which to search.
Script Name	Enter a string for which to search. Any script whose name includes the string is found by the search.

Script Operations Dialog Box

This dialog box displays the operations included in a selected Web service script.

To access	Click the **Script Operations** button in one of the following: ➤ **Folder Content** pane ➤ **Script Versions** dialog box

User interface elements are described below:

UI Element (A-Z)	Description
Namespace	The namespace that includes the Webservice.
Operation Name	The operation name.
Webservice Name	The Webservice that includes the operation.

Script Parameters Dialog Box

This dialog box enables you to view the parameter names and values included in a selected script in the Script Repository.

To access	➤ Click the **Script Parameters** button in the **Folder Content** pane. ➤ Click the **Version Parameters** button in the **Script Versions** dialog box.
See also	"Script Parameter Management Overview" on page 112

User interface elements are described below:

UI Element (A-Z)	Description
Name	The parameter name.
Sensitive	A check mark denotes that the parameter contains sensitive data (for example, a password).
Value	The original parameter value recorded in the script. **Note:** ➤ For parameters marked sensitive, the value is not displayed and a row of black squares is displayed instead. ➤ For parameters containing multiple values, the value is not displayed and the message [Multiple Values] is displayed instead.

Script Properties Dialog Box

This dialog box displays the basic properties of a selected script and enables you to enter a free text description for the script.

To access	Click the **Script Properties** button for a selected script in the **Folder Content** pane.

User interface elements are described below:

UI Element (A-Z)	Description
Creation date	The date the script was originally uploaded to the script repository.
Description	Enter a free text description for the script.
Latest version	The latest version number of the script.
Modification date	The date that the script was last modified.
Name	The name of the script.

UI Element (A-Z)	Description
Owner	The owner who originally uploaded the script to the repository.
Type	The type of script—HP Virtual User Generator (VuGen) or QuickTest Professional.

Script Repository Page

This page displays the BPM scripts stored in the Script Repository, and the folders that contain the scripts.

To access	Select **Admin** > **End User Management** > **Script Repository**
See also	"Script Repository Overview" on page 456

User interface elements are described below:

UI Element (A-Z)	Description
Folders	This pane contains the following tabs: ➤ **Browse**. Enables you to view and manage the Script Repository folders. ➤ **Search.** Enables you to search for specific scripts in the repository. For user interface details, see "Folders Pane" on page 473.
Folder Content	This pane enables you to view and manage the uploaded scripts in the repository folders. For user interface details, see "Folder Content Pane" on page 468.

Script Transactions Dialog Box

This dialog box displays the transactions included in a selected script.

To access	Click the **Script Transactions** button in the: ➤ **Folder Content** pane ➤ **Script Versions** dialog box

User interface elements are described below:

UI Element (A-Z)	Description
Name	The transaction name.
Transaction Order	The order of the transaction within the script.

Script Verification Report

This reports displays the different checks made when verifying a script version, and the values and status for each step. This enables you to troubleshoot scripts that are not successfully verified.

To access	Click the **Script Verification Report** button in the Script Versions dialog box.
Important information	This report is only available to HP Software-as-a-Service customers.
See also	"Script Verification Checks" on page 463

User interface elements are described below:

UI Element (A-Z)	Description
Actual Value	The actual value used during verification.
Criteria	The name of the verification check.
Description	Additional information relating to the verification check.

UI Element (A-Z)	Description
Expected Value	The value expected during verification.
Status	The status of the verification check—Passed, Warning, Failed.

Script Versions Dialog Box

This dialog box lists the versions of a selected script and enables you to perform various actions to manage them.

To access	Click the **Script Versions** button in the Folder Content pane.
Relevant tasks	"How to Work with Scripts" on page 460

User interface elements are described below:

UI Element (A–Z)	Description
	**Version Properties.** Opens the Versions Properties dialog box, where you can view general information about the script version and change its verification status. For user interface details, see "Version Properties Dialog Box" on page 487.
	**Script Transactions.** Opens the Script Transactions dialog box, which enables you to view the order and names of the transactions in a selected script version. For user interface details, see "Script Transactions Dialog Box" on page 479.
	**Script Operations.** Opens the Script Operations dialog box, which enables you to view the operations monitored by a script version. For user interface details, see "Script Operations Dialog Box" on page 476. **Note:** Enabled only for Web service scripts.
	**Version Parameters.** Opens the Script Parameters dialog box, which enables you to view the parameters used in the selected script version, and their values. For user interface details, see "Script Parameters Dialog Box" on page 476.
	**Restore an Older Version.** Restores a selected previous version of a script. The selected previous version is copied and assigned a new version number, making it the current version.
	**Download Script.** Downloads a specific version of the script for editing. **Note:** It is good practice to check out a script before downloading it to ensure that another user is not simultaneously editing the same script.
	**Delete Version.** Deletes the selected version of a script.

UI Element (A–Z)	Description
	**Script Verification Report.** Displays a report with details of the verification of the script version. For user interface details, see "Script Verification Report" on page 479. For details on script verification, see "Script Verification for HP Software-as-a-Service Customers" on page 458. **Note:** ➤ This button is only visible for HP Software-as-a-Service customers. ➤ The Sandbox Verification report is only available for scripts that have been verified (with or without errors). For scripts that have not yet been verified, no report is available.
In Use	Displays a check mark when a script is in use by any application.
Last Update	The date and time when a script was lasted checked into the Script Repository. If the script has never been checked in, this is the date it was uploaded.
Modified By	The user who created or last checked in the script version.
Sandbox Status	Displays the verification status of the script version, which can be: ➤ Failed ➤ Not yet verified ➤ Verified ➤ Verified without sandbox For details on script verification, see "Script Verification for HP Software-as-a-Service Customers" on page 458. **Note:** This field is only visible for HP Software-as-a-Service customers.
Version	The version number given to the script when it was last checked into the Script Repository.

Search Results Dialog Box

This dialog box lists the applications in which a selected script is currently used, and enables you to perform various actions to manage them.

To access	Select **Admin** > **End User Management** > **Script Repository** tab and in the **Folders** pane, select a folder. In the **Folder Content** pane, select the scripts for whose usage you want to search and click the **Search Script Assignment** button.
Important information	You can only search for scripts that are in use.

User interface elements are described below:

UI Element (A-Z)	Description
	**Export to Excel.** Exports selected scripts to an Excel file.
	**Open Global Replace Wizard.** Opens the Global Replace wizard where you can search and replace configuration settings and properties for selected scripts. For user interface details, see "Global Replace Wizard" on page 55.
	**Edit Script Settings.** Opens the Edit Script Settings dialog box, where you can edit a selected script's properties. For user interface details, see "Edit Script Settings Dialog Box" on page 226. **Note:** This button is enabled only when a single script is selected.

UI Element (A-Z)	Description
	**Bulk Operations.** Opens a Shortcut menu with the following options: ➤  **Add BPM Data Collectors.** Opens the Add Data Collectors wizard, where you add and configure data collectors to run the business transaction flow in which the selected script is included. For user interface details, see "Add Data Collectors Wizard" on page 140. ➤  **Remove BPM Data Collectors.** Opens the Remove Data Collectors wizard, where you remove data collectors from the business transaction flow in which the selected script is included. For user interface details, see "Remove Data Collectors Wizard" on page 237. ➤  **Update Version.** Opens the Update Version wizard, where you update the versions used for selected scripts. For user interface details, see "Update Version Wizard" on page 485. ➤  **Update Script Parameters.** Opens the Update Script Parameters wizard, where you update the values for selected script parameters. For user interface details, see "Update Script Parameters Wizard" on page 94.
Application	The name of the application containing the business transaction flow in which the script is included.
Business Tx Flow Name	The name of the business transaction flow in which the script is included.
Data Collectors	A list of the data collectors assigned to run the script.
Name	The name of the script.
Transactions	A list of transactions included in the script.
Version	The version number of the script used.

Update Version Wizard

This wizard enables you to change the versions of scripts used in business transaction flows.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Script Repository** tab. In the **Folder Content** pane, select scripts that are in use and click the **Script Search Assignment** button. In the **Search Results** dialog box, select the scripts whose versions you want to change, click the **Bulk Operations** button and in the Shortcut menu select **Update Version**. ➤ Select **Admin** > **End User Management** > **Monitoring** tab > **Search** tab. Search for script monitors and in the **Search Results** pane, select the scripts whose versions you want to change, click the **Bulk Operations** button and in the Shortcut menu select **Update Version**.
Important information	If the updated version of a script contains new transactions (that is, transactions that were not included in the previous version), you must manually change the transaction thresholds as required. For details on changing transaction thresholds, see "Edit Thresholds Dialog Box" on page 234.
Wizard map	This wizard contains: Select Version to Update Page > Update Version Results Page

Select Version to Update Page

This wizard page enables you to select the version of a script to use in a business transaction flow.

Important information	General information about this wizard is available here: "Update Version Wizard" on page 485.
Wizard map	The Update Version Wizard contains: **Select Version to Update Page** > Update Version Results Page

User interface elements are described below:

UI Element (A-Z)	Description
BTF Name	The name of the business transaction flow in which the selected script is included.
Current Version	The version of the script currently used in the business transaction flow.
Script Name	The selected script name.
Update to Version	Select the new version of the script to use in the business transaction flow. **Default value:** The latest version number.

Update Version Results Page

This wizard page enables you to view the scripts whose versions were updated, the status of the update, and any new transactions included in the new version of a script.

Important information	General information about this wizard is available here: "Update Version Wizard" on page 485.
Wizard map	The Update Version Wizard contains: Select Version to Update Page > **Update Version Results Page**

User interface elements are described below:

UI Element (A-Z)	Description
Added Transaction Names	The names of new transactions in the script. That is, transactions included in the new version of the script that were not included in the previous version.
BTF Name	The name of the business transaction flow in which the selected script is included.
Current Version	The updated version of the script currently used in the business transaction flow.
Script Name	The selected script name.
Status	An icon indicates the success or failure of the update: ➤ Update successful ➤ Update failed

Version Properties Dialog Box

This dialog box displays general information about a specific version of a selected script and enables you to change its verification status

To access	Click the **Version Properties** button in the Script Versions dialog box.

User interface elements are described below:

UI Element (A-Z)	Description
Modification date	The date that the version was last modified.
Modified by	The user name who made the last modification to the version.

UI Element (A-Z)	Description
Sandbox Status	The verification status of the script version. The current verification status is displayed. Select a different status to change it. For details on script verification, see "Script Verification for HP Software-as-a-Service Customers" on page 458. **Note:** This field is only visible for HP Software-as-a-Service customers.
Version comment	A free text comment about the version. The comment is displayed in this dialog box only.
Version label	The version number.

5

Settings

This chapter includes:

Concepts

Tasks

Reference

Concepts

Settings Overview

HP Business Service Management's (BSM) End User Management (EUM) includes installable components that provide data collection capabilities—Business Process Monitor (BPM) and Real User Monitor (RUM). Once a data collector is installed and successfully connects to BSM, it is registered in BSM's management database. The **Settings** tab in EUM Administration enables you to manage and maintain the data collectors registered in your system. To access the Settings tab, select **Admin** > **End User Management** > **Settings**.

You use the Settings tab to:

➤ View a detailed list of all the EUM data collectors registered in your system.

➤ Remove a data collector from the list of registered data collectors in EUM Administration.

➤ View and edit a data collector's current properties.

➤ Find and modify the business transaction flows or applications monitored by a data collector.

➤ Link to the administration site of a data collector.

➤ Manage custom attributes for BPMs.

➤ Export BPM data collector information.

➤ Change the location of a BPM.

➤ View and edit system default settings.

➤ Assign licenses for monitoring applications.

The Settings tab user interface includes the following tabs:

- Business Process Monitor Settings. Enables you to manage the BPMs registered in your system. For user interface details, see "Business Process Monitor Settings Tab" on page 510.
- Real User Monitor Settings. Enables you to manage the RUMs registered in your system. For user interface details, see "Real User Monitor Settings Tab" on page 517.

For details on installing BPM, refer to the *Business Process Monitor Administration* PDF.

For details on installing RUM, refer to the *Real User Monitor Administration* PDF.

Note to HP Software-as-a-Service customers: HP Operations administers these pages and the interface is hidden from view, except for the user accessing with superuser permissions.

Removing a Data Collector

If a specific BPM or RUM data collector becomes obsolete, you can use the **Settings** tab to remove it from the management database. Data collectors that can be removed are marked as such in the **Removable** column on the relevant data collector settings page. For user interface details, see "BPM Agents Page" on page 501 and "RUM Engines Page" on page 520.

Removing a BPM or RUM in EUM Administration deletes it only from the management database and not from the profile database. This means that a removed data collector does not appear in the list of registered data collectors in EUM Administration, but any data already collected by the data collector and stored in BSM's profile database still appears in different areas of BSM (for example, in reports).

End User Management Licenses Overview

To be able to monitor applications, you must have valid licenses for BPM and RUM. There are different types of licenses that you can use. You install the licenses in Platform Administration and once installed, you assign them to applications or RUM probes in EUM Administration. For details on installing licenses, see "Licenses" in *Platform Administration*.

This section also includes:

➤ "Business Process Monitor Licenses" on page 492

➤ "Business Process Monitor Licenses for HP Software-as-a-Service Customers" on page 494

➤ "Real User Monitor Licenses" on page 495

➤ "APM 360 with SLM License" on page 496

Business Process Monitor Licenses

Note to HP Software-as-a-Service customers: There are different BPM licenses for HP Software-as-a-Service customers. For details, see "Business Process Monitor Licenses for HP Software-as-a-Service Customers" on page 494.

You must have a valid license to run BPM transactions and scripts for an application. The following are the types of licenses that you can install for BPM:

➤ **Transaction Unlimited Location.** One usage of the license enables you to run one transaction from any number of locations (that is, the transaction can be assigned to run on any number of different BPMs).

➤ **Transaction Single Location.** One usage of the license enables you to run one transaction from only one location (that is, on only one BPM).

➤ **BPM Target.** One usage of the license enables you to run one script or single URL from only one location (that is, on only one BPM).

- **APM 360 with SLM License.** One usage of the license enables you to run unlimited transactions from any location for one application. For concept details, see "APM 360 with SLM License" on page 496.

Once licenses are installed in BSM, you assign and manage them in EUM Administration. When you configure a new application for BPM in EUM Administration, you assign a license type to it, which applies to all the application's transactions or scripts (depending on the type of license). For example, if you assign a Transaction Unlimited Location license to an application that contains twelve transactions, each of those transactions can be run on an unlimited number of BPMs and twelve usages of the license are deducted from the available license capacity. If a BPM license is not valid (for example, if there is no remaining capacity or it has expired) you cannot assign it in EUM Administration.

Note: License usage is not deducted from license capacity for an application or business transaction flow that is inactive or that has no assigned data collectors for running transactions.

You can change the assignment when you edit an application's BPM configuration (for user interface details, see "Business Process Monitor Properties Pane" on page 165), or in the **Settings** tab in EUM Administration (for user interface details, see "BPM License Page" on page 507).

Business Process Monitor Licenses for HP Software-as-a-Service Customers

You must have a valid license to run BPM transactions and scripts for an application on either public POPs or private POPs. The HP SaaS transaction licenses are calculated based on the number of transactions run on the number of locations. For example, if you want to run 10 transactions from 5 locations every 15 minutes, you require a license with a capacity of 50. The following are the types of licenses that you can install for BPM:

- **SaaS External BPM Transaction.** One usage of the license enables you to run one transaction from one location from a public POP.
- **SaaS Internal BPM Transaction.** One usage of the license enables you to run one transaction from one location from a private POP.
- **APM 360 with SLM License.** One usage of the license enables you to run a preset number of transactions from a preset number of locations, as well as other licensing features, for one application. For concept details, see "APM 360 with SLM License" on page 496.

Tip: Transaction runs are based on a minimum scheduling interval of 15 minutes. You can reduce the minimum scheduling interval by acquiring a frequency based license. For details, contact HP Software-as-a-Service Support.

You assign APM 360 with SLM licenses to applications in EUM Administration. If an application is not assigned an APM 360 with SLM license, the SaaS External or Internal BPM Transaction licenses are used automatically when you assign transactions to run on public and private POPs.

Note: SaaS External and Internal BPM Transaction license capacity is not decreased for an application or business transaction flow that is inactive, or that has no assigned data collectors for running transactions.

Real User Monitor Licenses

You must have a valid license to enable RUM probes to monitor applications. The following are the types of licenses that you can install for RUM:

- **RUM SPI for Applications.** Enables a probe to monitor applications for all protocols.
- **RUM Probe.** Enables a probe to monitor applications for TCP protocols (request-response and streaming). It does not enable the probe to monitor HTTP (Web or SOAP) or other protocols.
- **APM 360 with SLM License.** Unlike the other RUM licenses, the APM 360 with SLM license is assigned to applications and not to probes. One usage of the license enables you to monitor a specific application from any number of RUM engines and probes. For concept details, see "APM 360 with SLM License" on page 496.

Note to HP Software-as-a-Service customers: APM 360 with SLM licenses for HP SaaS customers are valid for a limited number of RUM probes, according to the license purchased.

Once licenses are installed in BSM, you assign and manage them in EUM Administration. When a RUM probe is registered in BSM (either when the engine to which it is associated is registered, or when a new probe is added to an already registered engine), BSM automatically assigns the highest available license to the probe (that is, **RUM SPI for Applications** or **RUM Probe**, in that order). If no type of license is available, the probe is assigned **None** as the license type and is unable to monitor applications. You can change the type of license assigned to a probe. For user interface details, see "RUM License Page" on page 522. If a RUM license is not valid (for example, if there is no remaining capacity or it has expired) RUM will not run the relevant probes, or monitor the relevant applications.

APM 360 with SLM License

The APM 360 with SLM license is an application license. That is, you assign it to a specific application CI and it enables you to run unlimited BPM transactions from any location for the application, to monitor the application from any number of RUM engines and probes, and unlimited use of the application in Service Level Management. You manage the assignment of APM 360 with SLM licenses to Application CIs in EUM Administration. To assign an APM 360 with SLM license to an application CI, you must have change permissions for both BPM and RUM configurations. For details on assigning permissions, see "User Management" in *Platform Administration*.

Note to HP Software-as-a-Service customers: An APM 360 with SLM license for HP SaaS customers includes the following limitations for an application:

- 10 transactions
- 7 locations (public and private POPs combined)
- A limited number of RUM probes, according to the license purchased.
- 10 SLM transactions

If an application is configured for both BPM and RUM, the following conditions and limitations apply:

- When you assign an APM 360 with SLM license to one of the configurations, it is automatically assigned to the other configuration. For example, if you assign an APM 360 with SLM license to the BPM configuration, it is automatically assigned to the RUM configuration as well.
- When you remove an APM 360 with SLM license from an application's BPM configuration, it is also removed from the application's RUM configuration.

- If an application is configured for both BPM and RUM, you cannot remove an APM 360 with SLM license from an application's RUM configuration as it cannot be removed from the BPM configuration without your assigning a different type of BPM license in its place.

HP BAC Anywhere Overview

HP BAC Anywhere is a Web-based service that enables you to leverage data collector services, provided by HP Software-as-a-Service (HP SaaS), to gain visibility of your applications and infrastructure over the Internet and firewall. Based on BPM technology, HP BAC Anywhere proactively monitors enterprise applications in real time, identifying performance problems before users experience them. HP SaaS maintains these host machines in key geographic locations, leveraging the extensive network infrastructure of significant ISPs around the world to provide numerous Points of Presence (POPs). After opening an HP BAC Anywhere account, you subscribe to the POPs you require. These POPs are then available for your use, enabling you to monitor sites from various remote locations, emulating the end-user experience. The collected data is sent to your BSM platform, where you can assess site performance from different client perspectives and locations, using the BSM applications to view and analyze the data. To sign up for this service, visit the HP BAC Anywhere Web site (https://portal.saas.hp.com/BACAnywhere).

Tasks

How to Install and Assign Business Process Monitor Licenses

This task describes the working order for installing BPM licenses and assigning them to applications.

This task includes the following steps:

- "Install the licenses" on page 498
- "Assign licenses to Business Process Monitor applications" on page 498
- "Change the license assigned to a Business Process Monitor application - optional" on page 498

1 Install the licenses

In Platform Administration, install the BPM licenses in BSM. For user interface details, see "License Manager Page" in *Platform Administration*.

2 Assign licenses to Business Process Monitor applications

In EUM Administration, assign a license to each BPM application. For user interface details, see "Business Process Monitor Properties Pane" on page 165.

3 Change the license assigned to a Business Process Monitor application - optional

If required, you can change the license assigned to a specific application. For user interface details, see "BPM License Page" on page 507 and "Business Process Monitor Application Properties Page" on page 196.

How to Install and Assign Real User Monitor Licenses

This task describes the working order for installing RUM licenses and assigning them to RUM probes.

This task includes the following steps:

➤ "Install the licenses" on page 499

➤ "Install Real User Monitor Probes" on page 499

➤ "Change the license assigned to a Real User Monitor probe - optional" on page 499

1 Install the licenses

In Platform Administration, install the RUM licenses in BSM. For user interface details, see "License Manager Page" in *Platform Administration*.

2 Install Real User Monitor Probes

Install RUM engines and probes. For details, see the *Real User Monitor Administration* PDF. When you install a RUM engine and probe, they are automatically registered in BSM and assigned a RUM license. For concept details, see "Real User Monitor Licenses" on page 495.

3 Change the license assigned to a Real User Monitor probe - optional

If required, you can change the license assigned to a specific probe. For user interface details, see "RUM License Page" on page 522.

Reference

Settings User Interface

This section describes:

BPM Agents Page

This page displays the BPM data collectors registered in BSM and enables you to carry out various management tasks for them.

To access	Select **Admin** > **End User Management** > **Settings** > **Business Process Monitor Settings** > **BPM Agents**
Important information	A BPM instance is identified by the combination of the Host Name and Location Name. Both the Host Name and Location Name are defined by the user when setting up a BPM instance. For details, see "Business Process Monitor Host Page" in the *Business Process Monitor Administration* PDF.
See also	"Settings Overview" on page 490

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
	**Refresh.** Refreshes the list of registered BPMs.
	**Edit Business Process Monitor Agent Properties.** Opens the Edit Business Process Monitor Properties dialog box, where you view and edit the properties of the selected BPM. For user interface details, see "Edit Business Process Monitor Properties Dialog Box" on page 510. **Note:** If you select multiple BPMs, the dialog box is called **Edit Multiple Business Process Monitor Agent Properties** and you can only edit custom attributes.
	**Remove Business Process Monitor Agent from List.** Removes selected BPMs from the list. **Note:** This button is enabled only when the selected data collectors are removable.

UI Element (A–Z)	Description
	**Export Business Process Monitor Agent Information for the Redirect Tool.** Exports property data from the selected BPMs to a text file, for the redirect tool. For details on redirecting BPMs, see "Redirecting Business Process Monitor Instances" in the HP Business Service Management Upgrade Guide PDF.
	**Search for Monitored Business Transaction Flows.** Searches for the business transaction flows assigned to run on selected BPMs. The results are displayed in the Search Results dialog box. For user interface details, see "Search Results Dialog Box" on page 524.
	**Open Business Process Monitor Agent Console.** Opens the BPM's console, enabling you to perform administrative tasks on the data collector directly from this page. For details on working in the BPM console, refer to the *Business Process Monitor Administration* PDF.
	**Select a different location from Location Manager.** Opens the Change Agent Location dialog box, where you manage and select locations. For user interface details, see "Location Manager Page" in *Platform Administration*. **Note:** The location change is also registered in the BPM, so that all its tasks run with the assigned location.
	**BAC Anywhere.** Opens the HP BAC Anywhere Website. For concept details, see "HP BAC Anywhere Overview" on page 497.
<Custom attributes>	The custom attribute value. Up to five custom attributes can be configured for BPMs and there is a column for each configured custom attribute. For details on configuring custom attributes, see "Manage Custom Attributes Dialog Box" on page 516.
Host Name	The name of the host machine on which the selected data collector is installed.
IP Address	The IP address of the host machine.
Last Ping Time	The last time the BPM pinged the BSM Management database.

UI Element (A–Z)	Description
Location	The location of the host machine on which the data collector is installed. **Note:** If you delete a location CI (in Location Manager) that is configured for a BPM, the BPM configuration is invalid until you configure a new location for it.
Manage custom attributes	Click the link to open the Manage Custom Attributes dialog box, where you add, edit, or remove custom attributes. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516.
Private POP	A check mark denotes that the BPM is run privately for your company (a private POP). **Note:** This element is visible only for HP Software-as-a-Service customers.
Removable	Displays a check mark when the data collector instance is removable. A data collector is removable when it has not been pinged for the last 24 hours.
Transactions	The number of transactions assigned to run on the BPM.
Version	The version number of the data collector software.
WebTraces	The number of WebTraces assigned to run on the BPM.

BPM Default Settings Page

This page enables you to view and change the default system settings for BPM transaction thresholds and transaction breakdown. The system default settings are automatically assigned to transactions when you configure new BPM applications and business transaction flows.

To access	Select **Admin** > **End User Management** > **Settings** > **Business Process Monitor Settings** > **BPM Default Settings**

Default Transaction Thresholds Area

User interface elements are described below:

UI Element (A-Z)	Description
Availability	Enter the default availability threshold percentage for transactions. **Default value:** 90%
Critical	Enter the response time threshold above which a transaction's status is Critical. **Default value:** 12 seconds
Ignore Outlier Values	Select this check box to instruct BSM to ignore outlier transactions (and not include the data in Service Health or in reports). **Default value:** Not selected
Minor	Displays the response time thresholds between which a transaction's status is Minor. **Default value:** 8–12 seconds **Note:** The Minor transaction threshold is automatically set to the range between the **OK** and **Critical** thresholds that you configure.

UI Element (A-Z)	Description
OK	Enter the response time threshold below which a transaction's status is OK. **Default value:** 8 seconds
Outlier	Enter the response time threshold above which a transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. **Default value:** 45 seconds **Note:** By selecting or clearing the Ignore outlier data for reports check box, you can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. If you selected to ignore outlier values, any transaction that takes longer than this value to complete is ignored in Service Health and in reports. If you did not select to ignore outlier values and if the transaction response time is greater than this value, its status is **Failed**.

Default Transaction Breakdown Area

User interface elements are described below:

UI Element (A-Z)	Description
Enable breakdown	Select the **Enable breakdown** check box to generate transaction breakdown data when running the selected Web or TCP monitor. For details on the transaction breakdown reports, see "Understanding Transaction Breakdown in Reports" on page 686. **Default value:** Selected
Enable Diagnostics /TV breakdown	Select **Enable Diagnostics/TV** breakdown to see J2EE and .Net data. This data is available in HP Diagnostics and Transaction Management reports only if you have valid HP Diagnostics and Transaction Management licenses. For details, see the *HP Diagnostics Installation and Configuration Guide* and the *HP TransactionVision Deployment Guide* PDF. **Default value:** Not selected
Enable Siebel breakdown	Select the **Enable Siebel breakdown** check box to see Siebel Application Response Measurement (SARM) data in Application Management for Siebel. **Default value:** Not selected
Enable SOA breakdown	Select the **Enable SOA breakdown** check box to see SOA data in Application Management for SOA. For details on incorporating SOA data from BPM in Application Management for SOA, see "Enrich the SOA Model From Scripts" in *Solutions and Integrations*. For details on enabling SOA breakdown in BPM, see "Enabling SOA Transaction Breakdown" on page 110. **Default value:** Selected

UI Element (A-Z)	Description
Perform component breakdown	Select the **Perform component breakdown** check box to save complete component (page components for Web based protocols and TCP components (requests) for non-Web based protocols) breakdown data for a sampling of transaction instances By default, BSM saves component breakdown data to the database once per every four transaction instances. **Default value:** Selected **Note:** You can only select this check box if you have enabled breakdown.
Report additional error information	Select the **Report additional error information** check box to include date, time, location, and error messages for failed transactions in applicable EUM reports. If this option is disabled, BSM reports only average error times. Disabling this option decreases the amount of data that is sent from the BPMs running the transaction breakdown to the Gateway Server and profile database. **Default value:** Selected **Note:** You can only select this check box if you have enabled breakdown.

BPM License Page

This page enables you to view BPM licensing information and to assign licenses to specific applications.

To access	Select **Admin** > **End User Management** > **Settings** > **Business Process Monitor Settings** > **BPM License**
Relevant tasks	"How to Install and Assign Business Process Monitor Licenses" on page 498
See also	➤ "Licenses" in *Platform Administration* ➤ "End User Management Licenses Overview" on page 492

BPM Application Licensing Area

Note to HP Software-as-a-Service customers: This area is not displayed.

This area enables you view the licenses that are assigned to BPM applications and to change the assignments. You assign a license to an application when you initially define the application's BPM configuration.

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Application License.** Opens the Edit Application License dialog box, where you assign a specific license type to selected applications. **Note:** If you do not have change permissions for both BPM and RUM configurations for all the selected applications, then: ➤ even if you have a valid APM 360 with SLM license it does not appear as an option. ➤ if an APM 360 with SLM license is already assigned to one of the selected applications, the **Edit Application License** button is disabled.
Application Active	A check mark indicates that the application's status is set to active.
Application Name	The application name.
License Name	The name of the license assigned to the application. Click this field to open a list of licenses that you can assign to the application.
License Usage	The number of licenses used by the application. This number is determined by a combination of the license and the number of transactions, locations, or assigned data collectors for the application.

BPM Application with Assigned 360 License Area

This area is displayed only for HP Software-as-a-Service customers and only when there are APM 360 with SLM licenses installed in the system. The area displays a read only list of the applications to which an APM 360 with SLM license has been assigned.

BPM License Information Area

This area displays general data about the BPM licenses installed in BSM.

User interface elements are described below:

UI Element (A-Z)	Description
Capacity	The amount of licensed capacity. **Note:** Evaluation licenses have unlimited capacity.
Description	A description of the license.
Expiration Date	The license's fixed expiration date. **Note:** This date is displayed only for time-based licenses.
Name	The name of the license key.
Type	There are three types of licenses: ➤ **Evaluation:** A license with a fixed trial period of up to 60 days and with unlimited capacity. This type of license is available only until a Time Based or Permanent license is purchased. Once purchased, the trial period immediately terminates. **Note:** An Evaluation License cannot be renewed. ➤ **Time Based:** A license which has a time-based expiration date. ➤ **Permanent:** A license which does not expire.
Used Capacity	If the license is capacity based, the amount of capacity used.

Business Process Monitor Settings Tab

The Business Process Monitor Settings tab enables you to view and manage the BPM data collectors registered in your BSM system.

To access	Select **Admin** > **End User Monitor** > **Settings** > **Business Process Monitor Settings**
See also	"Settings Overview" on page 490

The Business Process Monitor Settings tab includes the following pages:

- **BPM Agents.** Enables you to view the BPM data collectors registered in BSM and perform various management tasks. For user interface details, see "BPM Agents Page" on page 501.
- **BPM License.** Enables you to view and assign BPM licenses. For user interface details, see "BPM License Page" on page 507.
- **BPM Default Settings.** Enables you to view and change the default system settings for BPM transaction thresholds and transaction breakdown. For user interface details, see "BPM Default Settings Page" on page 503.

Edit Business Process Monitor Properties Dialog Box

This dialog box displays a selected BPM's properties.

To access	Select **Admin** > **End User Management** > **Settings** > **Business Process Monitor Settings** > **BPM Agents**. Select a BPM and click the **Edit Business Process Monitor Properties** button.
See also	"Settings Overview" on page 490

User interface elements are described below:

UI Element (A–Z)	Description
Business Transaction Flows Monitored by This Business Process Monitor	Displays the business transaction flows monitored by the selected BPM, including the application name, the business transaction flow name, and the monitors assigned to run the business transaction flow.
Custom Attributes	Displays the custom attributes that you defined for BPMs in the Manage Custom Attributes dialog box and enables you to edit their values. For user interface details, see "Manage Custom Attributes Dialog Box" on page 516. **Note:** This area is displayed only if you have configured custom attributes.

UI Element (A–Z)	Description
General Information	Displays general information about the selected BPM instance. The general information includes most of the fields displayed in the Business Process Monitor page, in addition to the following: ➤ **BPM console URL.** The URL for accessing the BPM's console, which you can edit. ➤ **Lock BPM agent and enforce IP validation.** Select this check box to enforce validation of the BPM's IP address each time a request from the BPM is received. If the IP addresses do not match, the request is ignored. Clear the check box to cancel IP validation. **Default value:** Not selected ➤ **BPM Agent is receiving jobs.** Select this check box to send jobs to the BPM when requested. Clear the check box not to send jobs to the BPM. If the check box is not selected, the BPM agent stops receiving jobs and all its current jobs are removed in the BPM console. **Default value:** Selected ➤ **Store username and password.** Select this check box to enter and store the user name and password to use, if authentication is required when accessing the BPM's Web server. This data is used by the following EUM reports: ➤ "BPM Page Component Breakdown on Demand" on page 1073 ➤ "BPM Transaction Invocation" on page 1077 ➤ "BPM WebTrace on Demand Report" on page 1089 **Default value:** Not selected **Note:** The username and password fields are enabled only when this check box is selected. For details on the Business Process Monitor page user interface, see "BPM Agents Page" on page 501.

Edit Real User Monitor Engine Properties Dialog Box

This dialog box displays a selected RUM engine's properties.

To access	Select **Admin** > **End User Management** > **Settings** > **Real User Monitor Settings** > **RUM Engines**. Select a RUM engine and click the **Edit Real User Monitor Engine Properties** button.
See also	"Settings Overview" on page 490

User interface elements are described below:

UI Element (A–Z)	Description
Applications Monitored by This Engine	Displays the applications monitored by the selected RUM engine, including the application name, the application type, and the probes configured to monitor the application.
Engine Probes	Displays the RUM probes connected to the engine and for each one shows the following information: ➤ **Probe name.** The RUM probe name. ➤ **Active.** Whether the RUM probe is active. ➤ **Host name.** The name of the host machine on which the RUM probe is installed. ➤ **Megabits per Second.** The average amount of traffic monitored by the RUM probe, in megabits per second.
General Information	Displays general information about the RUM engine. The general information includes most of the fields displayed in the Real User Monitor Engines page, in addition to the following: ➤ **Operating system type.** The operating system installed on the host machine of the RUM engine. ➤ **Build number.** The build number of the RUM software. ➤ **Pages per second.** The average number of pages per second monitored by the RUM engine. For details on the Real User Monitor Engines page user interface, see "RUM Engines Page" on page 520.

UI Element (A–Z)	Description
Settings:	
Alternative URL for session replay	To configure BSM to retrieve snapshots from a different host machine than the RUM engine, enter the URL of the alternate host machine here. **Note:** This field is enabled only when you select the **Retrieve snapshots directly from the Real User Monitor engine** check box.
Define routing domain	Select this check box to configure a different routing domain name than the default. A RUM engine will only monitor traffic for an application or end-user group if both the application or end-user group and the engine have the same routing domain. **Default value:** ➤ **Check box.** Not selected ➤ **Routing Domain.** DefaultDomain

UI Element (A–Z)	Description
Override default connection settings	Select this check box to override the following fields, that configure how BSM connects to the RUM engine's Web console. (By default, the RUM engine's host name and port 8180 are used for the connection): ➤ **URL.** THe URL of the RUM engine host machine. **Note:** If HTTPS is being used, the host name specified in the URL must match the name in the SSL Certificate issued for the engine as it is validated in the connection. ➤ **User name.** The user name to log in to the RUM Web service. ➤ **Password.** The password for the user. ➤ **Retype password.** The confirmation of the password. **Note:** The user name and password must match the **JMX and Gateway** user name and password configured for the RUM engine during installation. If they do not match, BSM is unable to communicate with the RUM engine to obtain data for EUM reports. For details on configuring the JMX and Gateway password, see "Installing the HP Real User Monitor Engine" in the *Real User Monitor Administration* PDF.
Retrieve snapshots directly from the Real User Monitor engine	Select this check box to enable the Real User Monitor Snapshot applet to retrieve snapshots directly from the RUM engine, instead of through the BSM Gateway Server. For details on this concept, see "Determining How the Real User Monitor Snapshot Applet Retrieves Snapshots" on page 836. **Default value:** Not selected

Manage Custom Attributes Dialog Box

This dialog box enables you to create custom attributes for BPM data collectors.

You configure the custom attribute values for a data collector in the Business Process Monitor Properties dialog box. For user interface details, see "Edit Business Process Monitor Properties Dialog Box" on page 510.

You use the custom attributes to filter the data collectors displayed in the Business Process Monitor Data Collectors page, or when assigning data collectors in BPM related wizards.

To access	Select **Admin** > **End User Management** > **Settings** > **Business Process Monitor Settings** > **BPM Agents** > **Manage custom attributes** link
Important information	➤ To edit a field for a custom attribute, click the field and enter the required data. ➤ You can create a maximum of five custom attributes.

User interface elements are described below:

UI Element (A-Z)	Description
	**New Custom Attribute.** Adds a new custom attribute. **Note:** You can create a maximum of five custom attributes. If five attributes are already configured, this button is disabled.
	**Delete Custom Attribute.** Removes selected custom attributes. **Note:** Select a single custom attribute by clicking a row in the list, or use the Shift or CTRL key to select several custom attributes.
Property Name	The name of the custom attribute.

UI Element (A-Z)	Description
Property Type	The type of the custom attribute. The available options are: ➤ **Free text.** Enables you to assign a free text value to the parameter for a data collector. ➤ **Values list.** Enables you to configure a list of predefined values that can be assigned to the parameter for a data collector.
Valid Values	The predefined list of values which can be assigned to the parameter. Enter values separated by a semicolon (;). **Note:** This field is enabled only if you configure **Values list** as the property type.

Real User Monitor Settings Tab

The Real User Monitor Settings tab enables you to view and manage the RUM data collectors registered in your BSM system.

To access	Select **Admin** > **End User Monitor** > **Settings** > **Real User Monitor Settings**
See also	"Settings Overview" on page 490

The Real User Monitor Settings tab includes the following pages:

➤ **RUM Engines.** Enables you to view the RUM engines registered in BSM and perform various management tasks. For user interface details, see "RUM Engines Page" on page 520.

➤ **RUM License.** Enables you to view and assign RUM licenses. For user interface details, see "RUM License Page" on page 522.

➤ **RUM Default Settings.** Enables you to view and change the default system settings for RUM applications. For user interface details, see "RUM Default Settings Page" on page 518.

RUM Default Settings Page

This page enables you to view and change the default system settings for RUM applications. The default settings are automatically assigned to an application's <actions>, transactions, and servers. It also enables you to define default location latency and to configure automatic location discovery by RUM.

To access	Select **Admin** > **End User Management** > **Settings** > **Real User Monitor Settings** > **RUM Default Settings**

Application Default Thresholds Area

User interface elements are described below:

UI Element	Description
Transaction Thresholds	
Total time	The total transaction time (download time + think time) threshold, in seconds. If the total time of a transaction falls within this threshold, the transaction's total time is displayed in green in the RUM reports, otherwise it is displayed in red.
Net time	The net transaction time threshold, in seconds. If the net time of a transaction falls within this threshold, the transaction's net time is displayed in green in the RUM reports, otherwise it is displayed in red.
Server time	The server time threshold for the transaction, in seconds. If the server time for a transaction falls within this threshold, the transaction's server time is displayed in green in the RUM reports, otherwise it is displayed in red. **Note:** This threshold must be lower than the total time and net time thresholds.
Availability	The transaction availability threshold, as a percentage. If the availability of a transaction falls within this threshold, the transaction's availability is displayed in green in the RUM reports, otherwise it is displayed in red.

UI Element	Description
Timeout	The amount of time, in seconds, between consecutive <actions> in a transaction, after which RUM considers the transaction to have timed out.
Action Thresholds	
Total time	The total time threshold for the <action>, in seconds. If the total time for an <action> falls within this threshold, the <action's> total time is displayed in green in the RUM reports, otherwise it is displayed in red.
Server time	The server time threshold for the <action>, in seconds. If the server time for an <action> falls within this threshold, the <action's > server time is displayed in green in the RUM reports, otherwise it is displayed in red. **Note:** This threshold must be lower than the total time threshold.
Availability	The <action> availability threshold, as a percentage. If the availability of an <action> falls within this threshold, the <action's> availability is displayed in green in the RUM reports, otherwise it is displayed in red.
Server Thresholds	
Availability	The server availability threshold, as a percentage. If the availability of a server falls within this threshold, the server's availability is displayed in green in the RUM reports, otherwise it is displayed in red.

Location Default Settings Area

User interface elements are described below:

UI Element (A-Z)	Description
Enable location discovery	Select this check box to enable automatic location discovery by RUM. When enabled, RUM reports discovered end-user IP addresses for which there is no configured location to the Location Manager. For details on the Location Manager, see "Location Manager" in *Platform Administration*. **Default value:** Selected
Location latency	The default location latency, in seconds. RUM adds the configured latency to all the configured threshold settings that are relevant to all the monitored traffic for a location.

RUM Engines Page

This page displays the RUM engines registered in BSM.

To access	Select **Admin** > **End User Management** > **Settings** > **Real User Monitor Settings** > **RUM Engines**
See also	"Settings Overview" on page 490

User interface elements are described below:

UI Element (A–Z)	Description
	**Refresh.** Refreshes the list of RUM engines.
	**Edit Real User Monitor Engine Properties.** Opens the Edit Real User Monitor Engine Properties dialog box, where you view and edit RUM engine properties. For user interface details, see "Edit Real User Monitor Engine Properties Dialog Box" on page 513.

UI Element (A–Z)	Description
	**Remove Real User Monitor Engine from List.** Removes selected RUM engines from the list. **Note:** This button is enabled only when the selected RUM engines are removable.
	**Search for Monitored Applications.** Searches for applications monitored by selected RUM engines. The results are displayed in the Search Results dialog box. For user interface details, see "Search Results Dialog Box" on page 524.
	**Open Real User Monitor Engine's Web Console.** Opens the RUM engine's console, enabling you to perform administrative tasks on it directly from this page. For details on working in the RUM console, refer to the *Real User Monitor Administration* PDF.
Engine Name	The name of the RUM engine.
Host Name	The name of the host machine on which the selected RUM engine is installed.
In Use	Displays a check mark when the RUM engine is configured to monitor an application.
IP Address	The IP address of the host machine on which the RUM engine is installed.
Last Ping Time	The last time the RUM engine pinged the BSM Management database.
Removable	Displays a check mark when the engine is removable. An engine is removable when it has not been pinged for the last 24 hours.
Version	The version number of the RUM software.

RUM License Page

This page enables you to view RUM licensing information and to assign licenses to specific probes.

To access	Select **Admin** > **End User Management** > **Settings** > **Real User Monitor Settings** > **RUM License**
Relevant tasks	"How to Install and Assign Real User Monitor Licenses" on page 499
See also	➤ "Licenses" in *Platform Administration* ➤ "End User Management Licenses Overview" on page 492

RUM Probes Licensing Area

This area enables you view the licenses that are assigned to RUM probes and to change the assignments. Probes are automatically assigned a license when they are registered in BSM.

User interface elements are described below:

UI Element (A-Z)	Description
	**Edit Probe License.** Opens the Edit Probe License dialog box, where you assign a specific license type to selected probes.
Engine Name	The name of the RUM engine to which the probe is connected.
Host Name	The name of the host machine on which the RUM probe is installed.
In Use	A check mark indicates that the RUM probe is in use. That is, it monitors at least one configured application.

UI Element (A-Z)	Description
License	The type of the license assigned to the probe. Click this field to open a list of licenses that you can assign to the probe. **Caution:** A probe that is not assigned a valid license cannot monitor application tiers (unless the application is assigned an APM 360 with SLM License).
Probe Name	The configured name of the RUM probe.

RUM Applications With Assigned 360 License Area

This area lists the RUM applications to which an APM 360 with SLM license is assigned.

Note: This area is displayed only if you have a valid APM 360 with SLM license.

RUM License Information Area

This area displays general data about the RUM licenses installed in BSM.

User interface elements are described below:

UI Element (A-Z)	Description
Capacity	The amount of licensed capacity. **Note:** Evaluation licenses have unlimited capacity.
Description	A description of the license.
Expiration Date	The license's fixed expiration date. **Note:** This date is displayed only for time-based licenses.
Name	The name of the license key.

UI Element (A-Z)	Description
Type	There are three types of licenses: ➤ **Evaluation:** A license with a fixed trial period of up to 60 days and with unlimited capacity. This type of license is available only until a Time Based or Permanent license is purchased. Once purchased, the trial period immediately terminates. **Note:** An Evaluation License cannot be renewed. ➤ **Time Based:** A license which has a time-based expiration date. ➤ **Permanent:** A license which does not expire.
Used Capacity	If the license is capacity based, the amount of capacity used.

Search Results Dialog Box

This dialog box lists the business transaction flows configured to run on a selected BPM, or the applications monitored by a selected RUM engine, and enables you to perform various actions to manage them.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Settings** > **Business Process Monitor Settings** > **BPM Agents**. Select a data collector from the list and click the **Search for Monitored Business Transaction Flows** button. ➤ Select **Admin** > **End User Management** > **Settings** > **Real User Monitor Settings** > **RUM Engines**. Select an engine from the list and click the **Search for Monitored Applications** button.
Important information	For user interface details, see "Monitoring Page Search and Replace Tab" on page 75.

6

Administer EUM Alerts

This chapter includes:

Concepts

Tasks

Reference

Concepts

EUM Alerts Administration Overview

End User Management (EUM) alerts are triggered by breached conditions of measurements like transaction availability and response time, based on Business Process Monitor (BPM) and Real User Monitor (RUM) data. EUM alerts can be sent to recipients using a notification template. Alerts can also execute files, open URLs, or open events corresponding to the alert in Operations Management.

For a detailed introduction to alerts, see "Alerts Overview" in *Platform Administration*.

In the EUM alert administration, you can create and manage one or more alert schemes for a CI, using the Alert Wizard. In each alert scheme, you define a unique set of alert properties. For user interface details, see "Alert Wizard" on page 565.

You can define dependencies between alerts. Dependencies help reduce the amount of alert traffic sent to recipients and provide additional advantages. For concept details, see "Alerts Dependency" on page 528.

You can create and manage notification templates. For details, see "How to Configure EUM Alerts Notification Templates" in *Platform Administration*.

You can monitor the triggered alerts using the Alerts Count Over Time, Alerts Count Summary, and Alerts Log reports available in **Applications** > **End User Management** > **Alerts**. For task details, see "How to View and Understand EUM Alert Reports" on page 1093.

You can customize alerts. For details, see "How to Customize Alerts" in *Platform Administration*.

When an alert is triggered, it sends a predefined notification (with email, SMS, or Pager) to a predefined recipient, or triggers a predefined action (exe file, URL, or SMNP trap). Whenever a notification is sent, information related to the notification is logged into the profile database. You can view the log in the Alert report. For details, see "Audit Log" on page 642.

When an EUM alert is triggered in HP Business Service Management (BSM), the alert is configured to send an event, and you have the Event Management Foundation license, an event corresponding to the alert is automatically forwarded to Operations Management.

If BSM integrates with HP Operations Manager, an event is automatically forwarded to HP Operations Manager (OM), when an EUM alert is triggered in BSM. For details, see "HP Operations Manager" in *Solutions and Integrations*.

If BSM integrates with HP Service Manager, an incident is automatically forwarded to HP Service Manager when an EUM alert is triggered in BSM. For details, see "How to Integrate HP Service Manager with Business Service Management Components" in *Solutions and Integrations*.

Alerts Suppression

A suppressed alert is an alert that is triggered whose configured actions are not performed due to notification frequency or dependency. Alert suppression follows the rules listed below:

- The dependency period was active when dominant alert was triggered (regardless of if it was actually sent) and is still active until either time limit is over or the dominant alert condition clears. After the dominant alert condition clears if the dependent alert is triggered, it is not suppressed (it is sent).
- An alert that is suppressed due to dependency is considered "sent" for Notification frequency calculation (the dominant alert sent is as though the dependent alert was sent for this matter).
- Dependency calculation accuracy has a one minute resolution to allow samples with different latencies to affect the dependency calculation. A dependent alert might be suppressed by a dominant alert that is triggered after the dependent alert occurs (within the minute resolution). A dependent alert might not be suppressed due to the dominant alert condition change that happens after the triggering of the dependent alert.

- Follow-up alerts are sent only if the original alert was sent. Thus, if an alert is suppressed due to dependency or notification frequency conditions, its follow-up alert is not sent. If an alert is sent, its follow up alert will also be sent regardless of the dependency or notification frequency state at the time the positive condition happened.

Alerts Dependency

You can specify that you want alerts that were previously defined for a specific CI to be dependent of the alert you are currently defining for the specific CI, thus making the current alert the dominant alert. If required, you can enable cross-CI dependency, which allows you to define alerts assigned to other CIs as dependent alerts of an alert assigned to a different CI.

When an alert defined as dependent is triggered, BSM suppresses all actions configured for the alert if the following conditions are both fulfilled:

- Its dominant alert was previously triggered.
- If the conditions that triggered the dominant alert remain true at the time the dependent alert is triggered.

You can also define a time limit for each alert you designate as dependent. When a time limit is defined, the actions of the dependent alert are suppressed as long as the conditions that triggered the dominant alert remain true—but only until the time limit expires. BSM begins running the clock on the time limit from the moment the dominant alert is triggered, but resets it for a new dominant trigger.

This section also includes the following topics:

- "Benefits of Alerts Dependency" on page 529
- "Guidelines and Tips for Configuring Alert Dependencies" on page 529

Benefits of Alerts Dependency

Defining dependent alerts allows you to:

- **Reduce the amount of alert traffic sent.**
- **Define alert dependencies that match transaction dependencies.**

  For example, if you have a transaction that checks the login to your application, and a transaction that checks a search in the application after login, you can subordinate the alert that notifies you about poor search performance to the alert that notifies you about failure to log in your application. In this case, only the dominant alert is necessary to alert staff to a problem.
- **Nest alerts according to severity.**

  For example, you can make alerts with the **Minor** severity subordinate to alerts with the **Critical** severity.
- **Define alert dependencies that match alert trigger criteria.**

  For example, if you define an alert to be triggered if the response time is greater than 15 seconds, and another alert for response time greater than 30 seconds, if the response time was 35 seconds, without dominant or dependent alert definition, BSM would send two alerts. By making the response time greater than 15 seconds alert dependent of the response time greater than 30 seconds alert, only the dominant alert is sent if the response time was greater than 30 seconds. The dependent alert is sent if the response time was between 15 and 30 seconds.

Guidelines and Tips for Configuring Alert Dependencies

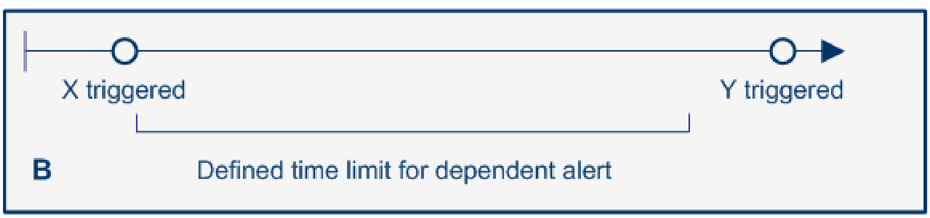
- Dependent alerts are always logged to the Alerts Log.
- Alert loops are not supported. That is, if you have a series of dependencies, the dependency path cannot loop back on itself. For example, if Alert A is dependent of Alert B, Alert B is dependent of Alert C and Alert D, and Alert C is dependent of Alert E, you cannot define Alerts B, C, D, or E to be dependent of Alert A.
- When you have more than one level of dependencies (C is dependent of B which is dependent of A), and the top level (A) alert is triggered, then the dependent (B and C) alerts are not triggered.

Example of Alerts Dependency

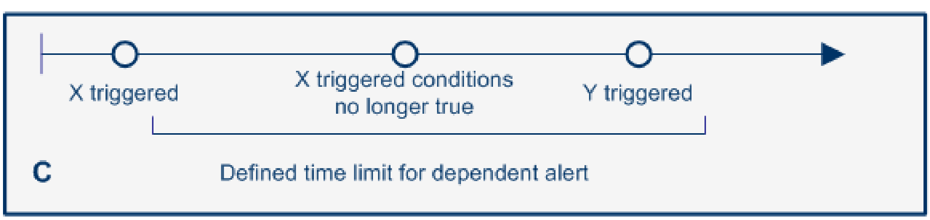
Consider the following examples, in which alert Y is defined as being dependent of alert X.

Example A. BSM suppressed alert Y's defined actions because alert X, the dominant alert, occurred before alert Y. Further, alert Y occurred during the dependency defined time limit, and while the conditions that triggered alert X remained true.

Example B. BSM did not suppress alert Y's defined actions because—even though alert X, the dominant alert, occurred before alert Y—alert Y occurred after the dependency defined time limit expired.

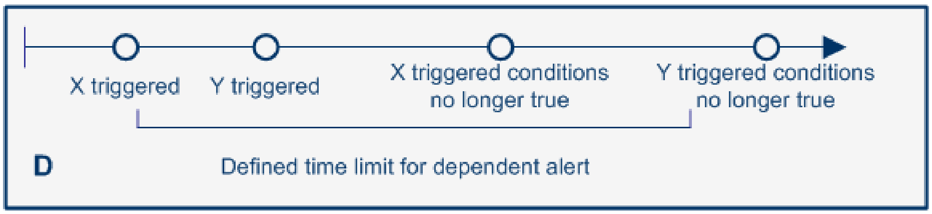


Example C. Business Service Management: Alert Y actions are not suppressed because alert X condition change cancelled the dependency.



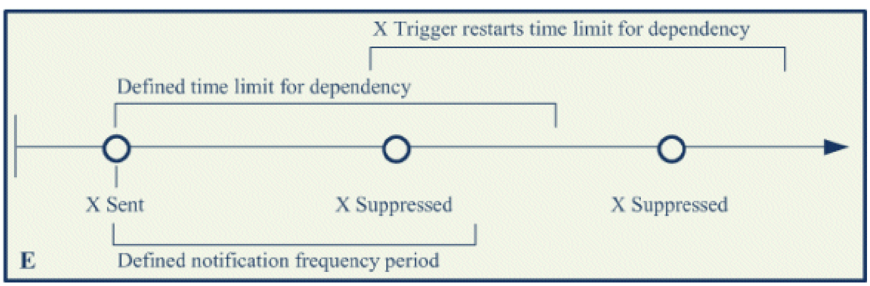
Example D. Business Service Management:

- Alert Y actions are suppressed because alert X, the dominant alert, occurred before alert Y, the dependent alert, occurred during the dependency defined time limit.
- If alert X has a follow-up alert, it is triggered when alert X trigger conditions are no longer true.
- If alert Y has follow-up alert, the follow-up alert for alert Y is not sent when its trigger conditions are no longer true, because the original alert Y was suppressed.



Example E. Business Service Management:

- Alert X's second trigger is suppressed due to notification frequency.
- Alert Y's actions are suppressed because the dependency period starts again at the second trigger of X, even though it is not sent.



Downtime

When the CI is in downtime, the triggering of attached EUM alerts depends on the downtime definition.

For concept details, see "Alerts and Downtime" in *Platform Administration*.

For task details, see "How to Set Up an Alert Delivery System" in *Platform Administration*.

Tasks

How to Create EUM Alert Schemes

To create an alert scheme using the Alert Wizard, perform the following steps:

This task includes the following steps:

- "Prerequisite" on page 533
- "Select a CI in the view and create a new alert" on page 533
- "Configure the event template – optional" on page 534
- "Set an SNMP trap" on page 534
- "Customize the alert features – optional" on page 534
- "Results" on page 534

1 Prerequisite

Perform the steps described in "How to Set Up an Alert Delivery System" in *Platform Administration*.

2 Select a CI in the view and create a new alert

Click **Admin** > **End User Management** > **Monitoring**, select the view and the CI in the left pane, click the **Alerts** tab, and click the **Press to create new alert** button to open a list of alert types. Select one of the listed types of alerts to open the Alert Wizard where you can configure the alert scheme.

After you have finished creating the alert scheme, it is added to the Alerts table.

To generate events, when the alert is triggered, select the **Generate Event** option in the **Actions** tab in the Alert Wizard.

For more information about alert schemes, see "EUM Alerts Administration Overview" on page 526.

For details on creating an alert scheme, see "Alert Wizard" on page 565.

3 Configure the event template – optional

The Event Template maps an event triggering condition (for example, the triggering condition of an SLA alert scheme) to an event attributes. You can modify the Event Template default or you can configure a new template that maps an alert's attributes to the corresponding event attributes.

For task details, see "How to Configure the Event Template" on page 645.

4 Set an SNMP trap

You must set an SNMP trap if you enabled alerts through SNMP traps in your alert schemes. For details, see "How to Configure the Alert MIBs" on page 537.

5 Customize the alert features – optional

You can customize some alert features. For details, see "How to Customize Alerts" in *Platform Administration*.

6 Results

When an alert is triggered, the recipient may receive an email, a pager message, or an SMS message depending on the recipient's settings.

You can manage the defined alert schemes: clone, edit, delete, enable or disable and perform searches. For details, see "Alerts Page" on page 557.

You can view a list of the alerts that were triggered and the details of each alert in the EUM alert reports. For details, see "How to View and Understand EUM Alert Reports" on page 1093.

The alerts triggered by the trigger criteria specified in the Alert Wizard are logged in the Alerts Log. For details, see "Alerts Log Report" on page 1103.

How to Create EUM Alert Schemes – Use-Case Scenario

This section provides an example of how to create EUM alert schemes.

Note: For a task related to this scenario, see "How to Create EUM Alert Schemes" on page 533.

This task includes the following steps:

➤ "Background" on page 535

➤ "Create the alert" on page 535

➤ "Search and duplicate an alert (change the CI)" on page 536

➤ "Disable multiple alerts" on page 536

1 Background

The user would like to create a Major BPM Transactions alert related to the **book_sell_application**. The alert should be triggered if one transaction fails. It should send an email to John Ronald and send a clear alert once a transaction succeeds. The alert uses static thresholds.

2 Create the alert

Create the alert using the following steps:

a The user selects **Admin** > **End User Management** > **Alerts** tab, and then selects **New** > **BPM Transaction Alert**. The Alert Wizard opens.

b The user enters the name of the alert, selects **Major** in the Severity box, and clicks the **Select CI** link. He adds a note in the User Message box: "**Send alert to specified recipients (Specify setting)**". The tree of views opens.

c The user selects **book_sell_application**.

d In the **Trigger Condition** tab, the user selects **Transactions fail**.
The user clicks the link that is available in the **Trigger Condition** section in the **Definition Details** area and selects the **even once** option.

e In the **Filters** tab, the user selects **Transactions**.
The user clicks the link that is available in the **Filter** section in the **Definition Details** area and selects the relevant transactions.

f In the **Actions** tab, the user selects **Send to specified recipient**. The user clicks the link in the **Actions** section in the **Description Details** area. The Recipient Selection dialog box opens where the user selects John Ronald.

g In the Advanced Settings tab, in the **Notification Frequency** area, the user selects **Send clear (follow up) alert notification**.

h The user clicks **OK**. The alert is saved and added to the list of alerts.

3 Search and duplicate an alert (change the CI)

The user would like to copy one of the alerts assigned to the **System_login** CI to the **System_logout** CI.

a The user selects **Admin** > **End User Management** > **Alerts** tab, and clicks the CI column name and gets a dropdown list of all the view's CIs, that have been assigned alerts.

b The user starts typing Sys and then selects System_login. The table now filters the alerts and shows only the ones related to the System_login CI.

c The user selects the relevant alert and clicks the **Duplicate alert** button  .The alert is duplicated and the Alert Wizard opens.

d The user presses the Select CI link. The view tree opens and displays the Run-time Service Model (RTSM) provider and EUM_admin view.

e The user selects logout.

f The user presses the **OK** button. The alert is saved and added to the alert list.

4 Disable multiple alerts

The user would like to stop all the alerts of type RUM transaction.

a The user selects **Admin** > **End User Management** > **Alerts** tab, and clicks the header of the **Type** column. The table is sorted by alert types.

b The user selects all the **RUM Transaction Alert** types.

c The user presses the **Deactivate (disable) alerts** button.
The RUM Transaction Alerts that were enabled are disabled.
The RUM Transaction Alerts that were disabled remain disabled.

How to Configure the Alert MIBs

If you enabled alerts through SNMP traps in your alert schemes, it is recommended that you configure your SNMP management console to read the Alerts MIB. This configuration enables you to see a name, rather than an OID (Object Identifier), when working in the management console.

Note: HP Business Service Management uses the AM alerts MIB 5.0 by default.

To configure the alerts MIB in your SNMP management console:

1. Copy the **EBAlerts.mib** file from **<HPBSM root directory on the Data_Processing_server>\SNMP_MIBS**, to your SNMP management console.
2. To view the Alerts varbinds, use your SNMP management console's MIB browser. For a list of varbinds and their descriptions, see "Alerts MIB Varbinds" on page 542.
3. Using your SNMP management console's event configuration utility, configure the notification content and method for the various alert types. For a list of alert types and their corresponding SNMP-specific codes, see "SNMP-Specific Codes" on page 542.

How to Configure SMTP Mails

You can send email alerts and scheduled reports using a configured SMTP server or the Microsoft SMTP Service.

Note: UNIX uses the **sendmail** application to send SMTP emails. As a result, SMTP settings are not needed for Unix systems. Contact your system administrator to configure sending emails correctly for UNIX systems.

You can configure a primary SMTP server and an alternate SMTP server. HP Business Service Management usually uses the primary server. It uses the alternate server only if the primary server fails to send the message.

You configure the primary and alternate SMTP servers in Infrastructure Settings. For task details, see "How to Customize Alerts" in *Platform Administration* and locate **SMTP server, SMTP server port, and Alternate SMTP server**.

Note: If you use the Microsoft SMTP service to send email alerts, HP Business Service Management cannot send the email-based Performance Update report (which you configure in Scheduled Reports) in HTML format. The report must be sent as an HTML, MHT, CSV, or PDF attachment.

How to Define Alerts Dependency

HP Business Service Management enables you to define alerts dependency. For details on alert dependencies, see "Alerts Dependency" on page 528.

This task includes the following steps:

- "Plan the feature" on page 539
- "Review alert dependencies" on page 540
- "Configure the cross-CI alerts dependency" on page 541

1 Plan the feature

To make optimal use of the alerts dependency feature, it is recommended that you map out an overall picture of your monitoring and alerting strategy before defining dependent alerts. Further, you should decide whether you need cross-profile alerts dependency. For details on enabling cross-CI dependency, see "Configure the cross-CI alerts dependency" on page 541.

After you have planned out your required alert dependencies and configured the needed cross-CI dependency setting, you can create or edit your dominant alerts to specify their dependent alerts.

For details, see "Make alerts dependents of current alerts" on page 609.

2 Review alert dependencies

You can view an overall summary of all defined alert dependencies for all CIs. You can also determine whether a specific alert is defined as dependent and view its dominant alerts. You can:

- **Review all defined alert dependencies.** In the Alerts tab, click the **View Dependencies** link. The Dependencies dialog box displays a table that lists all existing dominant alerts, their dependent alerts, their corresponding CIs, and the dependency time limit. For details, see "Select Dependent Alerts Dialog Box" on page 632.
- **Verify whether an alert is defined as a dependent or as a dominant alert.** In the Alerts page, click the Edit button for the relevant alert. The Alert Wizard opens. In the Dependencies area in the Advanced Settings tab, check if:
  - **Make <specified> alerts dependents of current alerts**. Indicates that the current alert is a dominant alert for the specified alerts. For details, see "Advanced Settings Tab" on page 607.
  - **The current alert is a dependent of <specified> alert.** Indicates that the current alert is subordinate to the specified alert. For details, see "Alert Wizard" on page 565.

3 Configure the cross-CI alerts dependency

Cross-CI alerts dependency is disabled by default. Enabling cross-profile alerts dependency has the following implications:

- **You can define more complex alert dependencies.** However, managing complex dependencies may require an advanced level of administration.
- **Permissions have an impact on the alert dependencies you can define.** When defining alert dependencies with cross-CI alerts dependency enabled, keep in mind that you do not have permissions to modify alerts associated with a CI for which you do not have permission. Thus, if a dependent alert belongs to a CI for which you do not have permissions, you cannot disassociate it from its dominant alert, even if the dominant alert is assigned to a CI to which you do have permissions. Further, if a dominant alert is associated with a CI for which you do not have permission, you cannot edit the alert at all (that is, you cannot add or remove dependencies).

If you require cross-CI alerts dependency, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**:

- Select **Foundations**.
- Select **Alerting**.
- In the Alerting - Triggered Alerts table, locate **Enable cross-CI alert dependencies**. Change the value from **false** (default) to **true**.

Note: If you have defined cross-CI alert dependencies and you select not to support the feature, and set **Enable cross-CI alert dependencies** entry back to **false**, the cross-CI alert dependencies are not disabled automatically; you must remove them manually.

Reference

SNMP-Specific Codes

The SNMP-specific code for an EUM alert is **1**. Its type is: **EUM alert**.

Use this code when configuring alert notification events in your SNMP management console. For details, see "How to Configure the Alert MIBs" on page 537.

Alerts MIB Varbinds

The tables list the varbinds used in the Alerts MIB.

The message sent in an SNMP trap contains both numbers and values. For example, the message contains: 1.2.3.4.5 – critical, where 1.2.3.4.5 represents severity, so when you use the MIB, you actually receive the following information: severity - critical.

An alert may be triggered by more than one trigger and each trigger may be triggered by more than one event. In the table below, **[n]** stands for the trigger index in the triggers table, **[m]** for the specific trigger event index in the events table. For example: txnName.[2].[3] means that this is name of the 3rd transaction of the transactions that triggered trigger number 2.

OID (starts with 1.3.6.1.4.1.5233.)	Variable name	Description
4.1	entityName	Profile name
4.2	alertName	Name of the alert
4.3	alertPurpose	Alert type: clear (follow-up)
4.4	alertID	Unique alert ID

OID (starts with 1.3.6.1.4.1.5233.)	**Variable name**	**Description**
4.5	alertSeverity	Alert severity: **Informational** **Warning** **Minor** **Major** **Critical**
4.6	alertTriggerCause	Defined alert trigger conditions (for example, Response time less than 10 seconds)
4.7	alertActualDescription	Actual conditions at time of alert (for example, Current response time is 3.00 seconds)
4.8	alertUserMessage	User message for this alert
4.9	entityId	The ID of the CI related to the alert
4.10	groupByParameters	The parameters specified in the Grouped By definition of the alert. **Format:** <grouped by property1>:<value1>;<grouped by property2>:<value2>;... **Example:** transaction:Login;location:London
4.11.1.1.[n]	triggerIndex.[n]	Index of the trigger within the trigger list
4.11.1.2.[n]	triggerCause.[n]	Defined current trigger conditions
4.11.1.3.[n]	actualDescription.[n]	Actual conditions of the current trigger
4.11.1.4.1.1.[n].[m]	eventIndex.[n].[m]	Index of the event within the current trigger event list
4.11.1.4.1.2.[n].[m]	eventActualDescription.[n].[m]	Description of the event. For example, a Response Time of 3.00 seconds.

OID (starts with 1.3.6.1.4.1.5233.)	**Variable name**	**Description**
4.11.1.4.1.3.[n].[m].[x].[y]	The name of the variable depends on the value of the n parameter: ➤ n=1 - transactionEvent Details ➤ n=2 - rumEventDetails	➤ **n is the event type**: ➤ n=1 for BPM Transaction alert ➤ n=2 for RUM Event alert ➤ **m is the event property. It depends on the event type (see below for more details)** ➤ **x is the ID of the triggering order.** ➤ **y is the ID of the event order.**

OID (starts with 1.3.6.1.4.1.5233.)	**Variable name**	**Description**
4.11.1.4.1.3.[n].[m].[x].[y] (continued)		➤ **m for BPM Transaction alerts**: ➤ m=1 for the **btfName** property (corresponding to the name of the flow). ➤ m=2 for the **txnName** property (corresponding to the name of the transaction). ➤ m=3 for the **txnTime** property (corresponding to the time the transaction ran). ➤ m=4 for the **location** property (corresponding to the name of the location). ➤ m=5 for the **script** property (corresponding to the name of the script). ➤ m=6 for the **dataCollector** property (corresponding to the BPM Agent name). ➤ m=7 for the **txnDescription** property (corresponding to the description of the event; for example, Response time 3.00 seconds). ➤ m=8 for the **txnErrorMessage** property (corresponding to the error message generated during a script run).

OID (starts with 1.3.6.1.4.1.5233.)	Variable name	Description
4.11.1.4.1.3.[n].[m].[x].[y] (continued)		➤ **m for RUM Event alerts**: ➤ m=1 for the **eventName** property (corresponding to the name of the event). ➤ m=2 for the **location** property (corresponding to the location of the event). ➤ m=3 for the **endUserGroup** property (corresponding to the name of the End User group). ➤ m=4 for the **softwareElem** property (corresponding to the name of the software). ➤ m=5 for the **eventData** property (corresponding to the data of the event). ➤ m=6 for the **eventTime** property (corresponding to the time when the event occurred). ➤ m=7 for the **eventCategory** property (corresponding to the category of the event).

Example: The following table illustrates the changes made to the OID for an alert with 2 events that met 2 trigger conditions (BPM transaction performance triggers with 2 out of 2 statuses selected).

OID (starts with 1.3.6.1.4.1.5233.)	Variable name	Description
4.1	entityName	Profile
4.11.1.1.1	triggerIndex.1	Index of the subalert within the subalert list
4.11.1.1.2	triggerIndex.2	Index of the subalert within the subalert list

OID (starts with 1.3.6.1.4.1.5233.)	Variable name	Description
4.11.1.2.1	triggerCause.1	The trigger cause of the first trigger.
4.11.1.2.2	triggerCause.2	The trigger cause of the first trigger.
4.11.1.3.1	actualDescription.1	The actual trigger cause of the first trigger.
4.11.1.3.2	actualDescription.2	The actual description of the first event of the first trigger
4.11.1.4.1.1.1.1	eventIndex.1.1	Index of the event within the event list
4.11.1.4.1.1.1.2	eventIndex.1.2	Index of the event within the event list
4.11.1.4.1.1.2.1	eventIndex.2.1	Index of the event within the event list
4.11.1.4.1.1.2.2	eventIndex.2.2	Index of the event within the event list
4.11.1.4.1.2.1.1	eventActualDescription.1.1	Index of the subalert instance owner from the subalert instance table
4.11.1.4.1.2.1.2	eventActualDescription.1.2	Index of the subalert instance owner from the subalert instance table
4.11.1.4.1.2.2.1	eventActualDescription.2.1	Index of the subalert instance owner from the subalert instance table
4.11.1.4.1.2.2.2	eventActualDescription.2.2	Index of the subalert instance owner from the subalert instance table
4.11.1.4.1.3.1.1.1.1	txnName.1.1	Transaction name
4.11.1.4.1.3.1.1.1.2	txnName.1.2	Transaction name
4.11.1.4.1.3.1.1.2.1	txnName.2.1	Transaction name

OID (starts with 1.3.6.1.4.1.5233.)	Variable name	Description
4.11.1.4.1.3.1.1.2.2	txnName.2.2	Transaction name
4.11.1.4.1.3.1.2.1.1	organization.1.1	Group name
4.11.1.4.1.3.1.2.1.2	organization.1.2	Group name
4.11.1.4.1.3.1.2.2.1	organization.2.1	Group name
4.11.1.4.1.3.1.2.2.2	organization.2.2	Group name
4.11.1.4.1.3.1.3.1.1	host.1.1	Host name
4.11.1.4.1.3.1.3.1.2	host.1.2	Host name
4.11.1.4.1.3.1.3.2.1	host.2.1	Host name
4.11.1.4.1.3.1.3.2.2	host.2.2	Host name
4.11.1.4.1.3.1.4.1.1	location.1.1	Location name
4.11.1.4.1.3.1.4.1.2	location.1.2	Location name
4.11.1.4.1.3.1.4.2.1	location.2.1	Location name
4.11.1.4.1.3.1.4.2.2	location.2.2	Location name
4.11.1.4.1.3.1.5.1.1	script.1.1	Script name
4.11.1.4.1.3.1.5.1.2	script.1.2	Script name
4.11.1.4.1.3.1.5.2.1	script.2.1	Script name
4.11.1.4.1.3.1.5.2.2	script.2.2	Script name
4.11.1.4.1.3.1.6.1.1	eventTime.1.1	Event time
4.11.1.4.1.3.1.6.1.2	eventTime.1.2	Event time
4.11.1.4.1.3.1.6.2.1	eventTime.2.1	Event time
4.11.1.4.1.3.1.6.2.2	eventTime.2.2	Event time
4.11.1.4.1.3.1.7.1.1	txnErrorMessage.1.1	Description of event (for example, Response time 3.00 seconds)
4.11.1.4.1.3.1.7.1.2	txnErrorMessage.1.2	Description of event (for example, Response time 3.00 seconds)

OID (starts with 1.3.6.1.4.1.5233.)	Variable name	Description
4.11.1.4.1.3.1.7.2.1	txnErrorMessage.2.1	Description of event (for example, Response time 3.00 seconds)
4.11.1.4.1.3.1.7.2.2	txnErrorMessage.2.2	Description of event (for example, Response time 3.00 seconds)
4.11.1.4.1.3.1.8.1.1	txnDescription.1.1	Error message generated during a script run
4.11.1.4.1.3.1.8.1.2	txnDescription.1.2	Error message generated during a script run
4.11.1.4.1.3.1.8.2.1	txnDescription.2.1	Error message generated during a script run
4.11.1.4.1.3.1.8.2.2	txnDescription.2.2	Error message generated during a script run
4.2	alertName	Name of the alert
4.3	alertPurpose	Alert type: regular or follow-up
4.4	alertID	Unique alert ID
4.5	alertSeverity	Alert severity: OK -10, warning - 20, minor - 30, major - 40,critical - 50
4.6	alertTriggerCause	Defined alert trigger conditions (for example, Response time less than 10 seconds)
4.7	alertActualDescription	Actual conditions at time of alert (for example, Current response time is 3.00 seconds)
4.8	alertUserMessage	User message for this alert

OID (starts with 1.3.6.1.4.1.5233.)	Variable name	Description
4.9	entityId	The related entity ID (for example: application ID)
4.10	groupByParameters	The Group by parameters in the following format: <parameter1>:<value1>;<parameter2>:<value2>...

EUM Alerts Administration User Interface

This section describes:

Access URLs Dialog Box

This dialog box enables you to specify that you want BSM to access a URL when alert trigger criteria are met.

To access	Click the link in **Access the URLs** <as_specified> in the **Actions** section in the **Definition Details** area in the Actions tab in the Alert Wizard.
Important information	➤ Specifying the URL enables BSM to send alerts through a Web site, for example, using Active Server Pages, CGI, or Perl. The URL can activate an executable program on a Web server, report to a custom database, activate a Web-based fax service, and so on. You can develop custom pages or use existing ones. ➤ You can customize and control the URL by adding parameters to the URL string. For example, you can use the following URL: http://myticketingsystem.com?name=<<Alert Name>>&ticketID=<<ID>>&description=<<Alert Description>> The URL accesses the myticketingsystem.com site. It uses the name of the alert, the alert ID number and the description of the alert as parameters. **Note:** BSM supports the GET method only when accessing a URL. If your Web server only supports the POST method, or if you want more information on developing custom Web pages for your server, contact your HP Software Support representative. For information on the differences between the methods, see one of the following: http://www.cs.tut.fi/~jkorpela/forms/methods.html http://en.wikipedia.org/wiki/HTTP

User interface elements are described below:

UI Element (A-Z)	Description
	**Press to add a new URL.** Enables you to add a URL to the list of URLs in the **URL** box. The //**http:** string is displayed in an additional box. Drag and drop the parameters listed in the Attributes area, to create the URL. For a description and listing of the different alert parameters, see "EUM Alert Attributes" on page 647.
	**Press to delete the selected URL(s).** Delete the URL you selected in the **URL** box.
URL	The list of available URLs.

Actions Availability Dialog Box

This dialog box enables you to specify how to calculate the availability of the requests to the application. The availability is calculated as the ratio of requests that were answered to the total number of requests to the application.

To access	Click the link of **Send alert if actions availability is** <condition> **percent** in the **Trigger condition** area of the **Summary and Detail Definition** area in the Alert Wizard.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
Actions Availability is <condition> <nn> percent	Specify the condition and the percentage of availability of the application request or is it about the performance of the request to the application.

Attach Recipients Dialog Box

This dialog box enables you to attach recipients to one or more alerts.

To access	Select one or more alerts in the table in the End User Management Alerts page, and click the **Add recipients** button.

User interface elements are described below:

UI Element (A–Z)	Description
	Create recipient. Opens the User Management main page where you can create a recipient. For details, see "User Management Main Page" in *Platform Administration*.
	Edit recipient. Opens the User Management main page where you can edit the details of the selected recipient. For details, see "User Management Main Page" in *Platform Administration*.
	Moves the selected recipients from the **Available Recipients** columns to the **Selected Recipients to Attach** column.
	Moves all the recipients from the **Available Recipients** columns to the **Selected Recipients to Attach** column.
	Moves the selected recipients from the **Selected Recipients to Attach** column to the **Available Recipients** columns.
	Moves all the recipients from the **Selected Recipients to Attach** column to the **Available Recipients** columns.

UI Element (A–Z)	Description
Attach	If you selected: ➤ **One alert.** The **Available Recipients** column displays a list of the available recipients that are not already attached to the alert. Select one or more recipients and move them to the **Selected Recipients to Attach** column using the arrow buttons and click **Attach** to attach these recipients to the selected alert. ➤ **More than one alert.** The **Available Recipients** column displays a list of all the available recipients. Select one or more recipients and move them to the **Selected Recipients to Attach** column using the arrow buttons and click **Attach** to attach these recipients to the selected alerts.
Available Recipients	Lists the name, email, SMS, or Pager number of the recipients available to be attached to the alerts. The table indicates that the recipient definition includes (**checkmark**) or does not include (**hyphen**) email, pager, and SMS information.
Selected Recipients to Attach	Lists the name, email, SMS, or Pager number of the selected recipients to be attached to the alert. The table indicates that the recipient definition includes (**checkmark)** or does not include (**hyphen**) email, pager, and SMS information.

Alert Frequency Criteria Dialog Box

This dialog box enables you to define how often BSM sends an alert notice when the EUM alert trigger conditions occur. If you selected any of the EUM alert triggers, you can define the alert frequency criteria.

To access	Click the link of **when trigger condition occurs** <condition> in the **Trigger condition** section in the **Definition Details** area in the Trigger Condition tab in the Alert Wizard.

User interface elements are described below:

UI Element (A-Z)	Description
at least <X> times out of <Y>	Select to have BSM send an alert only when the defined alert trigger conditions occur X times out of Y, where X represents the number of times the alert conditions occur, and Y represents the total number of transaction instances BSM considers. For example: ➤ For the alert trigger **Transactions fail**, if you specify **at least 3 times out of 5**, an alert is sent only if 3 out of every 5 transactions fail. ➤ For the alert trigger **Transaction response time is greater than 10 seconds**, if you specify **At least 2 times out of 4**, an alert is sent only if transaction response time is greater than 10 seconds in at least 2 out of 4 transaction instances.
Even once	Select to have BSM send an alert every time the defined alert trigger conditions occur.

Alerts Page

This page enables you to view the EUM alert schemes you have created.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Alerts** ➤ Select **Admin** > **End User Management** > **Monitoring**, select a view and a CI, and click **Alert**.
Important information	Over time, you may find it necessary to make changes to alert schemes that you create, due to organizational changes, changes to service level monitoring contracts, and so on. For example, if an alert recipient leaves the company, you need to modify the alert scheme. Alternatively, if, due to a change in a service level monitoring agreement, the availability rate of a specific transaction is now expected to be at 97 percent rather than 90 percent, you may want to modify the alert trigger criteria for that transaction accordingly. **Limitations:** You can attach alerts only to the following CIs: ➤ **For RUM Transaction, RUM Application, and RUM Event alerts.** Only to business_application CIs that are monitored by RUM. ➤ **For BPM Transaction alerts.** Only to business_application CIs that are monitored by BPM. **Note:** The left-pane displays the selected view and the CIs in the view. If you select a CI in the view, the alerts listed in the right-pane are attached to the selected CI.
Relevant tasks	"How to Create EUM Alert Schemes" on page 533

Left Pane

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<View and tree of CIs>	The selected view. If you select a CI in the view, the alerts listed in the right-pane are attached to the selected CI. The view and the tree are displayed only when you select to access the page using **Admin** > **End User Management** > **Monitoring.**

Toolbar

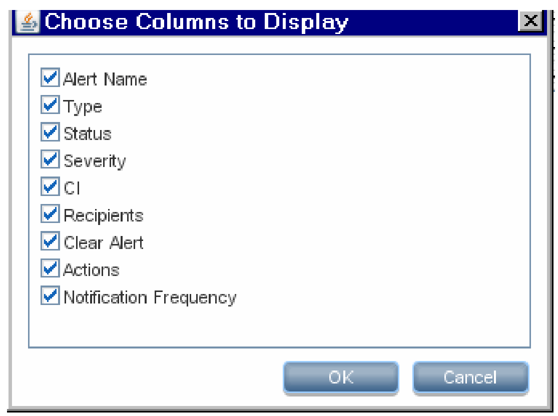
User interface elements are described below:

UI Element (A-Z)	Description
	**Create new alert.** Opens a list of alert types. Select one of the following types: ➤ **BPM Transaction Alert.** Select if you are creating an alert for a BPM CI. ➤ **RUM Alert.** Select if you are creating an alert for a RUM CI. The Alert Wizard opens. For details, see "Alert Wizard" on page 565.
	**Edit alert.** Opens the Alert Wizard where you can edit the selected alert. For details, see "Alert Wizard" on page 565. You can also double-click the alert to open the wizard.

UI Element (A-Z)	Description
	**Duplicate alert:** When you select: ➤ **One alert.** Duplicates the selected alert. The Alert Wizard opens where you can modify the definition of the copy of the alert. ➤ **Multiple alerts.** Click and drag from the first alert to the last alert you want to select, and click the Duplicate alert button. The duplicate alerts are listed below the original alerts in the list. You can select each alert and click the Edit  button to edit each duplicated alert.
	**Delete alert.** Deletes the selected alert. To delete multiple alerts simultaneously, click and drag from the first alert to the last alert you want to select and click the **Press to delete alert** button.
	**Activate (enable) alert.** Activates the selected alert. If an alert is activated, BSM sends an alert notice when the trigger conditions defined in the alert occur. To activate multiple alerts simultaneously, click and drag from the first alert to the last alert you want to select, and click the button.
	**Deactivate (disable) alert.** Deactivates the selected alert. When an alert is deactivated, BSM does not send an alert notice when the trigger conditions defined in the alert occur. To deactivate multiple alerts simultaneously, click and drag from the first alert to the last alert you want to select, and click the button.

UI Element (A-Z)	Description
	**Generate event.** Activates the event generation. If the alert is triggered, BSM sends an event. To activate the generation of events for multiple alerts simultaneously, click and drag from the first alert to the last alert you want to select, and click the button. **Note:** This capability is available only when BSM integrates with HP Operations Manager. For details, see "How to Configure BSM Alerts to Forward an Event When the Alert is Triggered" in *Solutions and Integrations*.
	**Disable event generation.** Deactivates the selected alert event generation capability. When the event generation capability is deactivated, BSM does not send an event. To deactivate the generation of events for multiple alerts simultaneously, click and drag from the first alert to the last alert you want to select, and click the button. **Note:** This capability is available only when BSM integrates with HP Operations Manager. For details, see "How to Configure BSM Alerts to Forward an Event When the Alert is Triggered" in *Solutions and Integrations*.
	**Enable notification of clear alert.** Enables the system to send a notification when an alert's status has improved. To send such notifications for selected alerts simultaneously, click and drag from the first alert to the last alert you want to select, and click the button.

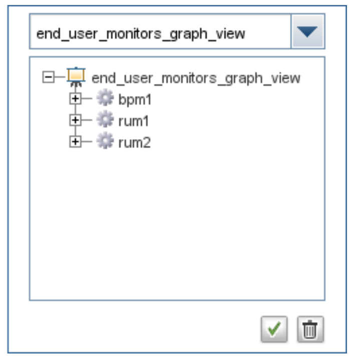
UI Element (A-Z)	Description
	**Disable notification of clear alert.** Disables the capability to send a notification when an alert's status has improved. To disable the notification for selected alerts simultaneously, click and drag from the first alert to the last alert you want to select, and click the button.
	**Open Template Repository Manager.** Opens the Template Repository dialog box. For details, see "Template Repository Dialog Box" on page 653.
	**Notification frequency.** Opens the Notification Frequency dialog box where you can specify the notification frequency for the selected alert. For details, see "Set Notification Frequency Dialog Box" on page 636. To select the notification frequency for selected alerts simultaneously, click and drag from the first alert to the last alert you want to select, and click the button.
	**Attach recipient.** Opens the Attach Recipient dialog box where you can attach a recipient to the selected alert. For details, see "Attach Recipients Dialog Box" on page 554. To attach recipients for selected alerts simultaneously, click and drag from the first alert to the last alert you want to select, and click the button.
	**Detach recipient.** Opens the Detach Recipients dialog box where you can detach a recipient from the selected alert. For details, see "Detach Recipients Dialog Box" on page 616. To detach recipients from selected alerts simultaneously, click and drag from the first alert to the last alert you want to select, and click the button.

UI Element (A-Z)	Description
	**View the dependencies between the alerts.** Opens the Dependencies dialog box. For details, see "Select Dependent Alerts Dialog Box" on page 632.
	**Export to Excel.** Saves the information displayed in the Alerts page into Excel format. You are prompted to specify where you can to save the Excel file that you are creating.
	**Export to PDF.** Saves the information displayed in the Alerts page in PDF format. You are prompted to specify where you want to save the PDF file that you are creating.
	Opens the Choose Columns to Display dialog box where you can select the columns you want to display on the page. 

Table

Note: Each column includes a filter box. Enter or select a value in the box and click ENTER to filter out all the values except the selected one.

User interface elements are described below:

UI Element (A-Z)	Description
	**Note:** This icon is available only when you select the view level in the left pane. **Edit the filter.** Opens a window where you can change the view and the CIs you want to display.  **1** Select the view and the CI, and click the button to confirm the selection. The page displays the alerts attached to the selected view and CI. **2** To restore the original view and CI selection, click the **Edit the filter** button and then click the button.
Actions	Indicates the type of action performed by the alert when it is activated. The action can be: ➤ **URL.** Sends a pre-defined URL. ➤ **SNMP.** Sends an SNMP trap. ➤ **EXE.** Executes the specified exe file. ➤ **Event log.** Logs an event to the Windows Event Viewer application log when an alert is triggered. For details, see "Actions Tab" on page 602.
Alert Name	The name of the alert.
CI	**Note:** This column is available only when you select the view level in the left pane. Displays the name of the CI associated with the alert.

UI Element (A-Z)	Description
Clear Alert	Indicates the status of the alert: ➤ **Enabled notification of clear alert.** The capability to send a notification that the alert's status has improved is enabled. ➤ **Disabled notification of clear alert.** The capability to send a notification that the alert's status has improved is disabled. **Note:** Select **Enabled notification** or **Disabled notification** in the filter to display only the alerts with the selected status.
Notification Frequency	➤ **Every <time_period>.** ➤ **Once per trigger.** ➤ **Every <configured_period>.** For details, see "Advanced Settings Tab" on page 607.
Recipients	The recipients of the alerts separated by commas (,). **Note:** To filter the list of alerts by recipient, select the relevant recipient in the list.
Severity	The severity can be: OK Warning Minor Major Critical
Status	The status of the action: ➤ **Active.** The alert is triggered when the triggering conditions are met. ➤ **Deactivated**. The alert is not triggered when the triggering conditions are met.

UI Element (A-Z)	Description
Type	The type of the alert: ➤ **BPM Transaction** ➤ **RUM Application** ➤ **RUM Transaction** ➤ **RUM Event**

Definition Details Area

This area lists the detailed conditions of the selected alert. For details about the displayed information, see "Alert Wizard" on page 565.

Alert Wizard

This wizard enables you to create an alert scheme.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring**, select the view and the CI in the left pane, click the **Alerts** tab, and click the **Press to create new alert** button to open a list of alert types. Select one of the listed types of alerts. ➤ Select **Admin** > **End User Management** > **Monitoring**, select the view and the CI in the left pane, click the **Alerts** tab, and select one of the alerts, and click the **Press to edit alert** button or double-click the alert. ➤ Select **Admin** > **End User Management** > **Alerts**, and click the **New** button.
Relevant tasks	"How to Create EUM Alert Schemes" on page 533
Wizard map	The Alert Wizard contains: Trigger Condition Tab > Filters Tab > Actions Tab > Advanced Settings Tab

General Area

Important information	This area provides information that is common to the Trigger Condition, Filters, Actions, and Advanced Settings tabs of the Alert Wizard.

User interface elements are described below:

<table>
<tr><th>UI Element (A-Z)</th><th>Description</th></tr>
<tr><td>Alert name</td><td>The name of the alert.
Syntax exceptions: The following characters are not allowed: - ~ ` # $ % ^ & * ( ) - + / ? < > } {] [| \\ " .
Limitation: 250 characters.
Note: After you enter the alert name in the box and you select the CI to associate with the alert, the validator checks if the alert name already exists for the selected CI.</td></tr>
<tr><td>Select CI</td><td>Click the Select the CI the alert is related to button to open the Select CI dialog box, where you can browse views to help you select the CI you want to associate with the alert. For details, see "Select CI Dialog Box" on page 631.</td></tr>
<tr><td>Severity</td><td>The severity can be:

</td></tr>
</table>

UI Element (A-Z)	Description
Status	Select: ➤ **Active.** Select to activate the alert. If an alert is activated, BSM sends an alert notice when the trigger conditions defined in the alert occur. ➤ **Inactive.** Select to deactivate the alert. The alert calculation is deactivated, so BSM does not send an alert notice when the trigger conditions defined in the alert occur and the alert is not sent to the alerts log.
User Message	Enables you to type the message you want to include in the alert notice. **Limitation:** 1000 characters.

Tabs Area

Important information	This area includes the following tabs, that enable you to define an alert scheme: ➤ "Trigger Condition Tab" on page 568 ➤ "Filters Tab" on page 594 ➤ "Actions Tab" on page 602 ➤ "Advanced Settings Tab" on page 607

Definition Details Area

After you select the trigger condition in the Trigger Condition tab, the detailed condition is displayed in the **Definition Details** area under the Trigger Condition or Data Calculation areas with default conditions.

To specify the appropriate triggering condition, click the link included in each detailed condition listed in this area to open the specific dialog box where you can define the specific alert triggering condition.

The detailed conditions are described in each triggering condition description in the tab descriptions.

Trigger Condition Tab

This tab enables you to specify the conditions that trigger an alert and how to group the criteria.

The Trigger tab is displayed below the General area. For details, see "General Area" on page 566.

Important information	➤ The conditions displayed in the Trigger condition tab depend on the type of alert you selected when you clicked the **Create new alert** button or the **Edit alert** button: ➤ "BPM Transaction Alerts" on page 569 ➤ "RUM Application Alerts" on page 577 ➤ "RUM Event Alerts" on page 582 ➤ "RUM Transaction Alerts" on page 584 ➤ When you set alert filters, BSM considers trigger criteria within the context of the selected items only. ➤ Consider the following guidelines when specifying alert trigger criteria: ➤ Set your alerts to about 10-20% over your average times. ➤ Use the following values for transaction response time alert triggers: 4 seconds for general transactions, like loading a home page; 10 seconds for more complex transactions, like searching; 12 seconds for the most complex activities, like logging to the database. ➤ If you configure transaction thresholds of CIs to be similar to thresholds established in your organization's service level agreements, you can use threshold-based alerts to alert recipients to performance issues related to deviation from SLA criteria.
Wizard map	The Alert Wizard includes: **Trigger Condition Tab** > Filters Tab > Actions Tab > Advanced Settings Tab

BPM Transaction Alerts

This tab enables you to select how to trigger an alert based on an event related to the BPM transaction's performance and availability when you have selected a BPM Transaction Alert type in the Alert page. For example, you can send an alert when a transaction fails or exceeds a specified amount of time.

Important information	➤ Each time you select a trigger criteria in the Trigger Condition area in the upper part of the page, a statement detailing the corresponding condition criteria is added to the **Trigger Condition** section in the **Definition Details** area in the lower part of the page. The statement may include a link to a dialog box that enables you to specify the appropriate criteria for the triggering condition you selected. ➤ If you select multiple triggering conditions in the upper part of the page, the corresponding statements are listed in the **Trigger Condition** in the **Definition Details** area. ➤ If you select multiple, EUM alert trigger criteria, you also specify multiple-trigger condition properties.

User interface elements are described below:

➤ **End User Management Triggers:**

UI Element (A-Z)	Description
Transactions fail	To use the CI's transaction failure as a criteria. After selection, the following information is displayed in the **Trigger condition** section in the **Definition Details** area: **Send the alert if transactions fail when trigger conditions occur** <condition>. To open the Alert Frequency Criteria dialog box, click the <condition> link. For details, see "Alert Frequency Criteria Dialog Box" on page 555.

UI Element (A-Z)	Description
Transactions Response Time	To send an alert if the CI's transaction response time is greater or less than the specified amount of time, in seconds. After selection, the following information is displayed in the **Trigger condition** section in the **Definition Details** area: **Send the alert if transactions response time is** <condition> **when trigger conditions occur** <alert_frequency_criteria> To open the Response Time dialog box, click the <condition> link. For details, see "Response Time Dialog Box" on page 623. To open the Alert Frequency Criteria dialog box, click the <alert_frequency_criteria> link. For details, see "Alert Frequency Criteria Dialog Box" on page 555. Only completed transactions are considered for this alert trigger. If a transaction fails—that is, when it is not completed successfully—no alert is sent.

UI Element (A-Z)	Description
Transactions response time relative to configured thresholds	To send an alert if the CI's transaction response time is better or worse than the threshold. Only completed transactions are considered for this alert trigger. You can also anticipate the response time of the transaction by raising or lowering the threshold by a specified percentage. Threshold offsets are specified, per location, for the relevant CI in **Admin** > **End User Management** > **Monitoring**. For details on configuring the threshold, see "Edit Thresholds Dialog Box" on page 234. You specify the locations you want to filter in the Filters tab. For details, see "Filters Tab" on page 594. After selection, the following information is displayed in the **Definition Details** area: **Send the alert if transaction response time relative to configured threshold is** <as specified> **when trigger conditions occur** <alert_frequency_criteria> To open the Response Time Relative to Threshold dialog box, click the <as specified> link. For details, see "Response Time Relative to Threshold Dialog Box" on page 626. To open the Alert Frequency Criteria dialog box, click the <alert_frequency_criteria> link. For details, see "Alert Frequency Criteria Dialog Box" on page 555.

➤ **Time-Based Triggers:**

UI Element (A-Z)	Description
Availability	To send an alert if the availability of the CI's transactions is greater or less than the selected percentage, calculated over the selected time period. Availability is the number of times that transactions succeed as a percentage of the total number of transaction instances. After selection, the following information is displayed in the **Trigger condition** section in the **Definition Details** area: **Send the alert if availability is** <condition> **calculated over a** <time_period> **period** To open the Transaction Availability dialog box, click the <condition> link. For details, see "Transaction Availability Dialog Box" on page 639. To open the Calculated Time Period dialog box, click the <time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. The specified time period is used as a sliding window. Periodically (every minute), the system checks if the criteria is fulfilled for the last time period including the current minute. If the criteria is fulfilled, an alert notification is sent. To receive only one alert notification for the same alert event, select **Send no more than one alert as long as the conditions that triggered the alert continue to exist** in the Advanced Settings Tab on page 607.

UI Element (A-Z)	Description
Average transaction response time	To send an alert if the average response time of the CI's transactions is greater or less than the selected number of seconds, calculated over the selected time period. After selection, the following information is displayed in the **Definition Details** area: **Send the alert if the average response time is** <condition> **calculated over** a <calculated_time_period> **period** To open the Average Response Time dialog box, click the <condition> link. For details, see "Average Response Time Dialog Box" on page 610. To open the Calculated Time Period dialog box, click the <calculated_time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. The specified time period is used as a sliding window. Periodically (every minute), the system checks if the criteria is fulfilled for the last time period including the current minute. If the criteria is fulfilled, an alert notification is sent. To receive only one alert notification for the same alert event, select **Send no more than one alert as long as the conditions that triggered the alert continue to exist** in the Advanced Settings Tab on page 607.

UI Element (A-Z)	Description
Transaction response time for specified percentage of transactions	To send an alert if the response time of the CI's transactions is greater or less than the selected number of seconds, for the specified percentage of transactions, calculated over the selected time period. You can also select to count a minimum number of transactions over the calculated time period. After selection, the following information is displayed in the **Definition Details** area: **Send the alert if transaction response time relative to configured thresholds is** <as_specified> **calculated over a** <calculated_time_period> period To open the Response Time for Specified Percentage of Transactions dialog box, click the <as specified> link. For details, see "Response Time for Specified Percentage of Transactions Dialog Box" on page 624. To open the Calculated Time Period dialog box, click the <calculated_time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. Only completed transactions are considered for this alert trigger. The specified time period is used as a sliding window. Periodically (every minute), the system checks if the criteria is fulfilled for the last time period including the current minute. If the criteria is fulfilled, an alert notification is sent. To receive only one alert notification for the same alert event, select **Send no more than one alert as long as the conditions that triggered the alert continue to exist** in the Advanced Settings Tab on page 607.

UI Element (A-Z)	Description
Transaction response time relative to configured thresholds for specified percentage of transactions	To send an alert if the response time of the CI's transactions is better or worse than the selected transaction threshold, for the specified percentage of transactions, calculated over the selected time period. You can also select to treat the threshold value as better or worse than the set threshold, by a specified percentage for a specified minimum number of transactions over the calculated time period. After selection, the following information is displayed in the **Definition Details** area: **Send the alert if transactions response time relative to configured threshold for specified percentage of transactions is** <as specified> **calculated over a** <calculated_time_period> **period** To open the Response Time Relative to Threshold for Specified Percentage of Transactions dialog box, click the <as specified> link. For details, see "Response Time Relative to Threshold for Specified Percentage of Transactions Dialog Box" on page 627. To open the Calculated Time Period dialog box, click the <calculated_time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. Only completed transactions are considered for triggering this alert. The specified time period is used as a sliding window. Periodically (every minute), the system checks if the criteria is fulfilled for the last time period including the current minute. If the criteria is fulfilled, an alert notification is sent. To receive only one alert notification for the same alert event, select **Send no more than one alert as long as the conditions that triggered the alert continue to exist** in the Advanced Settings Tab on page 607.

➤ Data Grouping Area:

Important information	If you select the **Data Grouping** option in the upper part of the page, a statement detailing the corresponding grouping is added to the Data Grouping section in the **Definition Details** area in the lower part of the page. The statement includes a link to a dialog box that enables you to configure the data grouping.

User interface elements are described below:

UI Element (A-Z)	Description
Group data by the specified criteria	Select to group the data by the specified criteria. After selection, the following information is displayed in the Data Grouping section in the **Definition Details** area: **Group data by** <as_specified> To open the Data Grouping Configuration dialog box, click the link. For details, see "Data Grouping Dialog Box" on page 613.

RUM Application Alerts

This tab enables you to select how to trigger an alert based on an application's availability when you have selected a RUM Application Alert type in the Alert page. For example, you can send an alert when a request to a specific application fails or exceeds a specified amount of time.

Important information	➤ Each time you select a trigger criteria in the Trigger Condition area in the upper part of the page, a statement detailing the corresponding condition criteria is added to the **Trigger Condition** section in the **Definition Details** area in the lower part of the page. The statement includes a link to a dialog box that enables you to specify the appropriate criteria for the triggering condition you selected. ➤ If you select multiple triggering conditions in the upper part of the page, the corresponding statements are listed in the **Trigger Condition** in the **Definition Details** area. ➤ If you select multiple, EUM alert trigger criteria, you also specify multiple-trigger condition properties. **Note:** ➤ The **rum_application_stats_t** sample sent to BSM includes aggregated samples where each sample represents five minutes of data. For details on the sample, see "Sample: RUM Application Statistics (rum_application_stats_t)" in "Data Samples for Real User Monitor" in *Reports*. ➤ The **rum_tcp_application_stats_t** sample sent to BSM includes aggregated samples where each sample represents five minutes of data. For details on the sample, see "Sample: RUM Application Statistics (rum_application_stats_t)" in "Data Samples for Real User Monitor" in *Reports*.

User interface elements are described below:

➤ **Trigger Condition:**

UI Element (A-Z)	Description
Actions availability	To send an alert if the percentage of successful requests (for example, HTTP requests) to the application related to the alert, compared to the total number of application requests, is less than or greater than the specified percentage, calculated over the selected time period. After selection, the following information is displayed in the **Definition Details** area: **Send the alert if actions availability is** <condition> **percent** **calculated over a** <time_period> **period** To open the Actions Availability dialog box, click the <condition> link. For details, see "Actions Availability Dialog Box" on page 553. To open the Calculated Time Period dialog box, click the <time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. Only completed transactions are considered when triggering this alert. **Note:** The **rum_application_stats_t** sample sent to BSM includes aggregated samples where each sample represents five minutes of data. For details on the sample, see "Sample: RUM Application Statistics (rum_application_stats_t)" in "Data Samples for Real User Monitor" in *Reports*.
All of the above trigger conditions are met	This additional trigger condition is enabled when you select more than one trigger conditions. Select to send an alert if all the trigger conditions you selected are met. The selected statements in the **Definition Details** area are separated by **and**.

UI Element (A-Z)	Description
Any of the above trigger conditions are met	This additional trigger condition is enabled when you select more than one trigger condition. Select to send an alert if any (one or more) of the trigger conditions you selected are met. The selected statements in the **Definition Details** area are separated by **or**.

UI Element (A-Z)	Description
Network connections availability	To send an alert if the percentage of successfully created TCP connections compared to the total number of created connections is less than or greater than the specified percentage, calculated over the selected time period. After selection, the following information is displayed in the **Definition Details** area: **Send the alert if network connections availability is** <condition> **percent** **calculated over a** <time_period> **period** To open the Network Connections Availability dialog box, click the <condition> link. For details, see "Network Connections Availability Dialog Box" on page 622. To open the Calculated Time Period dialog box, click the <time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. Only completed transactions are considered when triggering this alert. **Note:** The trigger is calculated using the values of the **availability** and **tot_connection** fields in the **rum_tcp_application_stats_t** sample sent to BSM, which includes aggregated samples where each sample represents five minutes of data. The availability of the network connection is calculated as the (**availability/tot_connection)x100** where and **availability** represents the number of available network connections, and **tot_connection** represents the number of connections that opened in the selected time period. **Note:** The **rum_tcp_application_stats_t** sample sent to BSM includes aggregated samples where each sample represents five minutes of data. For details on the sample, see "Sample: RUM Application Statistics (rum_application_stats_t)" in "Data Samples for Real User Monitor" in *Reports*.

➤ **Data Grouping Area:**

Important information	If you select a type of Data Grouping in the upper part of the page, a statement detailing the corresponding grouping is added to the Data Calculation section in the **Definition Details** area in the lower part of the page. The statement includes a link to a dialog box that enables you to configure the data grouping.

User interface elements are described below:

UI Element (A-Z)	Description
Group data by the specified criteria	Select to group the data (for the selected CI) by the specified criteria. After selection, the following information is displayed in the Data Calculation section in the **Definition Details** area: **Group data by** <as_specified>**.** Click the link to open the Data Grouping Configuration dialog box. For details, see "Data Grouping Dialog Box" on page 613.

RUM Event Alerts

This tab enables you to select how to trigger the alert based on the event automatically created by an incoming sample when you have selected a RUM Event Alert type in the Alert page. For example, you can send an alert when a transaction fails or exceeds a specified amount of time.

Important information	➤ Each time you select a trigger criteria in the Trigger Condition area in the upper part of the page, a statement detailing the corresponding condition criteria is added to the **Trigger Condition** section in the **Definition Details** area in the lower part of the page. The statement includes a link to a dialog box that enables you to specify the appropriate criteria for the triggering condition you selected. ➤ If you select multiple triggering conditions in the upper part of the page, the corresponding statements are listed in the **Trigger Condition** in the **Definition Details** area. ➤ If you select multiple, EUM alert trigger criteria, you also specify multiple-trigger condition properties.

User interface elements are described below:

➤ **Trigger Condition:**

UI Element (A-Z)	Description
For every occurrence	To send an alert each time an event is created by an incoming sample. After selection, the following information is displayed in the **Trigger Condition** section in the **Definition Details** area: **Send alert if the Real User Monitor event occurs** **Example:** The alert is sent as soon as the sample of a RUM event arrives in the Metric Processing Subsystem.

UI Element (A-Z)	Description
For the specified frequency	To send an alert each time an event is created by an incoming sample and the event occurs at least the specified number of time within a specified time-period. After selection, the following information is displayed in the **Trigger Condition** section in the **Definition Details** area: **Send alert if the Real User Monitor event occurs with a** <frequency> **of at least** <nn> **times within a** <tt> <time unit> **period** To open the Event Frequency Settings dialog box, click the <frequency> link. For details, see "Event Frequency Settings Dialog Box" on page 619. **Example:** The alert is sent as soon as the sample of the RUM event arrives in the Metric Processing Subsystem 5 times in 5 minutes.

➤ Data Grouping Area:

Important information	If you select a type of Data Grouping in the upper part of the page, a statement detailing the corresponding grouping is added to the Data Calculation section in the **Definition Details** area in the lower part of the page. The statement includes a link to a dialog box that enables you to configure the data grouping.

User interface elements are described below:

UI Element (A-Z)	Description
Group data by the specified criteria	Select to group the data (for the selected CI) by the specified criteria. After selection, the following information is displayed in the Data Calculation section in the **Definition Details** area: **Group data by** <as_specified>**.** Click the link to open the Data Grouping Configuration dialog box. For details, see "Data Grouping Dialog Box" on page 613.

RUM Transaction Alerts

This tab enables you to select how to trigger the alert based on an event related to the RUM transaction's performance and availability when you have selected a RUM Transaction Alert type in the Alert page. For example, you can send an alert when a transaction fails or exceeds a specified amount of time.

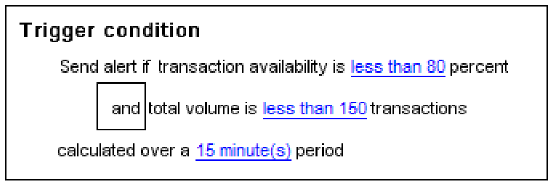
Important information	➤ Each time you select a trigger criteria in the Trigger Condition area in the upper part of the page, a statement detailing the corresponding condition criteria is added to the **Trigger Condition** section in the **Definition Details** area in the lower part of the page. The statement includes a link to a dialog box that enables you to specify the appropriate criteria for the triggering condition you selected. ➤ If you select multiple triggering conditions in the upper part of the page, the corresponding statements are listed in the **Trigger Condition** in the **Definition Details** area. ➤ If you select multiple, EUM alert trigger criteria, you also specify multiple-trigger condition properties.

User interface elements are described below:

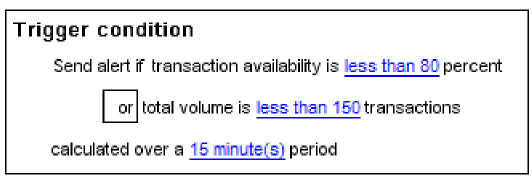
➤ **Trigger Condition:**

<table>
<tr><th>UI Element (A-Z)</th><th>Description</th></tr>
<tr><td>All of the above trigger conditions are met</td><td>This additional trigger condition is enabled when you select one or more trigger conditions.

Select to send an alert if all the trigger conditions you selected are met. The selected statements are separated by and.


</td></tr>
<tr><td>Any of the above trigger conditions are met</td><td>This additional trigger condition is enabled when you select one or more trigger conditions.

Select to send an alert if any (one or more) of the trigger conditions you selected is met. The selected statements are separated by or.


</td></tr>
</table>

UI Element (A-Z)	Description
Transaction availability	To send an alert if the availability of the CI's transactions is greater or less than the selected percentage, calculated over the selected time period. Availability is the number of times that transactions succeed as a percentage of the total number of transaction instances. After selection, the following information is displayed in the **Trigger Condition** section in the **Definition Details** area: **Send an alert if transaction availability is** <condition> **percent** **calculated over a** <calculated_time_period> **period** To open the Transaction Availability dialog box, click the <condition> link. For details, see "Transaction Availability Dialog Box" on page 639. To open the Calculated Time Period dialog box, click the <calculated_time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. **Example:** When the criteria is fulfilled five minutes after the start of the time period (15 minutes), a check performed at 16 minutes after the start of the time period finds the criteria fulfilled and sends an alert. The same test is then performed every minute after that, and finds that the criteria is fulfilled five times, up to the 21st minute after the start of the time period. At the 22nd minute after the start of the time period, the criteria is not fulfilled any more.

UI Element (A-Z)	Description
Transaction performance - percentage of transactions with breached gross transaction response time	To send an alert if the network and application response time for the specified percentage of the CI's transactions has breached the conditions, per sampling period. After selection, the following information is displayed in the **Trigger Condition** section in the **Definition Details** area: **Send alert if percentage of transactions with breached gross transaction response time is** <condition> **percent** **calculated over a** <calculated_time_period> **period** To open the Transaction Gross Response Time dialog box, click the <condition> link. For details, see "Transaction Gross Response Time Dialog Box" on page 640. To open the Calculated Time Period dialog box, click the <calculated_time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. Only completed transactions are considered when triggering this alert.

UI Element (A-Z)	Description
Transaction performance - percentage of transactions with breached net transaction response time	To send an alert if the network response time for the specified percentage of the CI’s transactions corresponds to the conditions, per sampling period. After selection, the following information is displayed in the **Trigger Condition** section in the **Definition Details** area: **Send alert if percentage of transactions with breached net transaction response time is** <condition> **percent** **calculated over a** <calculated_time_period> **period** To open the Transaction Net Response Time dialog box, click the <condition> link. For details, see "Transaction Net Response Time Dialog Box" on page 640. To open the Calculated Time Period dialog box, click the <calculated_time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. Only completed transactions are considered when triggering this alert.

UI Element (A-Z)	Description
Transaction performance - percentage of transactions with breached server transaction response time	To send an alert if the server response time for the specified percentage of the CI's transactions has breached the conditions, per sampling period. After selection, the following information is displayed in the **Trigger Condition** section in the **Definition Details** area: **Send alert if percentage of transactions with breached server transaction response time is** <condition> **percent** **calculated over a** <calculated_time_period> **period** To open the Transaction Server Response Time dialog box, click the <condition> link. For details, see "Transaction Server Response Time Dialog Box" on page 641. To open the Calculated Time Period dialog box, click the <calculated_time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. Only completed transactions are considered when triggering this alert.
Transaction volume - all	To send an alert if the CI's total transaction volume corresponds to the conditions, per sampling period. After selection, the following information is displayed in the **Trigger Condition** section in the **Definition Details** area: **Send transaction if total volume is** <condition> **transactions** **calculated over a** <calculated_time_period> **period** To open the Total Transaction Volume, click the <condition> link. For details, see "Total Transaction Volume Dialog Box" on page 638. To open the Calculated Time Period dialog box, click the <calculated_time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. Only completed transactions are considered when triggering this alert.

UI Element (A-Z)	Description
Transaction volume - completed	To send an alert if the volume of the CI's completed transactions corresponds to the conditions, calculated over the selected time period. After selection, the following information is displayed in the **Trigger Condition** section in the **Definition Details** area: **Send transaction if completed volume is** <condition> **transactions** **calculated over a** <calculated_time_period> **period** To open the Completed Transaction Volume dialog box, click the <condition> link. For details, see "Completed Transaction Volume Dialog Box" on page 613. To open the Calculated Time Period dialog box, click the <calculated_time_period> link. For details, see "Calculated Time Period Dialog Box" on page 611. Only completed transactions are considered when triggering this alert.

➤ Data Grouping Area

Important information	If you select a type of Data Grouping in the upper part of the page, a statement detailing the corresponding grouping is added to the Data Calculation section in the **Definition Details** area in the lower part of the page. The statement includes a link to a dialog box that enables you to configure the data grouping.

User interface elements are described below:

UI Element (A-Z)	Description
Group data by the specified criteria	Select to group the data (for the selected CI) by the specified criteria. After selection, the following information is displayed in the Data Calculation section in the **Definition Details** area: **Group data by** <as_specified>. Click the link to open the Data Grouping Configuration dialog box. For details, see "Data Grouping Dialog Box" on page 613.

Examples of Triggering Conditions

An EUM alert is triggered, every time a sample arrives on the bus, when the triggering condition on the transaction response time, availability, success or failure, or completion time status is met and when the received sample also meets the condition.

This section provides two detailed examples of triggering conditions.

Example 1

The alert scheme definition is: trigger an alert if the transaction response time is greater than 10 seconds in at least 2 out of 4 occurrences.

The alert scheme definition includes a follow up alert.

The received samples include the following data:

Response time in sample	Condition met	Condition met in sample	Alert is triggered?
12 seconds	No 1 alert out of 1	Yes	No
11 seconds	Yes 2 alerts out of 2	Yes	Yes

Response time in sample	Condition met	Condition met in sample	Alert is triggered?
5 seconds	Yes 2 alerts out of 3	No Response time in sample is 5 and does not meet the alert scheme condition.	No
20 seconds	Yes 3 alerts out of 4	Yes	Yes
4 seconds	Yes 2 alerts out of 4	No Response time in sample is 4 and does not meet the alert scheme condition.	No
7 seconds	No 1 alert out of 4 Condition was met until the new sample arrived.	No The new sample does not meet the condition.	No The follow-up alert is triggered.

Example 2

The alert scheme definition is: RUM Page availability is less than 80% in the past 10 minutes.

You also create a follow up alert.

The received samples include the following data:

Total hits	Availability	Condition met?	Condition met in sample?	Alert is triggered?
10	1 (10% availability)	Yes	Yes	Yes

Total hits	Availability	Condition met?	Condition met in sample?	Alert is triggered?
10	9 (90% availability)	Yes Average availability over the two samples is (90% + 10%)/2= 50%).	No Sample availability is 90%	No
100	100 (100% availability)	No Average availability over the three samples is 92%	No Sample availability is 100%	No The follow-up alert is triggered although the previous sample did not trigger an alert. The reason is that the condition was met until the new sample arrived.

Filters Tab

This tab enables you to filter the data used to calculate the alert.

The Trigger tab is displayed below the General area. For details, see "General Area" on page 566.

Important information	The conditions displayed in the Filters tab depend on the type of alert you selected when you clicked the **Press to create new alert** button or the **Press to edit alert** button: ➤ "BPM Transaction Alerts" on page 595 ➤ "RUM Application Alerts" on page 596 ➤ "RUM Event Alerts" on page 598 ➤ "RUM Transaction Alerts" on page 600 When you select a filter, the corresponding filter definition statement is added to the **Filter data** section in the **Definition Details** area. Depending on the filter you select, the **Filter data** area displays different information. The statement includes a link to a dialog box that enables you to specify the appropriate criteria for the triggering condition you selected. You can combine one or more filters. You can define a filter for the alert only if the alert is created for an Application CI: ➤ Select such a CI in the CI selection area when you define the alert using the Monitoring tab. ➤ Select an Application CI in the Alert Wizard when defining an alert using the Alerts tab.
Wizard map	The Alert Wizard includes: Trigger Condition Tab > **Filters Tab** > Actions Tab > Advanced Settings Tab

BPM Transaction Alerts

This tab enables you to select how to filter the alert based on an event related to the BPM transaction's performance and availability. This list of filters is displayed when you have selected a BPM Transaction Alert type in the Alert page.

User interface elements are described below:

UI Element (A-Z)	Description
Locations	Select to send an alert if the alert trigger criteria are met for the specified locations. By default, alerts are sent when alert trigger criteria are met for any location. The locations can be specified per CI in **Admin** > **Platform** > **Locations**. For details on the user interface, see "Location Manager Page" in *Platform Administration*. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit to locations** <as_specified> To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.
Transactions	Select to send an alert if the alert trigger criteria are met for the specified transactions. By default, alerts are sent when alert trigger criteria are met for any transaction. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit alert to the** <specified> **transactions** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.

RUM Application Alerts

This tab enables you to select how to filter an alert based on an application's performance and availability. The filters listed in the page are displayed when you have selected a RUM Application Alert type in the Alert page.

User interface elements are described below:

UI Element (A-Z)	Description
End user subnets	Select to send an alert if the alert trigger criteria are met for the specified end user subnet. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit alert to the** <specified> **end user subnet** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.
End-user groups	Select to send an alert if the alert trigger criteria are met for the specified end-user groups. After selection, the following information is displayed in the Filter section in the **Definition Details** section: **Limit the alert to** <specified> **end-user groups** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.
Locations	Select to send an alert if the alert trigger criteria are met for the specified locations. The locations can be specified per CI in **Admin** > **Platform** > **Locations**. For details on the user interface, see "Location Manager Page" in *Platform Administration*. After selection, the following information is displayed in the Filter section in the **Definition Details** section: **Limit the alert to** <specified> **locations** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.

UI Element (A-Z)	Description
Servers	Select to send an alert if the alert trigger criteria are met for the specified servers. After selection, the following information is displayed in the Filter section in the **Definition Details** section: **Limit the alert to** <specified> **servers** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.
Software elements	Select to send an alert if the alert trigger criteria are met for the specified software elements. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit alert to the** <specified> **software elements** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.
Tiers	Select to send an alert if the trigger alert criteria are met for the specified tiers. After selection, the following information is displayed in the Filter section in the **Definition Details** section: **Limit the alert to** <specified> **tiers** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634. For details about tiers, see "Application Monitoring Tiers Area" on page 410.

RUM Event Alerts

This tab enables you to select how to filter the alert based on a RUM event related to the RUM transaction's performance and availability. The filters listed in the page are displayed when you have selected a RUM Event Alert type in the Alert page.

User interface elements are described below:

UI Element (A-Z)	Description
End-user groups	Select to send an alert if the alert trigger criteria are met for the specified end user groups. By default, alerts are sent when alert trigger criteria are met for any event. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit the alert to the** <specified> **end-user groups** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634. **Note:** You cannot define follow-up alerts for end user groups.
Event category	Select to send an alert if the alert trigger criteria are met for the specified event category. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit the alert to the** <specified> **event categories** To open the Select Event Categories dialog box, click the link. For details, see "Select Event Categories Dialog Box" on page 633. **Note:** The Performance classification is the default option (it is available for all events including automatic events).

UI Element (A-Z)	Description
Event data	Select to send an alert if the alert trigger criteria are met for the specified event data values. Use this trigger if you have defined Text Pattern EventsEvent Data Values Dialog Box on page 618. The Alert application checks the contents of the Event Data field in the sample. If the contents correspond to the value defined in the DATA field in the Add Event Data Values dialog box, the event is taken into consideration in the calculation of the alert. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit the alert to the** <specified> **event data values** To open the Add event Values/Add event Data Value dialog box, click the link. For details, see "Event Data Values Dialog Box" on page 618.
Events	Select to send an alert if the alert trigger criteria are met for the specified RUM events. After selection, the following information is displayed in the **Filter** area in the **Description Details** area in the Filters tab: **Limit the alert to the** <specified> **events** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634. **Note:** The events listed in the Filter Conditions dialog box are the default RUM application events, the HTTP error events, and the RUM events you configured in the Global and Selective Events page accessed by clicking the **Real User Monitor** tab in the **Monitoring** tab for the selected CI.

UI Element (A-Z)	Description
Locations	Select to send an alert if the alert trigger criteria are met for the specified locations. After selection, the following information is displayed in the Filter section in the **Definition Details** section: **Limit the alert to** <specified> **locations** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.
Servers	Select to send an alert if the alert trigger criteria are met for the specified servers. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit the alert to the** <specified> **servers** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.

RUM Transaction Alerts

This tab enables you to select how to filter the alert based on a RUM event related to the RUM transaction's performance and availability. The filters listed in the page are displayed when you have selected a RUM Transaction Alert type in the Alert page.

User interface elements are described below:

UI Element (A-Z)	Description
End user groups	Select to send an alert if the alert trigger criteria are met for the specified end user groups. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit alert to the** <specified> **end user groups** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.

UI Element (A-Z)	Description
End user subnets	Select to send an alert if the alert trigger criteria are met for the specified end user subnet. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit alert to the** <specified> **end user subnet** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.
Locations	Select to send an alert if the alert trigger criteria are met for the specified locations. After selection, the following information is displayed in the Filter section in the **Definition Details** section: **Limit the alert to** <specified> **locations** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.
Servers	Select to send an alert if the alert trigger criteria are met for the specified servers. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit alert to the** <specified> **servers** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.
Software elements	Select to send an alert if the alert trigger criteria are met for the specified software elements. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit alert to the** <specified> **software elements** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.

UI Element (A-Z)	Description
Transactions	Select to send an alert if the alert trigger criteria are met for the specified transactions. After selection, the following information is displayed in the **Filter data** area in the **Description Details** area in the Filters tab: **Limit alert to the** <specified> **transactions** To open the Select Filter dialog box, click the link. For details, see "Select Filter Dialog Box" on page 634.

Actions Tab

This tab enables you to specify the actions that BSM takes when alert trigger criteria and filter criteria are met. A sample is processed by Alert Engine immediately as it arrives to BSM, the alert actions are executed 60 seconds after the alert was triggered.

The Trigger tab is displayed below the General area. For details, see "General Area" on page 566.

Important information	When you select an action, the **Actions** area is added to the **Definition Details** area. You can select one or more actions. You can select one or more of the following actions: ➤ Send an alert to specified recipients. ➤ Access URLs. ➤ Send an SNMP trap. ➤ Run an executable file. ➤ Log an event in the Windows Event Viewer application log.
Wizard map	The Alert Wizard includes: Trigger Condition Tab > Filters Tab > **Actions Tab** > Advanced Settings Tab

Recipients Area

User interface elements are described below:

UI Element (A-Z)	Description
Send alert to specified recipients	Sends an alert notice to selected recipients when an alert is triggered. After selection, the following information is displayed in the **Actions** area in the **Description Details** area in the Actions tab: **Send alert to** <specified_recipients> Click the link to open the Select Recipients dialog box, where you can select the recipients of the alert notices. For details, see "Select Recipients Dialog Box" on page 634.

Event Creation Area

User interface elements are described below:

UI Element (A-Z)	Description
Generate Event	Enables the creation of an event, when the alert is triggered. The event details are mapped to the alert details according to a template. You can customize the template. For details, see "Template Repository Dialog Box" on page 653. The event is available in HP Operations Manager, and Operations Manager *i*. For details, see "Generate Events in HP Operations Manager when BSM Alert is Triggered" in *Solutions and Integrations*. When the checkbox is selected: ➤ **Event Template.** The default template is used. It is selected and configured in the Template Repository. For user interface details, see "Template Repository Dialog Box" on page 653. ➤ **Event Type Indicator.** The default values depend on the alert type and the trigger selection. It is possible that the default value is empty. For user interface details, see "Event Type Indicator Dialog Box" on page 620. After selection, the following information is displayed in the **Actions** area in the **Description Details** area in the Actions tab: **Generate event with** <default_template_name> **template and** <default_values> **Event Type Indicator** Click <default_template_name> to open the <alert_type> Template Repository dialog box where you can change the default and map the alert to an event. For details, see "Template Repository Dialog Box" on page 653. Click <default_values> to open the "Event Type Indicator Dialog Box" on page 620 where you can modify the default values.

External Actions Area

Important information	The permissions to change, view, delete, or execute external actions (executable files, send SNMP traps, or log to Event Viewer) are set separately from the permissions to change, view, delete, or execute the EUM alerts. For details on modifying the permissions for the external actions, access **Admin** > **Platform** > **Users and Permissions** > **User Management**, and for the relevant user select the **Platform** context and set the permissions for the external actions.

User interface elements are described below:

UI Element (A-Z)	Description
Access URLs	Select to specify that you want to access specified URLs when the alert trigger criteria are met. Accessing the URL provides the capability to send alerts through a Web site (for example, using Active Server Pages, CGI, or Perl). The URL can activate an executable program on a Web server, report to a custom database, activate a Web-based fax service, and so on. You can develop custom pages or use existing ones. After selection, the following information is displayed in the **Actions** area in the **Description Details** area in the Actions tab: **Access the URLs** <as_specified> Click the link to open the Access URLs dialog box, where you can enter the URL or select an existing URL. For details, see "Access URLs Dialog Box" on page 552. **Note:** BSM supports the GET method only when accessing a URL. If your Web server supports only the POST method, or if you want more information on developing custom Web pages for your server, contact your HP Software Support representative.

UI Element (A-Z)	Description
Log to Event Viewer application log (Windows only)	Select to log the event that triggered the alert to the Windows Event Viewer application log when an alert is triggered. After selection, the following information is displayed in the **Actions** area in the **Description Details** area in the Actions tab: **Log** <as_specified> **to Event Viewer application log** Click the link to open the Log Event dialog box, where you configure the event type, ID, category, and description (standard Event Viewer categories). For details, see "Log Event Dialog Box" on page 621. **Note:** If the Data Processing Server is not installed on a Windows-based machine, HP Business Service Management cannot execute this alert action.
Run executable file	Select to run a predefined or custom executable file (for example, a **.exe** or **.bat** file for the Windows operating system and **.sh** file for the UNIX operating system) when an alert is triggered. The executable file must not be interactive (no user response required) and should not have a user interface. After selection, the following information is displayed in the **Actions** area in the **Description Details** area in the Actions tab: **Run executable file** <as_specified> Click the link to open the Run Executable File dialog box, where you can specify the location and the type of the executable file. For details, see "Run Executable File Dialog Box" on page 629.

UI Element (A-Z)	Description
Send SNMP trap	Select to specify that you want to send an SNMP trap when an alert is triggered. The alert notice can then be seen through any SNMP management console in the organization. After selection, the following information is displayed in the **Actions** area in the **Description Details** area in the Actions tab: **Send SNMP trap to** <as_specified> Click the link to open the Target IPs List dialog box, where you can specify information about the SNMP servers. For details, see "Target IPs List Dialog Box" on page 636. **Note:** HP Business Service Management supports only SNMP V1 traps. For details on configuring the Alerts MIB in your SNMP management console, see "How to Configure the Alert MIBs" on page 537.

Advanced Settings Tab

This area enables you to specify additional alert settings and review your alert scheme before saving it.

The Trigger tab is displayed below the General area. For details, see "General Area" on page 566.

Important information	You can: ➤ Send a follow-up alert and to run an executable file when the follow-up alert is triggered. ➤ Define the alert dependencies. ➤ Specify the alert notification frequency.
Wizard map	The Alert Wizard includes: Trigger Condition Tab > Filters Tab > Actions Tab > **Advanced Settings Tab**

Send Notification of Clear Alert Area

User interface elements are described below:

UI Element (A-Z)	Description
Override the original executable file when the clear alert is sent	To override the executable file associated with the alert and to run instead the executable file specified for the clear alert notification. After selection, the following information is displayed in the **Clear alert** section in the **Definition Details** area: **Override the original executable file when the clear alert is sent** <as_specified> Click the link to open the Run Executable File dialog box, where you enter the URL or select an existing URL. For details, see "Run Executable File Dialog Box" on page 629. **Note:** You can select this option only when you have selected the **Send notification of clear alert**.
Send clear (follow up) alert notification	To enable the ability to send a notification that the alert's status has improved. After selection, the following information is displayed in the **Clear alert** section in the **Definition Details** area: **Send notification of clear alert**

Dependencies Area

User interface elements are described below:

UI Element (A-Z)	Description
Make alerts dependents of current alerts	Select to specify that you want to make the current alert dominant over other alerts. After selection, the following information is displayed in the **Dependencies** section in the **Definition Details** area: **Make the** <specified> **alerts dependents of current alert** Click the link to open the Select Dependent Alerts dialog box, where you can select the dependent alerts. For details, see "Select Dependent Alerts Dialog Box" on page 632. **Note:** For details on alert dependencies, see "Alerts Dependency" on page 528.

Notification Frequency Area

This area enables you to select the notification frequencies.

Important information	Every minute, the system checks if the criteria is fulfilled for the specified time period. If it is, an alert notification is sent. To receive only one alert notification for the same alert event, select **Send no more than one alert as long as the conditions that triggered the alert continue to exist** in the Settings tab.

User interface elements are described below:

UI Element (A-Z)	Description
Send alert for every triggered occurrence	Select the option to send an alert every time trigger conditions exist.

UI Element (A-Z)	Description
Send no more than one alert as long as the conditions that triggered the alert continue to exist	Select the option to send no more than one alert notice as long as the conditions that triggered the alert continue to exist. **Example:** If you select this option, from the moment alert trigger conditions exist and HP Business Service Management sends the alert, an additional alert is not sent as long as the conditions that triggered the alert continue to exist.
Send no more than one alert for every <mixed_values> <time_period>	Select the option to send no more than one alert over each specified time period, even if the alert trigger conditions continue to exist during the entire time period. **Example:** If you instruct HP Business Service Management to send no more than one alert notice per 60 minutes, from the moment alert trigger conditions exist and HP Business Service Management sends the alert, HP Business Service Management waits 60 minutes before sending another alert. If, after the 60 minutes, the conditions that triggered the alert continue to exist, another alert is sent.

Average Response Time Dialog Box

This dialog box enables you to specify the average response time trigger criteria.

To access	Click the link in **Send an alert if average response time is** <condition> in the **Trigger condition** area in the **Description Details** area in the Trigger Condition tab in the Alert Wizard.
Important information	An alert is triggered if the average transaction response time is greater or less than the selected number of seconds, calculated over the selected time period. Only completed transactions are considered when triggering this alert.

User interface elements are described below:

UI Element (A-Z)	Description
Average response time is <condition> <nn> seconds	Select the required criteria. **Example:** Select **greater than** and **10** to instruct BSM to send the alert if average response time is greater than 10 seconds, over the calculated time period.

Calculated Time Period Dialog Box

This dialog box enables you to specify the time period during which the transactions availability and performance are calculated and compared to the triggering criteria.

To access	Click the link of **Calculate over <calculated_time_period>** in the Alert Description area of the Trigger Criteria tab in the Alert Wizard.

User interface elements are described below:

UI Element (A-Z)	Description
Calculate over <nn> <time period>	Specify the time period. You can select up to **525600 minutes**, **721 hours**, or **30 days**. **Example:** ➤ **Transaction availability** time-based trigger, select **15** and **minute(s)** to send the alert if transaction availability is less than 95 percent, over a five minute-period. ➤ **Transaction Response Time for Specified Percentage of Transactions** time-based trigger, select **2** and **hour(s)** to send the alert if the response time is greater than 7 seconds for 50 percent of all transaction instances that occur over a 2-hour period, but only if there were at least 50 transaction instances during the 2 hours. ➤ **Transaction Response Time Relative to Threshold for Specified Percentage of Transactions** time-based trigger, select **2** and **hour(s)** to send the alert if the response time is worse than the set threshold (treated as 10 percent better than the set value) for 90 percent of transaction instances that occur over a 2-hour period, but only if there were at least 100 transaction instances during the 2 hours. ➤ **Average Transaction Response Time** time-based trigger, select **2** and **hour(s)** to send the alert if average response time is greater than 10 seconds, over a 2-hour period. **Note:** Because the wider the time interval, the smaller the trigger calculation accuracy, the actual calculation time period to be smaller than the requested one. For example, for a 15 minute interval, the last sentence in the Current Description in the Alert Details report is as follows, if Sun May 16 3:45:53 PM is the time of the last sample that triggered the alert: Alert calculated between Sun May 16 3:31:30 PM 2010 (IDT) (+0300) and Sun May 16 3:45:53 PM 2010 (IDT) (+0300)

Completed Transaction Volume Dialog Box

This dialog box enables you to specify the conditions on the completed transaction volume. The alert is triggered if the number of completed transaction runs is less than or greater than the specified number of transactions, calculated over the selected time period.

To access	Click the link in **Send transaction if completed volume is** <condition> **transactions** in the Trigger Criteria page of the Alert Wizard.

User interface elements are described below:

UI Element (A-Z)	Description
Send alert if completed volume is <condition> <nn> transactions	Select the required criteria. **Example:** Select **less than** and **80** to send the alert if there were fewer than 80 completed transaction runs, over the calculated time period. For details on how to set the calculated time period, see "Calculated Time Period Dialog Box" on page 611.

Data Grouping Dialog Box

This dialog box enables you to select the criteria by which the data is grouped.

To access	Click the link in **Group data by** <as_specified> in the Data Grouping page of the Alert Wizard.
Important information	The user interface depends on the type of alert you are defining. **Example:** Grouping data by transaction means that data is collected and calculated separately for each transaction type.

BPM Transaction Alert

User interface elements are described below:

UI Element (A-Z)	Description
Location	The performance data is grouped by the location of the host machine that runs the transactions that trigger the event. The location of the host machine is specified during BPM installation.
Script	The performance data is grouped by script.
Transaction	The performance data is grouped by transactions.

RUM Application Alert

User interface elements are described below:

UI Element (A-Z)	Description
End user	The performance data is grouped by the end users who access the application.
Location	The performance data is grouped by the location of the end users who access the applications.
Server	The performance data is grouped by the servers where the applications are running.
Software element	The performance data is grouped by software elements. The software elements are programs installed on the server and used by the application.

RUM Event Alert

User interface elements are described below:

UI Element (A-Z)	Description
Category	The performance data is grouped by category. Category can be: error, info, or performance.
End user	The performance data is grouped by end user.
Event	The performance data is grouped by event.
Location	The performance data is grouped by location. This represent the location from where the users access the applications.
Server	The performance data is grouped by server.
Software element	The performance data is grouped by software elements. The software elements are programs installed on the server and used by the application.

RUM Transaction Alert

User interface elements are described below:

UI Element (A-Z)	Description
End user	The performance data is grouped by end users.
Location	The performance data is grouped by location. This represent the location from where the users access the applications.
Transaction	The performance data is grouped by transactions.

Dependencies Dialog Box

This dialog box enables you to list the dominant alerts and their dependent alerts.

To access	Click the **View the dependencies defined between the alerts** button in the Alerts page.
See also	"Alerts Dependency" on page 528

User interface elements are described below:

UI Element (A-Z)	Description
Dependent Alert CI	The name of the CI associated to the dependent alert.
Dependent Alert Name	The name of the dependent alert.
Dominant Alert CI	The name of the CI associated to the dominant alert.
Dominant Alert Name	The name of the dominant alert.
Time Limit	The time limit for each alert you designate as dependent. When a time limit is defined, the actions of the dependent alert are suppressed as long as the conditions that triggered the dominant alert remain true—but only until the time limit expires. The clock starts running on the time limit from the moment the dominant alert is triggered.

Detach Recipients Dialog Box

This dialog box enables you to detach recipients attached to an alert.

To access	Select one or more alerts in the table in the Alerts page, and click the **Detach recipients** button.

User interface elements are described below:

UI Element (A–Z)	Description
	**Edit recipient.** Opens the User Management main page where you can edit the details of the selected recipient. For details, see "User Management Main Page" in *Platform Administration*.
	Moves the selected recipients from the **Recipients in Selected Alerts** column to the **Selected Recipients to Detach** column.
	Moves all the recipients from the **Recipients in Selected Alerts** columns to the **Selected Recipients to Detach** column.
	Moves the selected recipients from the **Selected Recipients to Detach** column to the **Recipients in Selected Alerts** columns.
	Moves all the recipients from the **Selected Recipients to Detach** column to the **Recipients in Selected Alerts** columns.
Detach	If you selected: ➤ **One alert.** The **Recipients in Selected Alerts** column displays a list of recipients that are attached to the alert. Select one or more recipients and move them to the **Selected Recipients to Detach** column using the arrow buttons and click **Detach** to detach these recipients from the selected alert. ➤ **More than one alert.** The **Recipients in Selected Alerts** column displays a list of all the recipients attached to the selected alerts. Select one or more recipients and move them to the **Selected Recipients to Detach** column using the arrow buttons and click **Detach** to detach these recipients from the selected alerts.

UI Element (A–Z)	Description
Recipients in Selected Alerts	Lists the name, email, SMS, or Pager number of the recipients attached to the alerts. The table indicates that the recipient definition includes (**checkmark** or does not include (**hyphen**) email, pager, and SMS information.
Selected Recipients to Detach	Lists the name, email, SMS, or Pager number of the selected recipient to be detached from the alert. The table indicates that the recipient definition includes (**checkmark** or does not include (**hyphen**) email, pager, and SMS information.

Event Data Values Dialog Box

This dialog box enables you to specify the value of an event data that is used as the criteria for the triggering of the corresponding alert.

To access	Use one of the following: ➤ **Admin** > **End User Management** > **Monitoring**, select the view and the CI in the left pane, click the **Alerts** tab, and click the **Press to create new alert** button to open a list of alert types. Select one of the listed types of alerts. In the **Filters** tab, select **Event data**, and click the link in **Limit the alert to event data values**. ➤ **Admin** > **End User Management** > **Monitoring**, select the view and the CI in the left pane, click the **Alerts** tab, and select one of the alerts, and click the **Press to edit alert** button. In the **Filters** tab, select **Event data**, and click the link in **Limit the alert to event data values**. ➤ Double-click the alert. In the **Filters** tab, select **Event data**, and click the link in **Limit the alert to event data values**.

User interface elements are described below:

UI Element (A–Z)	Description
	**Add event data value.** Opens the Add Event Data Value dialog box, where you can enter the value of the event data.
	**Edit event data value.** Select the relevant value in the list of values and click the button to open the Edit Event Data Value dialog box, where you can edit the value of the event data.
	**Remove event data value.** Select the relevant values in the list of values and click the button to remove the values from the list.

Event Frequency Settings Dialog Box

This dialog box enables you to select the frequency of event occurrence that is to be used as criteria for triggering the alert.

To access	Click the link in **Send alert if the Real User Monitor event occurs with a** frequency **of at least <nn> times within a <tt> <time unit> period** in the Alerts definition area in the Filters tab in the Alert Wizard.

User interface elements are described below:

UI Element	Description
If the Real User Monitor event occurs with a frequency of at least <nn> times within a <tt> <time unit> period	Specify the number of times the event occurs in the **<nn>** box and the period of time in the **<tt>** and **<time unit>** boxes.

Event Type Indicator Dialog Box

This dialog box enables you to specify the Event Type Indicator name and state that are used by the event created by the triggered alert. You can also specify the Event Type Indicator state that is used when a clear alert is triggered for the alert.

To access	Click <values> in **Generate event with** <template_name> **template and** <values> **Event Type Indicator** in the **Event Creation section in the Definition Details** in the Actions tab in the Alert Wizard.

User interface elements are described below:

UI Element (A-Z)	Description
Clear Alert Event Type Indicator State	The state of the Event Type Indicator that is used by the event created by the triggered alert, when a clear alert has been triggered.
Event Type Indicator	The name of the Event Type Indicator that is used by the event created by the triggered alert. **Note:** To modify the list of Event Type Indicators that is displayed in this field, select **Admin** > **Service Health** > **Repositories** > **Indicators**, and for the relevant CI, add or remove Event Type Indicators.
Event Type Indicator State	The state of the Event Type Indicator that is used by the event created by the triggered alert.

Log Event Dialog Box

This dialog box enables you to specify that you want to log an event to the Windows Event Viewer application log when an alert is triggered. You configure the event type, ID, category, and description (standard Event Viewer categories).

Note: If the Data Processing Server is not installed on a Windows-based machine, HP Business Service Management cannot execute this alert action.

To access	Click the link in **Log** <as_specified> **to Event Viewer application log** in the **Actions** section in the **Definition Details** area in the Actions tab in the Alert Wizard.

User interface elements are described below:

UI Element (A-Z)	Description
Category	If required, specify a numerical category value in the Category box. You can use category values to group alerts by type. Using categories enables you to find events in the Event Viewer. **Default:** 0 **Example:** Assign **1** to availability-related alerts and **2** to response-time related alerts.
Description	If required, type a description of the logged event. **Example:** Type a description that corresponds to the characteristics of the alert scheme (alert filters being used, alert trigger criteria, and so on).

UI Element (A-Z)	Description
Event ID	If required, specify a numerical event ID in the Event ID box. You can use event IDs to group alerts by trigger criteria, profile, transaction, or any other identifying characteristic. Use event IDs to find events in the Event Viewer. **Default:** 0
Type	Select an event type from the Type list: **Success**, **Error**, **Warning**, **Information**, **Success audit**, or **Failure audit**. Event types are represented by icons to the left of the entries in the Event Viewer.

Network Connections Availability Dialog Box

This dialog box enables you to specify that you want to send an alert when the server network connection availability meets the alert trigger criteria.

To access	Click the link in **Send alert if network connections availability is** <condition> **percent** in the **Definition Details** area in the Trigger Criteria in the Alert Wizard.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Network connections availability is <condition> <nn> percent	Specify the trigger criteria.

Response Time Dialog Box

This dialog box enables you to send an alert if transaction response time is greater or less than the selected number of seconds. Only completed transactions are considered. If a transaction fails (that is, when it is not completed successfully) no alert is sent.

To access	Click the link of **Send alert if transactions response time is** <condition> in the **Trigger condition** area of the **Definition Details** area in the Alert Wizard.

User interface elements are described below:

UI Element	Description
Response time is <condition> <X> seconds	Select **greater or less than**, and enter the number of seconds in the appropriate boxes. **Limitation:** The time range is 0 to 999999999. **Example:** Specify **greater than** and **10** to instruct HP Business Service Management to send the alert if the response time is greater than 10 seconds.

Response Time for Specified Percentage of Transactions Dialog Box

This dialog box enables you to specify the transaction availability criteria.

An alert is sent if the response time is greater or less than the selected number of seconds, for the specified percentage of transactions, calculated over the selected time period. Only completed transactions are considered for this alert trigger.

In addition, you can instruct BSM to count a minimum number of transactions over the calculated time period.

To access	Click the link of **Send alert if transaction response time relative to configured threshold is** <as_specified> in the Alert Description area of the Trigger Criteria tab in the Alert Wizard.
Important information	**Example:** An alert is sent if transaction response time is greater than 10 seconds for 90 percent of all transaction instances that occur over the calculated time period (which you set in a separate dialog box). Further, the alert is sent only if at least 100 transactions occur during the calculated time period.

User interface elements are described below:

UI Element (A-Z)	Description
Minimum number of transactions for which condition is calculated <nnn>	Select the minimum number of transactions that must be considered in the calculation. **Example:** Select **50** to instruct HP Business Service Management to send the alert only if there are at least 50 transaction instances over the calculated time period.
Response time is <condition> <n> seconds for <percentage> percent of transactions	Select the condition, the required response time and percentage criteria. **Example:** Select **greater than**, **7 seconds**, and **50 percent** to instruct HP Business Service Management to send the alert if the response time is greater than 7 seconds for 50 percent of transaction instances, over the calculated time period. **Note:** The value of the percentage must be an integer.

Response Time Relative to Threshold Dialog Box

This dialog box enables you, if you select this trigger, to send an alert if the transaction response time is better or worse than the configured threshold raised or lowered by a specified percentage. This enables you to anticipate when the transaction response time is getting better or worse. Only completed transactions are considered for the specified minimum number of transaction.

To access	Click the link in **Send alert if transaction response time relative to configured threshold is** <as specified> in the **Trigger condition** area of the **Definition Details** area in the Trigger Condition tab in the Alert Wizard.
Important information	**Example:** The alert is triggered if the response time for a given transaction is worse than the set threshold. If you specified to raise the threshold value by 10 percent and the threshold for the transaction is 10 seconds, the alert is triggered if the transaction response time is 11 seconds which enables you to anticipate that the transaction response time is getting worse. You configure transaction thresholds in EUM. For details, see "Edit Thresholds Dialog Box" on page 234.

User interface elements are described below:

UI Element (A-Z)	Description
<Raise/lower> the threshold value by <value> %	Specify that you want to send an alert when the transaction response time is better or worse than the specified threshold and the threshold is raised or lowered by a specified percentage. The specified percentage enables you to anticipate when the transaction response time is becoming better (or worse) by specifying **10** percent and **raise** (**lower**). **Limitation:** The value field should not be empty. **Note:** The value of the percentage must be an integer.
Response time is <condition> <threshold> configured threshold	Select the condition criteria: **worse than** or **better than** and enter the required threshold criteria: **OK/Minor** or **Minor/Critical** that is compared to the configured threshold. **Note:** Transaction thresholds for Business Process profiles are set in System Availability Management. For details, see "Edit Thresholds Dialog Box" on page 234.

Response Time Relative to Threshold for Specified Percentage of Transactions Dialog Box

This dialog box enables you, if you select this trigger, to send an alert if the response time is better or worse than the selected transaction threshold, for the specified percentage of transactions, calculated over the selected time period. Only completed transactions are considered for triggering this alert.

To access	Click the link in **Send alert if transactions response time relative to configured threshold for specified percentage of transactions is** <response_time_threshold_for_%_of_trans> in the **Trigger condition** area of **Definition Details** area in the Trigger Condition tab in the Alert Wizard.

Important information	You can also instruct BSM to: ➤ Treat the threshold value as better or worse than the set threshold, by a specified percentage. ➤ Count a minimum number of transactions over the calculated time period. **Example:** BSM sends the alert if the response time is worse than the selected level threshold for 90 percent of all transaction instances that occur over the calculated time period (which you set in a separate dialog box). In addition, BSM treats the threshold value as 10 percent better, and the alert is sent only if at least 100 transactions occur during the calculated time period. Thus, if the threshold for the transaction is, for example, 10 seconds, and there are, for example, 120 transactions during the calculated time period, BSM sends an alert if transaction response time for at least 108 transactions (120 x 90%) is worse than 9 seconds (because 9 seconds is 10 percent better than 10 seconds). You configure transaction thresholds in EUM. For details, see "Edit Thresholds Dialog Box" on page 234.

User interface elements are described below:

UI Element (A-Z)	Description
<Raise/lower> the threshold value by <nn> percent	Specify that you want to raise or lower the specified threshold by the specified percentage. **Example:** Select **raise** and **10 percent** to instruct to trigger an alert when the response time is 10 percent higher than the specified threshold. **Note:** The value of the percentage must be an integer.

UI Element (A-Z)	Description
Minimum number of transactions for which condition is calculated <nn>	Specify the minimum number of transactions that can be used in the calculation. **Example:** Select **100** to instruct BSM to send the alert only if there are at least 100 transaction instances over the calculated time period.
Response time is <condition> <threshold> configured threshold for <nn> percent of transactions	Select the required threshold and condition criteria. **Example:** Select **worse than**, **Minor/Critical**, and **90 percent** to instruct BSM to send the alert if the response time is worse than the set Minor/Critical threshold for 90 percent of transaction instances, over the calculated time period. **Note:** The value of the percentage must be an integer.

Run Executable File Dialog Box

This dialog box enables you to run a pre-defined or custom executable file (.**exe** or .**bat** file) when an alert is triggered. The executable file must not be interactive (no user response required) and should not have a user interface.

To access	Use one of the following: ➤ Click the link in **Run executable file** <as_specified> in the **Actions** section in the **Definition Details** area in the Actions tab in the Alert Wizard. ➤ Click the link in **Override the original executable file when the clear alert is sent** <as_specified> in the **Clear alert** section in the **Definition Details** area in the Advanced Settings tab in the Alert Wizard.
Important information	You can embed predefined alert parameters into a custom command line that runs an executable file when an alert is triggered. For example: C:\Bin\MyAlertReporter.exe –title "Alert <<Alert Name>> for <<Entity Name>>" –Text "<<User Message>>" The command uses the MyAlertReporter exe file located in C:\Bin. It uses the name of the alert, the name of the entity, and the message to the user as parameters.

Relevant tasks	"How to Create EUM Alert Schemes" on page 533

User interface elements are described below:

UI Element (A-Z)	Description
<**Command line**>	You can customize and control the executable file. If you select: ➤ Any template except **User defined,** the appropriate information is automatically displayed. ➤ The **User defined** template, you can drag and drop the parameters listed in the **Attributes** area, to the field. For a list of the attributes, see "EUM Alert Attributes" on page 647. Use the following format for the executable file command line: <**path to exe file from Data Processing server**><<**program command line switches**>> **Parameters:** ➤ <**path to exe file from Data Processing server**> The path to the executable must be available from the Data Processing server for the server to trigger the executable. ➤ <<**program command line switches**>> includes the alert parameters. The program command line switches are expanded before the command line is executed. Use the following format: –**request_parameter_name "string <<request_parameter_value>>"** –**request_parameter_name "<<request_parameter_value>>"** where **request_parameter_value** must be enclosed in double-angled brackets. For details on the parameters, see "EUM Alert Attributes" on page 647. **Example:** \myfile\run.exe -a "123" -b "qwerty asdfg" or d:\myfile\run.exe "123" "qwerty asdfg" **Note:** For additional information, if you select the **Group Performance Data** option, add group performance data parameters to the command line. For details, see "Data Grouping Dialog Box" on page 613.

UI Element (A-Z)	Description
Include output in alert email	Select to include any output that results from the running of the executable file in email alerts. HP Business Service Management places this output in the section of the email alert containing the **Actions Result** text parameter. For details, see "Notification Templates Page" in *Platform Administration*.
Use the following template	Select the type of template to use for running the file. ➤ **User defined**. Place your custom script in an accessible location and specify the exact path. See how to define the command in the description of the <**Command line**>. ➤ **ping**. The template includes the name or the IP of the machine you want to ping when the alert is triggered.

Select CI Dialog Box

This dialog box enables you to browse views to help you select the CI you want to associate with the alert.

To access	Click the **Select the CI the alert is related to** button in the Alert Wizard when you access the Alert Wizard from **Admin** > **End User Management** > **Alerts**.

Important Information	To select a CI, move the cursor to the relevant CI and click, but note that: ➤ When you create a RUM Transaction Alert, you can only select Application CIs that have a RUM monitor attached. When you select such a CI in the tree, the **Select** button is enabled. ➤ When you create a BPM Transaction Alert, you can only select Application CIs that have a BPM monitor attached. When you select such a CI in the tree, the **Select** button is enabled. ➤ You can select only one CI at a time.
See also	"How to Create EUM Alert Schemes" on page 533

Select Dependent Alerts Dialog Box

This dialog box enables you to list the dominant alerts and their dependent alerts.

To access	Click the link in **The** <specified> **alerts are dependents of the current alert** in the **Dependencies** area of **Definition Details** area in the Advanced Settings tab in the Alert Wizard.
See also	"Alerts Dependency" on page 528

User interface elements are described below:

UI Element (A-Z)	Description
Available alerts	Lists the Alert Name, Status, and CI Name of the alerts that can be configured as dependents of the alert you are currently configuring.
Selected alerts	Lists the Alert Name, Status, and CI Name of the alerts that you selected as dependents of the alert you are currently configuring.

Select Event Categories Dialog Box

This dialog box enables you to specify the value of the event categories to be used as the criteria for the triggering of the corresponding alert.

To access	Use one of the following: ➤ Select **Admin** > **End User Management** > **Monitoring**, select the view and the CI in the left pane, click the **Alerts** tab, and click the **Press to create new alert** button to open a list of alert types. Select one of the listed types of alerts. In the **Filters** tab, select **Event category**, and click the link in **Limit the alert to specified event categories**. ➤ Select **Admin** > **End User Management** > **Monitoring**, select the view and the CI in the left pane, click the **Alerts** tab, and select one of the alerts, and click the **Press to edit alert** button. In the **Filters** tab, select **Event category**, and click the link in **Limit the alert to specified event categories**. ➤ Double-click the alert. In the **Filters** tab, select **Event data**, and click the link in **Limit the alert to specified event categories**.
Important information	You can select **Info**, **Error**, or **Performance**. For details about these options, see "RUM Event Alert" on page 615.

Select Filter Dialog Box

This dialog box enables you to instruct to limit the alert scheme to one or more of the listed elements.

To access	Use one of the following: ➤ Click the link in **Limit to** <specified> **transactions** in the Filters tab in the Alert Wizard. ➤ Click the link in **Limit to** <specified> **end-user groups** in the Filters tab in the Alert Wizard. ➤ Click the link in **Limit to** <specified> **servers groups** in the Filters tab in the Alert Wizard. ➤ Click the link in **Limit to** <specified> **software elements** in the Filters tab in the Alert Wizard. ➤ Click the link in **Limit to** <specified> **end-user subnets** in the Filters tab in the Alert Wizard. ➤ Click the link in **Limit to** <specified> **tiers** in the Filters tab in the Alert Wizard.
Important information	To use the filter, select types: ➤ From the **Available <filter type>** list, and use the upper right arrow or the multiple right arrow to move your selections to the **Selected <filter type>** list. ➤ From the **Selected <filter type>** list, and use the lower left arrow or the multiple left arrow to move your selections to the **Available <filter type>** list.

Select Recipients Dialog Box

This dialog box enables you to specify the recipients of the alert notices.

To access	Click the link in **Send alert to** <specified_recipients> in the **Actions section in the Definition Details** area in the Actions tab in the Alert Wizard.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
	**Create recipient.** Opens the User Management main page where you can create a recipient. For details, see "User Management Main Page" in *Platform Administration*.
	**Edit recipient.** Opens the User Management main page where you can edit the details of the selected recipient. For details, see "User Management Main Page" in *Platform Administration*.
	**Move to Selected Recipients.** Moves the selected recipients from the **Available Recipients** column to the **Selected Recipients** column.
	**Move all to Selected Recipients.** Moves all the recipients from the **Available Recipients** columns to the **Selected Recipients** column.
	**Move to Available Recipients.** Moves the selected recipients from the **Selected Recipients** column to the **Available Recipients** columns.
	**Move all to Available Recipients.** Moves all the recipients from the **Selected Recipients** column to the **Available Recipients** columns.
Available Recipients	Lists the name, email, SMS, or Pager number of the recipients available to be attached to the alert. The table indicates that the recipient definition includes (**checkmark** or does not include (**hyphen**) email, pager, and SMS information.

UI Element (A–Z)	Description
OK	The **Available Recipients** column displays a list of available recipients. Select one or more recipients and move them to the **Selected Recipients** column using the arrow buttons and click **OK** to attach these recipients to the alert.
Selected Recipients	Lists the name, email, SMS, or Pager number of the recipient selected to be attached to the alert. The table indicates that the recipient definition includes (**checkmark**) or does not include (**hyphen**) email, pager, and SMS information.

Set Notification Frequency Dialog Box

This dialog box enables you to specify the notification frequency of the alert.

To access	Select an alert in the Alert page, and click the **Notification frequency** button.
Important information	For details about the options, see "Notification Frequency Area" on page 609.

Target IPs List Dialog Box

This dialog box enables you to specify the SNMP server IP address to which you want to send an SNMP trap when alert trigger criteria are met. The alert notice can then be seen from any SNMP management console in the organization.

Note: HP Business Service Management supports only SNMP V1 traps.

For details on configuring an alert MIB in your SNMP management console, see "How to Configure the Alert MIBs" on page 537.

To access	Select the **Send SNMP Trap** option in the Actions tab in the Alert Wizard, and then click the link in **Send SNMP trap to** <as_specified> in the **Actions** area in the **Description Details** area in the Actions tab in the Alert Wizard.
Important information	You can select to use a global SNMP target IP for all alerts. To specify the global SNMP target IP, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**: ➤ Select **Foundations**. ➤ Select **Alerting**. ➤ In the **Alerting - Triggered Alerts**, locate the **Legacy SNMP target address**. Change the value to the IP address you want to use as the default IP address of the destination host to which the SNMP traps are sent. When you have specified a global SNMP target IP in the Infrastructure Settings, the **Use global SNMP target IPs** and **Use custom SNMP target IPs** options are displayed in the Target IPs List dialog box. See below for details.

User interface elements are described below:

UI Element (A-Z)	Description
Target IP	The list of validated IP address of the SNMP server. To add new target IPs, click the button. A box opens in the column where you can enter the new target IP. To delete a target IP, select the relevant target IP and click the button and confirm the action you want to perform.

UI Element (A-Z)	Description
Use custom SNMP target IPs	Select this option to use a custom SNMP target IP for the specific alert. Specify the IP in the Target IP field.
Use global SNMP target IPs	Select this option to use a global SNMP target IP for all alerts. To specify the global SNMP target IP, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**: ➤ Select **Foundations**. ➤ Select **Alerting**. ➤ In the **Alerting - Triggered Alerts**, locate the **Legacy SNMP target address**. Change the value to the IP address you want to use as the default IP address of the destination host to which the SNMP traps are sent.

Total Transaction Volume Dialog Box

This dialog box enables you to specify the conditions for triggering alerts when the number of transaction runs is less than or greater than the specified number, calculated over the selected time period.

To access	Click the link in **Send transaction if total volume is** <condition> **transactions** in the Trigger Criteria page of the Alert Wizard.

User interface elements are described below:

UI Element	Description
Send alert if total volume is <condition> <nn> transactions	Select the required criteria. **Example:** Select **less than** and **80** to instruct HP Business Service Management to send the alert if there were fewer than 80 transactions run, over the calculated time period. For details on how to set the calculated time period, see "Calculated Time Period Dialog Box" on page 611.

Transaction Availability Dialog Box

This dialog box enables you to specify the transaction availability criteria.

To access	Click the link of **Send an alert if transaction availability is <condition> percent** in the **Trigger condition** area of the **Definition Details** area in the Trigger Condition tab in the Alert Wizard.
Important information	BSM sends an alert if transaction availability is greater or less than the selected percentage, calculated over the time period selected in the Calculated Time Period dialog box. For details, see "Calculated Time Period Dialog Box" on page 611. Transaction availability is defined as the number of times that transactions succeed as a percentage of the total number of transaction instances. You configure transaction thresholds in EUM. For details, see "Edit Thresholds Dialog Box" on page 234.

User interface elements are described below:

UI Element	Description
Transaction availability is <condition> <n> percentage	Select the required criteria: **less than** or **greater than** and specify the percentage. The value of the percentage must be an integer. **Example:** Select **less than** and **80** to instruct BSM to send the alert if transaction availability is less than 80 percent, over the calculated time period.

Transaction Gross Response Time Dialog Box

This dialog box enables you to specify the conditions for triggering alerts when more than or less than the specified percentage of transactions have a breached gross transaction response time.

To access	Click the link in **Send alert if percentage of transactions with breached gross transaction response time is <condition> percent**. in the Trigger Criteria page of the Alert Wizard.

User interface elements are described below:

UI Element	Description
Send alerts if percentage of transactions with breached gross transaction response time is <condition> <nn> percent	Select the condition and specify the percentage used to trigger the alert.

Transaction Net Response Time Dialog Box

This dialog box enables you to specify the conditions for triggering alerts when the response time of more than or less than the specified percentage of transactions was breached while in the network, per sampling period.

To access	Click the link in **Send alert if percentage of transactions with breached net transaction response time is <condition> percent** in the Trigger Criteria page of the Alert Wizard.
Important information	Select the condition and specify the percentage used to trigger the alert.

User interface elements are described below:

UI Element	Description
Send alerts if percentage of transactions with breached net transaction response time is <condition> <nn> percent	Select the condition and specify the percentage used to trigger the alert.

Transaction Server Response Time Dialog Box

This dialog box enables you to specify the conditions for triggering alerts when the response time of more than or less than the specified percentage of transactions was breached while in the server, per sampling period.

To access	Click the link in **Send alert if percentage of transactions with breached server transaction response time is <condition> percent** in the Trigger Criteria tab of the Alert Wizard.

User interface elements are described below:

UI Element	Description
Send alert if percentage of transactions with breached server transaction response time is <condition> <nn> percent	Select the condition and specify the percentage used to trigger the alert.

Troubleshooting and Limitations

This section describes troubleshooting and limitations for EUM Alerts.

Invalid Characters

The following characters are invalid:

<table>
<tr><th>Where</th><th>Invalid Characters</th></tr>
<tr><td>Alert name and alert description</td><td>‘ ~ ! @ # $ % ^ & * - + = [ ] { } \ | / ? . , " ’ : ; < ></td></tr>
<tr><td>Recipient name</td><td>‘ ~ ! @ # $ % ^ & * - + = [ ] { } \ | / ? . , " ’ : ; < ></td></tr>
<tr><td>Message sender name in alerts</td><td>‘ ~ ! # $ % ^ * _ - + = { } \ | / ? . ’ <space></td></tr>
<tr><td>SMTP server name in alerts</td><td>_ . -</td></tr>
</table>

Audit Log

This section describes how to troubleshoot EUM alerts.

Each change you make to an EUM alert is logged into the EUM Alert Administration log.

To access that information click **Admin** > **Platform** > **Setup and Maintenance** > **Audit Log** and select **Alert Administration** in the **Context** list. For details about the user interface, see "Audit Log Page" in *Platform Administration*.

Example: The audit log provides information about the date the alert definition was modified, the user who made the modification, the type of action that was performed followed by the contents of the **Definition Details** area of the alert definition, and additional information. For details about the **Definition Details** area, see "Alert Wizard" on page 565.

7

Use the Event Template for EUM Alerts

This chapter includes:

Concepts

Tasks

Reference

Concepts

Event Template for EUM Alerts Overview

The Event Template maps an event triggering condition (for example, the triggering condition of an End User Management (EUM) alert scheme) to an event's attributes. The attributes are specific to the application (for example, the EUM alert attributes).

EUM alerts have a default Event Template. You can create a template by modifying the default Event Template.

When the event trigger condition is met (meaning that the EUM alert is triggered), and if you have configured the EUM alert to send an event, the event attributes are populated by the relevant triggered EUM alert conditions, and create an event corresponding to the alert. The event is then available to HP Operations Manager, or Operations Management.

For task details, see "How to Configure the Event Template" on page 645.

For user interface details, see "Template Repository Dialog Box" on page 653.

Tasks

How to Configure the Event Template

This task describes how to configure the Event Template so events are created when EUM alerts are triggered.

This task includes the following steps:

- "Upgrade - Optional" on page 645
- "Configure the alerts" on page 645
- "Configure an Event Template – optional" on page 646
- "Enable the drilldown from Operations Management to End User Management reports" on page 646
- "Results" on page 646

1 Upgrade - Optional

If you are upgrading from BSM version 9.0x to version 9.10 and in the previous version, you had defined alerts using the Event Template (Generated Event) action, the ETI display label needs to be manually upgraded. To upgrade the display label, execute the following JMX command from the BSM 9.10 Data Processing Server:
BAC.Alerts.Upgrade service=change Eti name to ID update()

2 Configure the alerts

Configure the alert schemes that, when triggered, create the relevant events.

For details about creating EUM alerts, see "How to Create EUM Alert Schemes" on page 533.

3 Configure an Event Template – optional

You can modify the Event Template default or you can configure a new template that maps an alert's attributes to the corresponding event attributes. You can create several templates for each type of alert.

For user interface details, see "Template Repository Dialog Box" on page 653.

4 Enable the drilldown from Operations Management to End User Management reports

If you have an Event Management Foundation license, to support the drilldown from Operations Management to EUM reports, add the relevant custom attributes to the relevant template.

a Access the Template Repository dialog box. For user interface details, see "Template Repository Dialog Box" on page 653.

b For the relevant template, select the **Custom Attributes** tab. Click **New key**.In the **Name** field enter the relevant value from the **Drilldown Name** column, and in the **Value** field enter the relevant URL from the **Value** column. For a list of the relevant attributes, see "Custom Attributes Used to Support Drilldowns" on page 666.

In the Event Browser, you can now right-click the event corresponding to the EUM alert, to display the relevant **Go to <report>** option that enables you to open the relevant EUM report.

5 Results

You can view the events corresponding to the triggered alerts in HP Operations Manager, or Operations Management in BSM.

Reference

EUM Alert Attributes

The table lists the EUM alert attributes:

Attribute	Description
Actual Details	A description of the actual conditions at the time the alert was triggered **Example:** Transaction availability: 70.0% Number of available transactions: 3 Alert calculated between Sun Jan 24 3:42:30 PM 2010 (IST) (+0200) and Sun Jan 24 3:47:30 PM 2010 (IST) (+0200)]

Attribute	Description
Alert Detailed Description	A collection of the alert's parameters that form an overall description of the alert. The template for this description appears in the default log notification template of the alert. For details about the log, **Example:** BusinessApplication Name: rum_app Severity: Major Alert Name: michael_rum_event Trigger Condition: ------------------ Event occurred Current Description: -------------------- Event occurred is: dd Occurred in application \"michael_rum\" Occurred in location \"kabul\" Event data was \"oodd\" User Message: N/A HP Application Management Web Site URL: HP Business Service Management
Alert ID	The unique ID assigned to the alert scheme. **Example:** a148edca593f423aa36c256e687ad58f
Alert Name	The alert name specified in the alert scheme. **Example:** My_rum_transaction_alert
Alert Trigger Time UTC	The starting time of the transaction that triggered the alert in UTC format. **Example:** Tue Jan 05 6:07:29 PM 2010 (IST) (+0200)

Attribute	Description
Alert Type	The type of alert. It can be either one of the following types: ➤ A regular alert, which is sent when alert trigger conditions are true. ➤ A clear alert, which is sent when the alert trigger conditions that triggered the earlier alert are no longer true. **Example:** rum.event.alert.type
Alert User Description	The description of the alert you provided when you created the alert.
Alert XML	The Alert XML file contains: ➤ General data about the alert (name, ID, severity). ➤ For each trigger, data about the events that triggered the alert (if such events exist). **Example:** For an example of an alert XML, see "Example of an Alert XML Structure" on page 652.
BSM DNS	The name of the machine on which HP Business Service Management (BSM) is installed. **Example:** machineName.devlab.ad
End User Group Name	When creating an alert, you select the option to chose to do **group by transaction, location** or **end user**. The type of group you select is the value of the Data Collector Name parameter.
Entity ID	The ID of the entity for which the alert scheme was created. **Example:** cfe0e1157c28513f2c10c008e543c5cb
Entity Name	The name of the entity for which the alert scheme was created.

Attribute	Description
Event Severity	The severity of the event. You can set it to correspond exactly to the alert's severity or to another value; for example: major, or critical.
Event State	The Event Type Indicator state that matches the alert.
Event Type	The Event Type Indicator name that matches the conditions of the alert. **Example:** BusinessApplication
Follow up	Indicates if the alert is a follow up alert: ➤ **true** if this is a follow up alert ➤ **false** otherwise
Groupby Names Key	The key that is composed by the field names of the fields selected in the **Groupby** configuration.
Groupby Values Key	The key that is composed by the field names of the fields selected in the **Groupby** configuration.
Location Name	The location of the host machine, specified during Business Process Monitor installation, that ran the transactions that triggered the event. This parameter is available to use as an alert parameter only when the alert has been grouped by location. **Example:** Paris
Severity	The alert severity label specified in the alert scheme. **Example:** Major
Transaction Description	The description of the transaction that triggers the EUM alert.
Transaction Error	The text of the transaction error.

Attribute	Description
Transaction Name	The name of the transaction that triggered the alert. This parameter is available to use as an alert parameter only when the alert has been grouped by transaction. This parameter is displayed only if a **group by** option was selected during the alert definition. **Example:** rum_transaction
Transaction Time	The time when the transaction failed.
Trigger Cause	The alert trigger criteria specified in the alert scheme. **Example:** Transaction availability less than 80.00%; Calculate alert over 5 minute time interval.

Example of an Alert XML Structure


```
<Alert>
    <Name>Michal</Name>
    <Id>xxx</Id>
    <Severity>Major</Severity>
    <Purpose>Regular Alert</Purpose>
    <UserMessage>N/A</UserMessage>
    <EntityName>Default Client_Snt_Ap1_1</EntityName>
    <EntityId>3fb61099e47ed1b527b48ab2cff636a2</EntityId>
     <Triggers>
       <Trigger>
        <TriggerCause>Response time for 1 out of 1 transactions greater than 0.00
seconds.</TriggerCause>
        <ActualDetails>Response time for 1 out of 1 transactions was greater than 0.00
seconds.</ActualDetails>
        <Events>
        <Event>
        <ActualDetails>Response time was 9.99 seconds.</ActualDetails>
        <Transaction>
        <BTFName />
        <BTFId>701db88f4335742ff454da2216ab4c94</BTFId>
        <Name>tx_10</Name>
        <Time>Tue Dec 14 11:24:34 AM 2010 (GMT +0200)</Time>
        <LocationName>VMAMRND12</LocationName>
        <ScriptName>tx_5_10_15</ScriptName>
        <szBpmAgentName>VMAMRND12</szBpmAgentName>
        <Description />
        <Error>N/A</Error>
        <BPMTriageReportUrl>http://machine
name:80/topaz/rfw/popupAction.do?popUp=true&filter.filters.TIME_PERIOD.timeBarBean.view=pastHo
ur&filter.filters.DATA_COLLECTOR.dataCollector=BPM&autoGenerate=true&reportID=triage_report&filt
er.filters.APPLICATION.selectedIdsInTree=0x3fb61099e47ed1b527b48ab2cff636a2&filter.filters.APPLI
CATION.fromDashboard=true</BPMTriageReportUrl>
        <BPMPerfAnalysisReportUrl>http://machine
name:80/topaz/rfw/popupAction.do?popUp=true&filter.filters.TIME_PERIOD.timeBarBean.view=pastHo
ur&filter.filters.DATA_COLLECTOR.dataCollector=BPM&autoGenerate=true&reportID=performance_su
mmary_report&filter.filters.APPLICATION.selectedIdsInTree=0x3fb61099e47ed1b527b48ab2cff636a2&
filter.filters.APPLICATION.fromDashboard=true</BPMPerfAnalysisReportUrl>
        </Transaction>
        </Event>
        </Events>
        </Trigger>
      </Triggers>
 </Alert>
```

Template Repository Dialog Box

This dialog box enables you to map an EUM alert's attributes to an event's attributes.

To access	Select one of the following: ➤ **Admin** > **End User Management** > **Monitoring**, select a BPM CI, and click the **Alerts** tab. In the Alerts tab, click the button to create a new alert, and in the **Actions** tab of the wizard, select the **Generate Event** option. In the Actions section of the Definition Details area, click the <**template name**> link. ➤ **Admin** > **End User Management** > **Alerts**, click the **New template** button, select **BPM Transaction Alert**, select a CI and in the **Actions** tab of the wizard, select the **Generate Event** option. In the Actions section of the Definition Details area, click the <**template name**> link. ➤ **Admin** > **End User Management** > **Alerts**, select an existing BPM Transaction Alert, click the button, and in the **Actions** tab of the wizard, select the **Generate Event** option. In the Actions section of the Definition Details area, click the <**template name**> link.
Important information	➤ You can edit an EUM alert Event Template when you have the appropriate user permission. For details, see the "Specify the appropriate user permissions" step in "How to Set Up an Alert Delivery System" in *Platform Administration*. ➤ To modify the existing default template or to create a new template, duplicate the existing template and edit the duplicated copy. You can them modify the new or edited template as the default template. ➤ When an alert is triggered, the values of the event template attributes are changed into the relevant values of the alert attributes.

Relevant tasks	"How to Configure the Event Template" on page 645
See also	➤ "Event Template for EUM Alerts Overview" on page 644 ➤ "Attributes Area" on page 663

Templates Area

This area lists the existing templates. It enables you to add new templates, duplicate existing templates, edit template names, and delete existing templates.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**New template.** Empties the boxes in the currently displayed template to enable you to create a new event template.
	**Duplicate selected template.** Duplicates the selected template.
	**Rename selected template.** Enables you to edit the name of the selected template.
	**Set selected template to be the default template.** Sets the selected template as the default template.
	**Delete selected template.** Deletes the selected template.
<template>	Lists the existing event templates. **Default:** A default template is specified for each type of alert. The default template has the following format: <Alert Type> Default Template

Properties Area

This area enables you to give a name to the active template or to change its name.

User interface elements are described below:

UI Element (A-Z)	Description
	**Discard changes.** Resets the values entered in the template fields to their original values.
Set the selected template to be the default template	Select to make the current template the default template.
Template Name	The name of the active template.

General Tab

This area enables you to define a new Event Template or to edit an existing one.

Important information	If necessary, select the relevant attribute in the Attributes area and drag it into the relevant box in the General tab. You can also select a specific attribute and click CTRL+I while editing text to insert that attribute in the text. For a detailed list of attributes, see "EUM Alert Attributes" on page 647.

User interface elements are described below:

UI Element (A-Z)	Description
Category	Used to organize or group events. Out-of-the-box categories are provided. You can specify your own categories since this field is just regarded as a string by the creation rules. **Default:** Application **Note:** Depending on your permissions, you can define your own categories. Permissions are configured in **Admin** > **Platform** > **User and Permissions**.
CI hint	Information about the CI that is related to the event. This attribute is used for providing hints to enable the event processing to find the correct related CI (the RTSM ID of the related CI). **Add the attributes using the following format:** UCMDB: <<Entity>>:* **Example:** ➤ RTSM as hint "UCMDB:3bcbb67a6233cfdd0e400e7c1e637db5" ➤ A set of natural identifiers: "oracle:database:987"
Close key pattern	Enables the event that is sent to close all the events whose Key attribute matches the Close Key Pattern expression. You can use wildcards (*). **Add the attributes using the following format:** <<Alert Name>>: <<Entity ID>>:* **Example:** host1.hp.com:DB_ess1:ConnectionPoolUtilization:* closes all the events whose key starts with host1.hp.com:DB_ess1:ConnectionPoolUtilization.

UI Element (A-Z)	Description
Description	Detailed information describing the event. **Add the attributes using the following format:** Alert Name:<<Alert Name>> CI Name: <<Entity Name>><<Actual Details>> <<Trigger Condition>> <<User Message>> **Example of a BPM Alert:** Alert Name: My Pet Store Application Alert CI Name: Gils Profile Severity: Warning Alert Name: twice Trigger Condition: For transaction "szTransactionName_1" . 3 out of 5 transactions failed. Current Description: 4 out of 5 transactions failed. Following is a list of the most recent occurrences of the alert trigger criteria for this alert: Occurrence 1: Failed transaction Triggered at location "szLocationName_1" on Wed Jul 15 11:28:00 AM 2009 (+0300)

UI Element (A-Z)	Description
Description (continued)	**Example of a RUM Transaction Alert:** Alert Name: My Pet Store Application Alert CI Name: Gils Profile SProfile Name: Default_Client_RUM_Profile Severity: Major Alert Name: My Pet Store Application Alert Trigger Condition: 20.00% hits with gross transaction time greater than defined threshold. Calculate over 15 minutes time interval. Current Description: 100% of 3 hits were with gross transaction time greater than defined threshold; Alert calculated between Wed Mar 12 1:09:00 PM 2008 (+0200) and Wed Mar 12 1:09:00 PM 2008 (+0200). Sub Alert Triggered (2 of 3): Trigger Condition: 25.00% hits with net transaction time greater than defined threshold; Calculate alert over 15 minute time interval. Current Description: 100% of 3 hits were with net transaction time greater than defined threshold; Alert calculated between Wed Mar 12 1:09:00 PM 2008 (+0200) and Wed Mar 12 1:09:00 PM 2008 (+0200). Sub Alert Triggered (3 of 3): Trigger Condition: 33.30% hits with server transaction time greater than defined threshold; Calculate alert over 15 minute time interval....

UI Element (A-Z)	Description
Description (continued)	**Example of a RUM Server Alert:** Alert Name: My Pet Store Application Alert CI Name: Gils Profile SProfile Name: Default_Client_RUM_Profile Severity: Major Alert Name: My Pet Store Application Alert Alert Triggered (1 or 3): <u>Trigger Condition:</u> 20.00% hits with gross transaction time greater than defined threshold. Calculate over 15 minutes time interval. <u>Current Description:</u> 100% of 3 hits were with gross transaction time greater than defined threshold; Alert calculated between Wed Mar 12 1:09:00 PM 2008 (+0200) and Wed Mar 12 1:09:00 PM 2008 (+0200). Sub Alert Triggered (2 of 3): <u>Trigger Condition:</u> 25.00% hits with net transaction time greater than defined threshold; Calculate alert over 15 minute time interval. <u>Current Description:</u> 100% of 3 hits were with net transaction time greater than defined threshold; Alert calculated between Wed Mar 12 1:09:00 PM 2008 (+0200) and Wed Mar 12 1:09:00 PM 2008 (+0200). Sub Alert Triggered (3 of 3): <u>Trigger Condition:</u> 33.30% hits with server transaction time greater than defined threshold; Calculate alert over 15 minute time interval....

UI Element (A-Z)	Description
Event Type Indicator	Links between the event and the health indicator so information about the health indicator can be updated as a result of submitting the event. **Add the attributes using the following format:** <<ETI/HI Name>>[:<<ETI/HI State>>[:ETI Numeric Value]]] **Default**: none **Example:** ➤ Health indicator with state and numeric value for a Database CI: ConnectionPoolUtilization:High:0.88 ➤ Health indicator with state for a **Node** CI: MemoryBottleneck:Active ➤ Event Type Indicator (ETI) without a state (does not trigger a health indicator): RebootOccurred
Generating source hint	Information about the monitoring application and the corresponding probe/agent that is responsible for creating the event. **Add the attributes using the following format:** <<BSM DNS>> **Example:** BSM:BSMserver1.hp.com, OM:omserver32.deu.hp.com:agentId0c9da6d8-3e08-45cd-9b12-b49a1ca4de20
Host hint	Information about the CI of type **Node** that is hosting the CI related to the event. The host can be identified by **RTSM ID**, **BSM DNS**, **IPv4 Address**, **IPv6 Address**, **MAC Address**, **HP L-Core Core ID**. **Example:** IPV4:15.15.12.13, DNS:h1.mercury.il; CoreId: 0c9da6d8-3e08-45cd-9b12-b49a1ca5de20

UI Element (A-Z)	Description
Key	A unique string representing the type of event that occurred. Two events have the same key if, and only if, the two events represent the same situation in the managed environment. Events with the same key are treated as duplicates. **Add the attributes using the following format:** <<Alert Name>>:<<Entity>>:<<Event Severity>> **Example:** host1:hp.com:DB_ess1:ConnectionPoolUtilitzation:High
Log only	Assign the value: ➤ **true** to send the event to the history event browser as a "close" event. Such an event goes through the complete event processing, but has its **Life Cycle State** set to **close** from the beginning. ➤ **false** to send the event if the alert is configured to send an event. **Add the attributes using the following format:** <<Is Log Only>> **Example:** ➤ An event that result in resetting a health indicator to a normal or good state. ➤ An event signaling that a previous problem no longer exists (where the problem was reported in another event). **Default value: True**. Depending on your permissions, you can modify the default.

UI Element (A-Z)	Description
Severity	The severity of the event. It represents the translation of the alert CI status into the event severity. The severity levels can be: **Unknown**, **Normal**, **Warning**, **Minor**, **Major**, **Critical.** This information enables you to map the triggering event status to the event severity level. **Add the attributes using the following format:** <<Event Severity>> **Example:** Warning **Default value:** Major
Subcategory	More detailed organization of events that have the same category. Used for event standards and external event sources that are using subcategories. **Add the attributes using the following format:** <<Alert Type>> **Example:** BPM Alert RUM Transaction RUM Servers
Submit close key condition	When you select the option, you must enter a value in the **Close key pattern** box.

UI Element (A-Z)	Description
Title	Describes the occurrence represented by the event. The title should include information about what threshold has been crossed (or other trigger conditions), and the current values. **Add the attributes using the following format for EUM alerts:** <<Alert Name>> Triggered on CI: <<Entity Name>> Trigger condition **Example of a BPM Alert**: My Pet Store Application Alert Triggered On CI PetStore 3 out of 5 transactions failed. **Example of a RUM Transaction Alert**: My Pet Store Application Real User Performance Alert Triggered On CI PetStore 20.00% hits with gross transaction time greater than defined threshold Calculate alert over 15 minute time interval. **Tip:** Since the text is typically shown within a single line in the event browser, it is recommended that the most relevant information is at the beginning of the text.

Attributes Area

Use this area to specify the attributes.

Important information	Select the relevant attribute in the Attributes area and drag it into the relevant box in the General tab. You can also select a specific attribute and click CTRL+I while editing text to insert that attribute in the text. For a list of the attributes and their description, see "EUM Alert Attributes" on page 647.

Custom Attributes Tab

Use this tab to add custom attributes.

When you create or edit a mapping in the Event Template dialog box, you can chose an attribute that was configured in Operations Management, or you can create a custom attribute. The custom attributes configured in Operations Management provide additional features for the events mapped using these attributes. For details about the difference between the Operations Management custom attributes and the Event Template custom attributes, see the Operations Management documentation.

Important information	A custom attribute consists of a key and a value (both are strings). The value can be any string and is used by the Event Template mapping as any other value. **Limitations:** ➤ Make sure that the name of the custom attribute you are defining is unique and does not already exist in the list of factory attributes. ➤ If you add to a template a custom attribute with a key similar to a constant attribute's key, the custom attribute is ignored. For details about the constant attributes, see "Constant Attributes" on page 668. ➤ If you use, in the same template, more than one custom attribute with the same key, only one of these custom attributes is taken into account. To check if you have such a configuration, when you switch to another template and switch back to the original template, only one of the custom attributes should be listed. ➤ Event Template attributes are changed into the value of the relevant attribute of the triggered alert. When an attribute does not correspond to existing alert attributes (when it is a custom attribute), then the value specified in the Custom Attributes tab for the relevant attribute, is used.

User interface elements are described below:

UI Element	**Description**
	Deletes the selected attributes from the table.
	Lists the options available for creating a new Event Template. You can select: ➤ **New key.** To create a new key. A new row opens in the Name/Value table. ➤ **Known key.** Opens a submenu with the known keys as options. You can select the relevant key. A new row opens in the Name/Value table, with the name of the selected key in the Name column. You can then enter the value of the key in the corresponding Value column. **Note:** The known keys are defined in Operations Management. Such keys have additional capabilities. Keys defined in the Template Repository dialog box only have a value and are used as strings.
Name and Value	Each event can have any number of custom attributes. Custom attributes can be used to provide additional information with the event that is not provided in any of the other Event Template attributes or that is contained in any of the other attributes. Each custom attribute is a **Name-Value** pair, where you enter the name of the attribute in the **Name** field and the value of the attribute in the **Value** field. This feature may be used when you manage the environment of multiple customers using one instance of the product. The multiple customers might be handled by a custom attribute object. For details about the available attributes, see "Attributes Area" on page 663. **Example:** Name = "Customer"; Value = "XYZ Company"

Custom Attributes Used to Support Drilldowns

If you have the Event Management Foundation license, to support drilldowns from Operations Management to the EUM reports, add the following attributes to the relevant templates. Replace <BSM DNS server> with the name of your BSM DNS server.

Event Type	Drilldown Name	Value
BPM Transaction	Go to BPM Triage Report	**http://<BSM DNS server>/topaz/rfw/popuAction.do?popUp=true?filter.filters.TIME_PERIOD.timeBarBean.view=pastHour&filter.filters.DATA_COLLECTOR.dataCollector=BPM&autoGenerate=true&reportID=triage_report&filter.filters.APPLICATION.selectedIdsInTree=<entity id>&filter.filters.APPLICATION.fromDashboard=true**
	Go to BPM Performance Analysis	**http://<BSM DNS server>/topaz/rfw/popuAction.do?popUp=true?filter.filters.TIME_PERIOD.timeBarBean.view=pastHour&filter.filters.DATA_COLLECTOR.dataCollector=BPM&autoGenerate=true&reportID=performance_summary_report&filter.filters.APPLICATION.selectedIdsInTree=<entity id>&filter.filters.APPLICATION.fromDashboard=true**
RUM Application	Go to Application Summary report	**http://<BSM DNS server>/topaz/rfw/popuAction.do?popUp=true?filter.filters.TIME_PERIOD.timeBarBean.view=pastHour&autoGenerate=true&reportID=application_summary&filter.filters.APPLICATION.selectedIdsInTree=<entity id>&filter.filters.APPLICATION.fromDashboard=true**

Event Type	Drilldown Name	Value
RUM Transaction	Go to RUM Triage report	**http://<BSM DNS server>/topaz/rfw/popuAction.do?popUp=true?filter.filters.TIME_PERIOD.timeBarBean.view=pastHour&filter.filters.DATA_COLLECTOR.dataCollector=BPM&autoGenerate=true&reportID=triage_report&filter.filters.APPLICATION.selectedIdsInTree=<entity id>&filter.filters.APPLICATION.fromDashboard=true**
	Go to RUM Performance Analysis	**http://<BSM DNS server>/topaz/rfw/popuAction.do?popUp=true?filter.filters.TIME_PERIOD.timeBarBean.view=pastHour&filter.filters.DATA_COLLECTOR.dataCollector=BPM&autoGenerate=true&reportID=performance_summary_report&filter.filters.APPLICATION.selectedIdsInTree=<entity id>&filter.filters.APPLICATION.fromDashboard=true**
RUM Event	Go to RUM Event Summary	**http://<BSM DNS server>/topaz/rfw/popuAction.do?popUp=true?filter.filters.TIME_PERIOD.timeBarBean.view=pastHour&filter.filters.DATA_COLLECTOR.dataCollector=BPM&autoGenerate=true&reportID=rum_events_summary&filter.filters.APPLICATION.selectedIdsInTree=<entity id>&filter.filters.APPLICATION.fromDashboard=true**

Constant Attributes

The Event Template uses the constant attributes to represent the fields that appear in the General tab (title, category, subcategory, and more).

Note: Do not use these attribute's keys as the keys to custom attributes.

The constant attribute's keys are:

- Category
- CiHint
- CloseKeyPattern
- DateOccurred
- Description
- EtiHint
- HostHint
- Key
- LogOnly
- OriginalData
- Severity
- SubmitCloseKey
- SourceHint
- SubCategory
- Title

Part II

Application

8

End User Management Reports

This chapter includes:

Concepts

Tasks

Concepts

End User Management Reports Overview

End User Management (EUM) reports enable you to proactively monitor network and application performance and availability in real time, from the end-user perspective, so you can resolve issues before customers experience problems.

You use the EUM application to view and analyze reports based on performance data collected by HP Business Service Management (BSM) data collectors and stored in the BSM database.

EUM reports enable you to:

- Detect end-user business process issues before customers are impacted
- Track alerts for user performance and availability issues
- Proactively identify end-user performance and availability trends that need IT attention
- Assess business impact and prioritize resolution efforts, escalating user problems to the correct IT groups
- Prioritize IT response based on customer/business impact
- Manage the customer's Quality of Experience (QoE), and gain real-time visibility into the QoE of real users

You access EUM reports from the EUM application in the Applications menu.

For details on working with BSM reports, see "Working in Reports - Overview" in *Reports*.

Report Access and Permissions

The availability of report data for a specific user is dependent on the access permissions granted that user. For details on granting permissions, see "Permissions Overview" in *Platform Administration*.

Data Aggregation

BSM uses data aggregation to make data handling and management more efficient and to improve the speed and performance of report generation. For more information on data aggregation in BSM, see "Data Aggregation" in *Reports*.

Report Types

The following types of EUM reports are available:

Reports	**Description**	**For concept details, see...**
Status reports	Reports that provide an overall snapshot of the health of your monitored environment.	"Status Reports Overview" on page 766
Analysis reports	Reports that provide an in-depth look at the health of your monitored environment and help you diagnose and pinpoint the root cause of performance and availability problems.	"Analysis Reports Overview" on page 830
Utilities	Tools and reports that help you identify problems along the network. Report data is based on WebTrace/Traceroute monitor data.	"End User Management Utilities Overview" on page 1062
Alerts	Reports that provide information about the EUM alerts that were triggered in the past.	"EUM Alert Reports Overview" on page 1092

Reports	Description	For concept details, see...
Production Analysis	Reports based on real-user transaction data that assist you in constructing meaningful load tests.	"Production Analysis Reports Overview" on page 1108
Business Process Recognition	A report based on RUM data that enables you to discover frequently used processes/transaction patterns that might represent business processes.	"Business Process Recognition Application Overview" on page 1140

Status Aggregation Rules Overview

In many of the end-user management reports, various performance, availability, and latency measurements are colored (data cells and tooltips) to represent the status of the actual measurement in comparison to an applicable threshold configured in EUM Administration (for example, transaction thresholds). The valid statuses are:

- **Green.** OK
- **Yellow.** Minor (for performance measurements only)
- **Red.** Critical
- **Blue.** No data

Some of the rules used to calculate the statuses have changed as of BSM version 9.00. The following table lists the different measurements and the rules used to calculate each one:

Measurement	Data Collector	Rule used for versions of Business Service Management earlier than 9.00	Rule used for Business Service Management version 9.00 or later
Performance	Business Process Monitor	Average of Values	Status Average
	Real User Monitor	Sum of Differences	Status Average
Availability	Business Process Monitor	N/A	Sum of Differences
	Real User Monitor	Sum of Differences	Sum of Differences
Latency	Business Process Monitor	N/A	N/A
	Real User Monitor	Sum of Differences	Sum of Differences

This section also includes:

- "Average of Values Rule" on page 676
- "Status Average Rule" on page 678
- "Sum of Differences Rule" on page 680
- "Changing the Default Performance Status Rule" on page 681

Average of Values Rule

In this rule, performance status is calculated by totalling the duration time in all of the samples included in the report and dividing it by the total number of available transactions/action included in the report. The calculated, average duration is compared to the relevant threshold configured in EUM Administration and the status is determined accordingly.

Note: Location threshold offsets are not used by this rule. For concept details, see "Location Threshold Offsets Overview" on page 29.

Example

In the following example, four samples for a transaction are included in a report and contain the following data:

Sample	Duration (seconds)	Status (according to the transaction thresholds configured in EUM Administration): OK < 8 seconds Minor 8-12 seconds Critical > 12 seconds
1	5	OK
2	13	Critical
3	9	Minor
4	2	OK

Using the Average of Values rule, the status is calculated by totalling the duration of all the samples and dividing it by the total number of available transactions, to obtain an average duration of 7.25 seconds ((5+13+9+2)/4). This value is compared to the transaction thresholds configured in EUM Administration, and since it less than 8 seconds, the status for the transaction in the report is **OK** (green).

Status Average Rule

In this rule, performance status is calculated by assigning a value to the status of each sample included in the report (OK-20, Minor-10, Critical-0), totalling these values, and dividing the result by the total number of available transactions or actions included in the report to obtain an average value between 0-20. This average value determines the status (and coloring) of the measurement in the report, according to the following table:

Calculated Average Value	Assigned Status
0<5	Critical
5<15	Minor
15<20	OK

By default, when calculating the average value, equal weight is given to each status. You can change the weight given to a status in the calculation. For details, see "Changing the Weighting of the Status Average Rule" on page 679.

Note: Location threshold offsets are used by the Status Average rule. For concept details, see "Location Threshold Offsets Overview" on page 29.

Example

In the following example, four samples for a transaction are included in a report and contain the following data:

Sample	Duration (seconds)	Status (according to the transaction thresholds configured in EUM Administration): OK < 8 seconds Minor 8-12 seconds Critical > 12 seconds
1	5	OK
2	13	Critical

Sample	Duration (seconds)	Status (according to the transaction thresholds configured in EUM Administration): OK < 8 seconds Minor 8-12 seconds Critical > 12 seconds
3	9	Minor
4	2	OK

Using the Status Average rule, the status is calculated by totalling the values assigned to each sample according to its status and dividing the total by the number of samples, to obtain a status average of 12.5 ((20+0+10+20)/4). Based on this value, according to a predefined range, the status for the transaction in the report is **Minor** (yellow).

Changing the Weighting of the Status Average Rule

By default, the weight of each status value used in the Status Average rule is 1, that is, they are all weighted equally. You can change the weight for a given status value so that it will be given proportionally more (or less) importance in the calculation.

To modify the weight of a status value, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**:

- Select **Applications**.
- Select **End User/System Availability Manager**.
- In the **Data table**, locate the following entries and change the value to the required weight:
  - Reports Status Average Rule - Critical Status weight
  - Reports Status Average Rule - Minor Status weight
  - Reports Status Average Rule - OK Status weight

Sum of Differences Rule

In this rule, an availability or latency status value is calculated for each sample included in the report by:

- **Availability.** Subtracting the configured threshold percentage value valid at the time the sample was created, from:
  - **Business Process Monitor (BPM) transactions.** 1 (for available transactions) or 0 (for unavailable transactions).
  - **Real User Monitor (RUM) transactions.** The total number of transaction runs included in the sample.
- **Latency.** Subtracting the actual latency measurement from the configured latency threshold value valid at the time the sample was created.

This value is totalled for all the samples included in the report and the total determines the status as follows:

- **Availability**. If the final value is greater than 0, the availability status is **OK** (green) and if it is less than or equal to zero, the availability status is **Critical** (red).
- **Latency.** If the final value is greater than 0, the latency status is **Critical** (red) and if it is less than or equal to zero, the latency status is **OK** (green).

Example

In the following example, ten samples for a transaction are included in a report and contain the following data:

Sample	Availability 1 = Available 0 = Unavailable	Availability Threshold Percentage Valid at Sample Time	Calculated Availability Status Value
1	1	98	0.02
2	1	98	0.02
3	1	98	0.02
4	1	98	0.02

Sample	Availability 1 = Available 0 = Unavailable	Availability Threshold Percentage Valid at Sample Time	Calculated Availability Status Value
5	1	98	0.02
6	1	98	0.02
7	1	95	0.05
8	1	95	0.05
9	1	85	0.15
10	0	90	-0.90
Total			-0.53

The current availability threshold percentage is 85%.

The total calculated availability status for all the samples is -0.53, which is less than 0, so the availability status in the report is **Critical** (red).

Changing the Default Performance Status Rule

The default rule used to calculate performance status differs for previous installations of BSM that are upgraded to version 9.10 and new installations of BSM version 9.00 or later.

By default, previous installations of BSM that are upgraded to version 9.10 use the old rules to calculate performance statuses, and new installations of BSM version 9.00 or later use the new **Status Average** rule. You can change the default rules used.

To modify the default rule used, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**:

➤ Select **Applications**.

➤ Select **End User/System Availability Manager**.

➤ In the **Data table**, locate the **Reports status rule type** entry. Change the value to:

  ➤ **New Status Rule**. To use the new Status Average rule for both BPM and RUM performance status thresholds.

  ➤ **Backward Compatibility.** To use the Average of Values rule for BPM performance status thresholds, and the Sum of Differences rule for RUM performance status thresholds.

Aggregating Real User Monitor Data

The RUM engine sends data samples to BSM, which aggregates the data for use in EUM reports. For details on BSM data aggregation, see "Data Aggregation" in *Reports*.

There are a number of data sample types that the RUM engine aggregates itself, before sending them to BSM. Once received in BSM, these pre-aggregated data samples are further aggregated by BSM on a daily basis. The following table lists the data sample types, the EUM report for which they are used, and their aggregation period in RUM:

Data Sample Type	Real User Monitor Report	Aggregation Period in Real User Monitor
Action	RUM Action Summary	Every five minutes
Transaction	➤ RUM Transaction Summary ➤ Application Summary ➤ Location Summary ➤ Metrics Over Time ➤ Performance Analysis ➤ Status Snapshot ➤ Triage Report	Every five minutes
Application Statistics	➤ RUM Tier Summary ➤ RUM End User Group Summary ➤ RUM Application Infrastructure Summary	Every five minutes

Data Sample Type	Real User Monitor Report	Aggregation Period in Real User Monitor
Top Domain	RUM Global Statistics	Every one hour
Missing Component (Broken Link)	RUM Global Statistics	Every five minutes
Most Error Action	RUM Global Statistics	Every five minutes
Session Statistics	➤ Application Summary ➤ Application Health ➤ Location Summary ➤ Status Snapshot	Every five minutes
Slow Action	RUM Global Statistics	Every five minutes
Slow End User	RUM Global Statistics	Every five minutes
Slow Location	RUM Global Statistics	Every five minutes
TCP Application Statistics	➤ RUM Tier Summary ➤ Location Summary ➤ RUM End User Group Summary ➤ RUM Application Infrastructure Summary	Every five minutes
Top Action	RUM Global Statistics	Every one hour
Top Location	RUM Global Statistics	Every one hour

You can change the aggregation period of these data sample types in the RUM engine JMX console. For details on changing the aggregation period, see "Using the JMX Console to Configure the HP Real User Monitor Engine" in the *Real User Monitor Administration* PDF.

Report Settings Overview

When you generate an EUM report, you configure a number of settings that determine the data included in the report, by filtering the data according to various criteria. When you move from one report to another within the same session (either by drilling down from one report to another, or by selecting a different report), the configured settings are carried over from report to report. You can access and change the settings from any report. The settings that you configure are:

➤ **The report time range and granularity.** For user interface details, see "Common Report and Page Elements" in Reports.

➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Note:

➤ When you move between reports, all the selected applications also move, but only the applications that are configured for the type of data relevant to the specific report are displayed. For example, if you select applications configured for BPM, but then move to a report that shows only real user data, the selected BPM applications are unavailable and are not displayed. If you then move to another report that shows synthetic user (BPM) data, the selected BPM applications are once again available and displayed.

➤ For certain reports, you can select a single application only. If you have previously selected multiple applications and then move to such a report, only one of the applications is selected (randomly). Also, if you have selected in any of the filters a CI collection that can contain multiple applications, the selection for that CI collection is cleared when you move to a single application report.

- **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739.

Note:

- Although active filters are carried over from report to report within the same session, not every active filter is applicable for every report. If you set a specific active filter for a report and then move to another report for which that filter is not valid, the specific filter tab is not displayed. When you move to a report for which that filter is valid, it is displayed with the settings you configured previously.
- For certain reports, you can select a single transaction only. If you have previously selected multiple transactions and then move to such a report, only one of the transactions is selected (randomly). Also, if you have selected in any of the filters a CI that can contain multiple transactions (CI collections, business transaction flows, or applications), the selection for that CI is cleared when you move to a single transaction report.

- **Data type.** In some reports, you can select the type of data you want to include in the report—real user data, synthetic user (BPM) data, or both. In such reports, you select the data type you want from a set of radio buttons. For reports that show one data type only, the data type is automatically selected by default.
- **Additional report settings.** In some reports, there are specific additional settings. For example, how you want the data to be grouped within the report. Descriptions of these settings are included in the help pages for the specific reports.

Displaying End-User Names in Reports

End-user group names are displayed in reports for end-user groups that have been configured in EUM Administration. For concept details on end-user groups, see "End-User Groups Overview" on page 277.

BSM includes a list of predefined end-user groups for some of the more common, publicly known IP ranges (for example, for the major Internet service providers). These predefined end-user groups are included in **Others** in the End-User Summary report, but are displayed in the Unconfigured End Users reports. For user interface details on the End-User Summary report, see "RUM End User Group Summary Report" on page 962. For user interface details on the Unconfigured End Users reports, see "Unconfigured End Users Report" on page 1060.

Note: If an IP range is included in both a predefined end-user group and an end-user group you configure, the end-user group you configure is used as the name in reports.

Understanding Transaction Breakdown in Reports

The transaction breakdown component in reports helps you determine whether poor transaction response times are caused by network or server problems, or by client delays, and to pinpoint exactly when the problems are occurring. The transaction breakdown component displays BPM data collected by scripts recorded using the Web (HTTP/HTML) protocol, or specific non-Web based TCP protocols.

For details on the reports that include the transaction breakdown component, see:

- "Performance Analysis Report" on page 906
- "Performance Raw Data Report" on page 913
- "Triage Report" on page 1046
- "Page Component Breakdown Report (BPM)" on page 901

This section includes:

Understanding Web Based Transaction Breakdown Reports

The Web based protocols for which BPM can perform transaction breakdown are configured in the **BdSupportedProtocols** setting in the **agent1.cfg** file on the BPM machine. For details on the agent1.cfg file, see "Business Process Monitor Configuration Files" in the *Business Process Monitor Administration* PDF. If a script for which BPM is configured to collect transaction breakdown data contains multiple protocols, Web based breakdown is used providing one of the protocols is a Web based protocol that is included in the **BdSupportedProtocols** configuration setting.

Note: Transaction breakdown is not supported by BPMs running scripts recorded in **wininet** mode in HP Virtual User Generator.

This section also includes:

Understanding How HP Business Service Management Breaks Down Transaction Response Times

When BSM runs a BPM script and measures response time for a specific transaction, BSM collects breakdown data—information about network/server activity during the transaction—for each component of every Web page accessed in the transaction.

Because BSM runs the script over multiple connections (in the same way a browser does when you access any URL), at any given moment in time there is typically an overlap in the various breakdown categories.

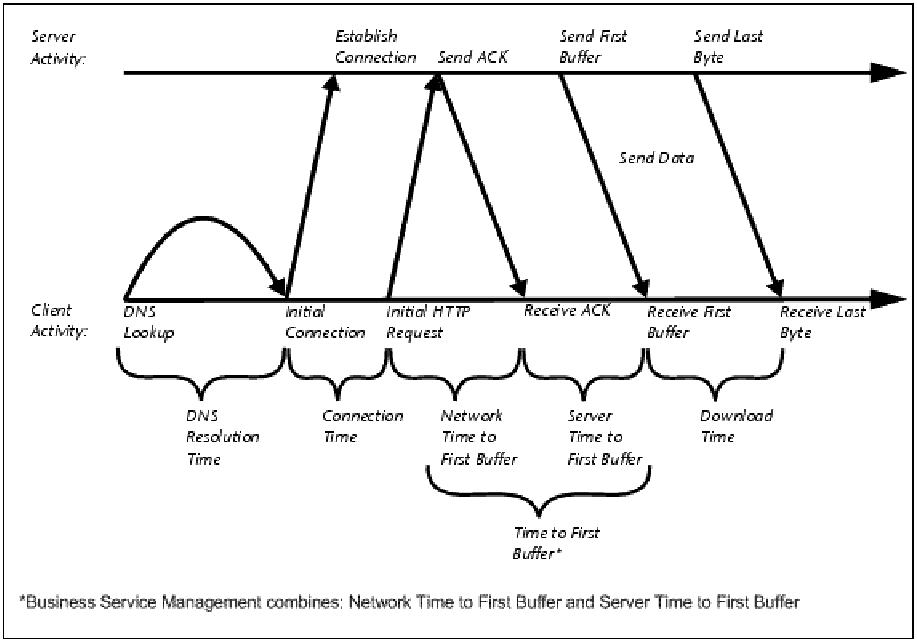
BSM uses a weighted algorithm to display the breakdown data that it collects. Every breakdown category for every element of the Web page is taken into consideration, and weight is given to the element according to its value relative to the other elements in the concurrent time period. For example, the DNS time for each element of the Web page is collected, weighted, and then displayed under the DNS time category.

Understanding Transaction Breakdown Categories

The transaction breakdown component in reports displays a breakdown of average transaction response times (in milliseconds) over time, for the selected time frame. Response times are broken down by retry time, DNS resolution time, connection time, network time to first buffer, server time to first buffer, download time, and client time. If your site uses SSL authentication, SSL handshaking time is also displayed.

The diagram below illustrates the relationship between the component's main breakdown categories (shown along the bottom of the diagram) and client-server activity during transaction execution.

Note that retry time, SSL handshaking time, and client time are not shown in this diagram and are described in the breakdown category table that follows the diagram.



The following table describes the component's breakdown categories. Times are calculated by taking the average of all transaction runs within the specified time period.

Name	Description
Retry Time	Displays the overall amount of time that passes from the moment an HTTP request is started until the moment an HTTP or TCP error message is returned. Retry time only relates to HTTP or TCP errors that execute a retry after the error.
DNS Resolution	Displays the average amount of time needed to resolve the DNS name to an IP address, using the closest DNS server. The DNS Lookup measurement is a good indicator of slow DNS resolution or other problems with the DNS server.
Connection Time	Displays the average amount of time needed to establish an initial connection with the Web server performing the transaction. The connection measurement is a good indicator of problems along the network or whether the server is responsive to requests.
SSL Handshaking Time	Displays the average amount of time taken to establish an SSL connection (includes the client hello, server hello, client public key transfer, server certificate transfer, and other—partially optional—stages). After this point, all the communication between the client and server is encrypted. **Note:** The SSL handshaking measurement is only applicable for HTTPS communications.
Network Time to First Buffer	Displays the average amount of time that passes from the moment the first HTTP request is sent until receipt of ACK. The network measurement is a good indicator of network quality (look at the time/size ratio to calculate download rate).

Name	Description
Server Time to First Buffer	Displays the average amount of time that passes from the receipt of ACK of the initial HTTP request (usually GET) until the first buffer is successfully received back from the Web server. The server time to first buffer measurement is a good indicator of Web server delay. **Note:** Because server time to first buffer is being measured from the client, network time may influence this measurement if there is a change in network performance from the time the initial HTTP request is sent until the time the first buffer is sent.
Download Time	Displays the time from the receipt of the first buffer until the last byte arrives. Download time is a combination of server and network time, since the server typically sends data over multiple connections, and therefore is usually working while data is being transmitted over the network. For more details, see "Understanding Download Time" on page 692.
Client Time	Displays the average amount of time that passes while a request is delayed on the client machine. Client-related delays can include browser think time, CPU think time, HTML page processing time, time needed to open sockets, application delays caused by heavy applets, and so on. **Note:** Client time is calculated by subtracting all other measured times from the total transaction time.

Note: In certain circumstances, for example, when the BPM is using a proxy server, the transaction breakdown mechanism cannot differentiate between server time to first buffer and network time to first buffer. In these cases, the report displays the time between initial HTTP request and receipt of first buffer as Time to First Buffer.

Understanding Download Time

When a BPM running a script communicates with a Web server (specified by the URLs in the script), communication is carried out, by default, over four connections simultaneously.

As the Web page is retrieved, its various components (images, applets, and so on) travel in data packets from server to client across these multiple connections.

As a result, at any point along the time line after the server sends the first buffer until the client receives the last byte for the page, data packets may be traveling over the network through some of the connections while others are being processed by the server through the remaining connections. The download time in the report represents the sum total of the time when network resources and server resources are in use at the same time, between the time the client receives the first buffer and the last byte.

Understanding Non-Web Based TCP Transaction Breakdown Reports

The non-Web based (TCP) protocols for which BPM can perform transaction breakdown are configured in the **AdvancedTcpBdSupportedProtocols** setting in the **agent1.cfg** file on the BPM machine. For details on the agent1.cfg file, see "Business Process Monitor Configuration Files" in the *Business Process Monitor Administration* PDF. If a script for which BPM is configured to collect transaction breakdown data contains multiple protocols, TCP breakdown is used providing one of the protocols is a non-Web based protocol that is included in the **AdvancedTcpBdSupportedProtocols** configuration setting and none of the protocols is a Web based protocol that is included in the **BdSupportedProtocols** configuration setting (in which case Web based breakdown is used).

Note:

- Non-Web based (TCP) transaction breakdown is supported on Windows only.
- Supported protocols must be TCP request/response based protocols.
- Non-Web based (TCP) transaction breakdown cannot be used with VuGen Speed Simulation.

This section also includes:

- "Understanding How HP Business Service Management Breaks Down Transaction Response Times" on page 694
- "Understanding Transaction Breakdown Categories for Non-Web Based (TCP) Transactions" on page 694
- "Understanding Time to First Buffer and Download Time for Non-Web Based (TCP) Transactions" on page 699
- "Understanding Breakdown Report Data for Non-Web Based (TCP) Transactions" on page 699
- "Notes and Limitations for Non-Web Based (TCP) Protocols" on page 700

Understanding How HP Business Service Management Breaks Down Transaction Response Times

When BSM runs a BPM script and measures response time for a specific transaction, BSM collects breakdown data—information about TCP activities during the transaction—for each request (component) of the transaction. A TCP request (component) represents a sequence of measurements starting with a DNS resolution, TCP Connect operation, or a Send operation on an open connection and ending with the last Receive operation for the relevant starting operation.

Because some TCP based protocols can use multiple connections, at any given moment in time there can be an overlap in the various breakdown categories.

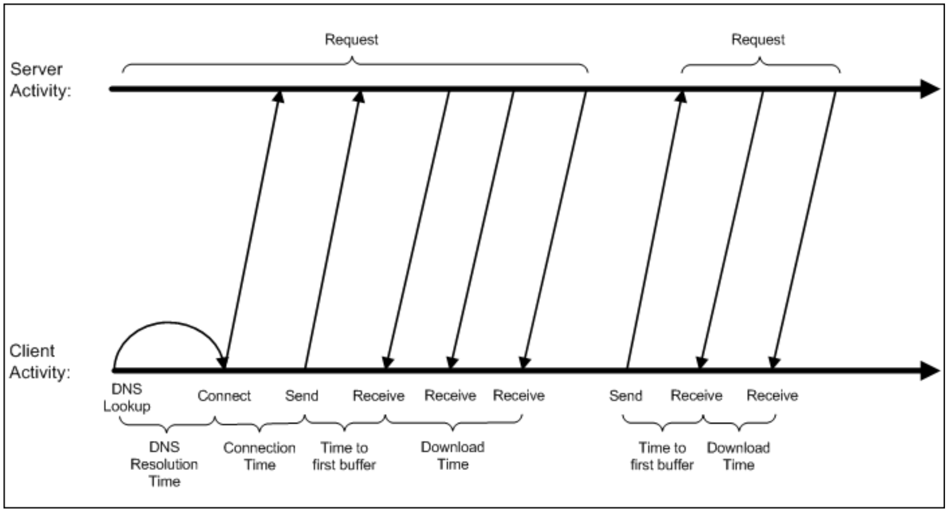
BSM uses a weighted algorithm to display the breakdown data that it collects. Every breakdown category for every element of the connection requests is taken into consideration, and weight is given to the element according to its value relative to the other elements in the concurrent time period. For example, the Connect time for each request in the connection is collected, weighted, and then displayed under the Connect time category.

Understanding Transaction Breakdown Categories for Non-Web Based (TCP) Transactions

The transaction breakdown reports display a breakdown of average transaction response times (in milliseconds) over time, for the selected time frame. Response times are broken down by DNS resolution time, connection time, network time to first buffer, server time to first buffer, download time, and client time.

The diagram below illustrates the relationship between the report's main breakdown categories (shown along the bottom of the diagram) and TCP client/server activity during transaction execution. In the diagram, there are two sequential TCP requests included in the same connection.

Note that client time is not shown in this diagram and is described in the breakdown category table. For details, see "Client Time" on page 698.



The following table describes the report's breakdown categories, which comprise a TCP request. Times are calculated by taking the average of all transaction runs within the specified time period.

Name	Description
DNS Resolution	Displays the average amount of time needed to resolve the DNS name to an IP address, using the closest DNS server. The DNS Lookup measurement is a good indicator of slow DNS resolution or other problems with the DNS server. **Note:** If the DNS resolution is adjacent to a Connect for the same IP address, it is considered part of the request (component) and its time is displayed in the breakdown reports. Otherwise, the DNS resolutions of one or more hosts without an adjacent Connect are considered as a separate request (component). In such cases, only the DNS Resolution time is displayed for that request and for all other measurements, a minus sign (-) is displayed.
Connection Time	Displays the average amount of time needed to establish an initial connection with the TCP server performing the transaction. The connection measurement is a good indicator of problems along the network or whether the server is responsive to requests. **Note:** If a connection did not occur within a request's (component's) context, a minus sign (-) is displayed for the connection time in the breakdown reports.

Name	**Description**
Time to First Buffer	Displays the average amount of time that passes from the first TCP Send, up to and including the first Receive of a component. This measurement includes both network time and server time that are required for handling the first TCP buffer and therefore, it is a good indicator of both network quality and server delay. **Note:** ➤ This measurement is only shown if both Sends and Receives are included in the request (component). ➤ If there are no Sends or Receives within a request (component), a minus sign (-) is displayed in the breakdown reports.
Network Time to First Buffer	Displays the time from the first Send up to and including the last Send. This measurement is a good indicator of network quality. **Note:** This measurement is only shown if there are Sends included in the request (component), but no Receives.
Server Time to First Buffer	This measurement is only shown if there are Sends included in the request (component), but no Receives. A minus sign (-) is displayed in the breakdown reports.

Name	Description
Download Time	Displays the time from the receipt of the second TCP buffer up to and including receipt of the last byte. Download time usually only includes network time and is influenced by both network quality and component size. For more details, see "Understanding Time to First Buffer and Download Time for Non-Web Based (TCP) Transactions" on page 699. **Note:** If a download did not occur within a request's (component's) context, a minus sign (-) is displayed for the download time in the breakdown reports.
Client Time	Displays the average amount of time that passes while a request is delayed on the client machine. Client-related delays can include CPU think time, processing time, time needed to open sockets, time between the last Receive of a request and the first Send of the next request in the same connection, and so on. **Note:** Client time is calculated by subtracting all other measured times from the total transaction time.

Note: Either Time to First Buffer or Network Time to First Buffer and Server Time to First Buffer are displayed.

Understanding Time to First Buffer and Download Time for Non-Web Based (TCP) Transactions

Time to First Buffer includes both network time (for sending the packet) and server time (for processing the packet), whereas Download time usually includes only network time (for downloading the rest of the reply packets). This means that if both Time to First Buffer and Download times increase, it is a good indicator of network quality problems and if only Time to First Buffer increases, it is usually a good indicator of server delay problems.

Understanding Breakdown Report Data for Non-Web Based (TCP) Transactions

The same breakdown reports are used to display Web based breakdown data and non-Web based (TCP) breakdown data, but the following differences apply when viewing non-Web based (TCP) breakdown data:

- The **Page** column (which displays page names for Web based transactions) is not applicable for non-Web based transactions and a minus sign (-) is displayed in this column for all non-Web based components.
- The **Retry Time** and **SSL Handshake Time** columns are not applicable for non-Web based transactions and a minus sign (-) is displayed in these columns for all non-Web based components.
- In the **Component/Request** column (which displays URLs for Web based breakdown data), the name of the TCP request (component) is displayed. The name can be one of the following:
  - **TCP_BdwnDns<nnn>.** For DNS only components (for example, a DNS component that does not have an adjacent Connect component correlated to the same IP address). The number in the display is sequentially incremented for each component entry. For such entries, only the DNS Resolution time is displayed and for all other measurements, a minus sign (-) is displayed.
  - **TCP_BdwnReq<nnn>.** For TCP request components. The number in the display is sequentially incremented for each component entry.
- For non-Web based (TCP) components, there is no tooltip available for the **Page** column.

➤ You cannot click a non-Web based (TCP) component to drill down to further information about it.

Notes and Limitations for Non-Web Based (TCP) Protocols

The following table lists the TCP protocols for which breakdown data can be displayed, together with special notes and limitations where applicable:

Protocol	Notes and Limitations
EJB	Multi-threaded protocol.
FTP	Both FTP passive and FTP active modes are supported.
IMAP	The communication in an IMAP script usually starts with a server's greeting message. Consequently, the first TCP breakdown component (request) in the script is usually reported with valid DNS and Connect times, whereas the Download time is reported as 0 and all other measurements are not applicable and are shown with a minus (-) sign in the reports.
Java Record/Replay	➤ This is a new protocol added in VuGen 9.0 which supports and combines the following Java protocols–RMI, CORBA, JMS, JACADA, and Custom Hooks. TCP breakdown is supported only when the script is recorded using RMI protocol calls. If the script includes other protocol calls, TCP breakdown results are not defined. ➤ Multi-threaded protocol. ➤ Both RMI over IIOP and RMI over JRMP are supported. ➤ Some Java applications which use the RMI protocol send many ping requests between application-driven RMI calls. Consequently, the TCP breakdown reports many components with a small Time to First Buffer value and with a Download size of approximately 1 byte. ➤ The last step in a Java Record/Replay script (which terminates the connection to the server) sometimes ends with data being sent by the client, without receiving any response. Consequently, there is a corresponding TCP breakdown component reported with a Network Time to First Buffer value >= 0 and with all other measurements not applicable and shown with a minus (-) sign in the reports.

Protocol	Notes and Limitations
LDAP	The last step in an LDAP script (which terminates the connection to the server) usually ends with data being sent by the client, without receiving any response. Consequently, there is a corresponding TCP breakdown component reported with a Network Time to First Buffer value >= 0 and with all other measurements not applicable and shown with a minus (-) sign in the reports.
ODBC	N/A
Oracle 2-Tier	Some of the steps in an Oracle 2-Tier script end with data being sent by the client, without receiving any response. Consequently, there are TCP breakdown components reported with a Network Time to First Buffer value >= 0 and with all other measurements not applicable and shown with a minus (-) sign in the reports.
Oracle NCA	If the script works over HTTP communications, you can run it using Web breakdown (which is the default). If the protocol is run using TCP socket communications instead of HTTP, Web breakdown is not applicable and you can run it using TCP breakdown instead, providing that: ➤ the script is recorded in such a way so that the Active Types with which the script is recorded are Oracle NCA only (that is, the script does not include WEB(HTTP/HTML)). ➤ you move the Oracle NCA protocol from the **BdSupportedProtocols** list to the **AdvancedTcpBdSupportedProtocols** list in the **agent1.cfg** file on the BPM machine.
POP3	The communication in a POP3 script usually starts with a server's greeting message. Consequently, the first TCP breakdown component (request) in the script is usually reported with valid DNS and Connect times, whereas the Download time is reported as 0 and all other time measurements are not applicable and are shown with a minus (-) sign in the reports.

Protocol	Notes and Limitations
RMI Java	➤ Multi-threaded protocol. ➤ Both RMI over IIOP and RMI over JRMP are supported. ➤ Some Java applications which use the RMI protocol send many ping requests between application-driven RMI calls. Consequently, the TCP breakdown reports many components with a small Time to First Buffer value and with a Download size of approximately 1 byte. ➤ The last step in an RMI script (which terminates the connection to the server) sometimes ends with data being sent by the client, without receiving any response. Consequently, there is a corresponding TCP breakdown component reported with a Network Time to First Buffer value >= 0 and with all other measurements not applicable and shown with a minus (-) sign in the reports.
SAP GUI	Multi-threaded protocol.
SMTP	N/A

Drilling Down Within Reports

In many of the EUM reports it is possible to drill down from one report to another to:

- View more detailed information about applications, end-user groups, actions, events, transactions, servers, running software elements, and sessions.
- View relevant data in Transaction Management, HP Diagnostics, or Network Node Manager (NNMi).
- View a higher time resolution for the same report.

The available drilldown options in a report depend on the specific report as well as your system configuration.

In table view, you drill down within a report by selecting a row in the table and clicking the required drilldown button. In graph view, you drill down within a report by right-clicking a data point, bar, or pie chart slice to display a Shortcut menu, and clicking the required menu option.

When you drill down within a report, or move from one report to another, any active filters that have been set are automatically applied to the new report. However, if you use the breadcrumb link to return to a previously displayed report, the current active filters are not used and the original filters for the report in question are applied, until you regenerate the report or generate a different report. For details on active filters, see "Active Filters Dialog Box" on page 739.

Viewing Page Component Breakdown Data in other Contexts

In addition to generating the Page Component Breakdown report from the Utilities tab in the EUM application, you can generate page component breakdown data in the following contexts:

- If page component breakdown data collection is enabled for a specific script, BSM collects and saves page component breakdown data for a sampling of transaction instances over a given time period. You can view this data via the Performance Analysis or Triage reports. For details on enabling page component breakdown data collection, see "Default Transaction Breakdown" on page 169. For details on viewing page component breakdown data in the Performance Analysis report, see "Performance Analysis Report" on page 906.
- A Page Component Breakdown report can be generated on demand from the Business Process Monitor page within Business Process Monitor Admin. For details, see "Run Page Component Breakdown" in the *Business Process Monitor Administration* PDF.
- If page component breakdown data collection is enabled for a specific script, a Page Component Breakdown report is generated when invoking a task from the Business Transaction Flow page within Business Process Monitor Admin. For details, see "Task Reports" in the *Business Process Monitor Administration* PDF.

Correlating Transaction Breakdown Summary Data with Other HP Business Service Management Reports

You can cross-reference transaction breakdown data with data in other BSM reports. For example:

- Using the Performance Status report, you may determine that average response time for a transaction being run from a particular location is close to the maximum transaction time, indicating poor response times for the transaction at that location. By viewing the Performance Analysis report for that transaction and location, you may discover that server time to first buffer is unusually high. This could indicate a problem with the Web server serving the region in which the host is located.
- To analyze the source of high download time, analyze server performance in the System Availability Management reports to pinpoint potential server-side problems. For details, see "Cross-Performance Report" in *Using System Availability Management*.
- To analyze the source of slow network times, click anywhere in the transaction breakdown bar except the Retry Time, Time to First Buffer, Server Time to First Buffer, or Download segments to open the WebTrace report for the current time period. To provide meaningful correlation between the transaction breakdown data and the WebTrace data, it is recommended that you configure WebTrace to access the same servers that your transactions are accessing. For details on the WebTrace report, see "BPM WebTrace Report" on page 1082. For details on configuring WebTraces, see "WebTrace Dialog Box" on page 257.
- To analyze the source of slow Server Time to First Buffer or Download times, click the appropriate segment in the transaction breakdown bar to view the Diagnostics Transactions page in HP Diagnostics (a licensed version of HP Diagnostics is required). For details, see the *HP Diagnostics User's Guide*.

Viewing Data for Different Application Tier Types in Real User Monitor Reports

In a number of EUM reports for RUM, the availability of certain tabs, graphs, tables, and data depends on the types of the application tiers for which the report is generated—application tiers (with or without TCP settings) that support actions, TCP request-response application tiers, TCP streaming tiers, UDP tiers, and so forth. If you generate a report for more than one type of application tier, only data that is common to all the selected application tier types is displayed.

For user interface details on creating applications, see "Real User Monitor Application Configuration Wizard" on page 372.

This section also includes:

Highlights Tab

In some reports, there is a **Highlights** tab that includes data from other tabs in the same report. If a tab is not available in a report, the Highlights tab does not include any data from that tab.

UDP Connectionless Protocol Tiers

If all the selected tiers in a report are for UDP connectionless protocols, connection availability, timed out connections, and accepted connections data are not available and such columns are not displayed.

In the RUM Tier Summary report, for those tiers that are for UDP connectionless protocols, connection availability, timed out connections, and accepted connections data are not shown for those specific tiers and in the relevant columns a minus sign (-) is displayed.

Application Health Report

If you generate the report for RUM data and all the selected tiers are UDP connectionless protocol tiers, the **End User Group, Server and Location Distribution** components are not displayed. Also, in the **Availability and Load Over Time** and **Connections Over Time** component, connection data is not shown and in the **Availability and Load Over Time** component, the **Availability %** axis is not displayed.

Location Summary Report

If you generate the Location Summary report and all the selected tiers are transactionless protocol tiers (for example UDP, TCP streaming, and TCP request-response), the following component are not displayed.

- Geographical Map tab
- Transaction Threshold Breaches (in the Details tab)
- Transactions with Errors (in the Details tab)

RUM End User Group Summary Report

The RUM End User Group Summary report groups and displays data in different tabs—Highlights, Application, and Network. The availability of these tabs depends on the tier types of the applications for which you generate the report. The following table describes which tabs are available for the different application tier types:

Report Tab	Application Tiers Without TCP Settings That Support Actions	Application Tiers With TCP Settings That Support Actions	TCP/UDP Request-Response Tiers	TCP/UDP Streaming Tiers
Highlights	✔	✔	✔	✔
Application	✔	✔	✔	
Network		✔	✔	✔

For details on the RUM End User Group Summary report, see "RUM End User Group Summary Report" on page 962.

RUM End User Group Over Time Report

The RUM End User Group Over Time report displays data in different graphs. The availability of these graphs, as well as the data included in them, depends on the tier types of the applications for which you generate the report. The following table describes which graphs are available for the different application tier types:

Report Component	Application Tiers Without TCP Settings That Support Actions	Application Tiers With TCP Settings That Support Actions	TCP/UDP Request-Response Tiers	TCP/UDP Streaming Tiers
Application Traffic Over Time		✔	✔	✔
Latency Over Time Graph		✔	✔ **Note:** This component is not displayed if all the selected tiers for the report are UDP tiers.	✔ **Note:** This component is not displayed if all the selected tiers for the report are UDP tiers.
Action Hits Over Time graph	✔	✔		
Events Over Time graph	✔	✔		
Requests Over Time graph		✔	✔	
Packets with Errors Over Time graph		✔	✔	✔

Note: If you generate the RUM End User Group Over Time report for a combination of application tiers that support actions (that is, tiers both with and without TCP settings), only the Action Hits Over Time and Actions with Events Over Time components are displayed.

For details on the RUM End User Group Over Time report, see "RUM End User Group Over Time Report" on page 950.

RUM Application Infrastructure Summary Report

The RUM Application Infrastructure report groups and displays data in different tabs—Highlights, Application, and Network. The availability of these tabs depends on the tier types of the applications for which you generate the report. The following table describes which tabs are available for the different application tier types:

Report Tab	Application Tiers Without TCP Settings That Support Actions	Application Tiers With TCP Settings That Support Actions	TCP/UDP Request-Response Tiers	TCP/UDP Streaming Tiers
Highlights	✔	✔	✔	✔
Application	✔	✔	✔	
Network		✔	✔	✔

For details on the RUM Application Infrastructure report, see "RUM Application Infrastructure Summary Report" on page 928.

Application Infrastructure Over Time Report

The Application Infrastructure Over Time report displays data in different graphs and tables. The availability of these graphs and tables, as well as the data included in them, depends on the type of applications for which you generate the report. The following table describes which graphs, tables and data are available for the different application types:

Report Component	Application Tiers Without TCP Settings That Support Actions	Application Tiers With TCP Settings That Support Actions	TCP/UDP Request-Response Tiers	TCP/UDP Streaming Tiers
Running Software/ Server Availability – application data	✔	✔		
Running Software/ Server Availability – connection data **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this component is not displayed.		✔	✔	✔
Application Traffic		✔	✔	

Report Component	Application Tiers Without TCP Settings That Support Actions	Application Tiers With TCP Settings That Support Actions	TCP/UDP Request-Response Tiers	TCP/UDP Streaming Tiers
Running Software/ Server Requests		✔	✔	
Traffic Throughput		✔	✔	✔
TCP Server Errors		✔	✔	✔

For details on the Application Infrastructure Over Time report, see "Application Infrastructure Over Time Report" on page 868.

RUM Tier Summary Report

The RUM Tier Summary report groups and displays data in different tabs—Highlights, Application, and Network. While all the tabs are always included in the report, certain application tier types may not be included in a tab, or specific fields may not show data for certain application tier types.

- If a selected application includes a TCP/UDP streaming tier, for which partial data only is available, some columns do not display data for this tier.
- If a selected application includes a tier that does not have any HTTP or TCP data, the Application tab does not include this tier.
- If a selected application includes a tier that does not have any TCP or UDP data, the Network tab does not include this tier.
- For UDP protocols, some of the columns in the Network tab do not display data.

The following table describes which application tier types are relevant for each tab:

Report Tab	Application Tiers Without TCP Settings That Support Actions	Application Tiers With TCP Settings That Support Actions	TCP/UDP Request-Response Tiers	TCP/UDP Streaming Tiers
Highlights		✔	✔	✔
Application	✔	✔	✔	✔ **Note:** The tab is displayed, but TCP/UDP streaming tiers are not included.
Network		✔	✔	✔

Note: For an HTTP only tier, only the Application tab is displayed.

For details on the RUM Tier Summary report, see "RUM Tier Summary Report" on page 983.

Tiers Over Time Report

The Tiers Over Time report displays data in different graphs and tables. The availability of these graphs and table depends on the type of applications for which you generate the report. The following table describes which graphs and tables are available for the different application types:

Report Component	Application Tiers Without TCP Settings That Support Actions	Application Tiers With TCP Settings That Support Actions	TCP/UDP Request-Response Tiers	TCP/UDP Streaming Tiers
Throughput and Connection Availability Over Time		✔	✔	✔
Packets with Errors Over Time		✔	✔	✔
Action Response Time and Load Over Time	✔	✔	✔	
Tier Availability and Load Over Time	✔	✔		

For details on the Tiers Over Time report, see "Tiers Over Time Report" on page 1023.

Viewing HP Diagnostics Data From End User Management Reports

If HP Diagnostics has been registered and enabled on your BSM system, you can drill down to the HP Diagnostics server to view server request details or synthetic transaction details for specific pages or actions from some of the EUM reports.

This section includes:

End User Management Reports with Drilldown to HP Diagnostics

The following tables list the applicable EUM reports and describes the data included in the HP Diagnostics view.

From the reports listed below you can drill down to Diagnostics server request details. The drill down to Diagnostics displays a snapshot with details for the corresponding server requests. In the snapshot you can select any of the instance tree icons to drill down further to the call profile:

End User Management Report	Data included in the HP Diagnostics Snapshot
Session Details	Server request instance details for the corresponding clickstream page URL, or action description.

End User Management Report	Data included in the HP Diagnostics Snapshot
RUM Action Summary	Server request instance details for the corresponding URL or action description, in the given time period.
Action Over Time > Load and Response Time Breakdown Over Time table	
End Users by Action	
Application Infrastructure by Action	
Action Raw Data	

For details on working with the Server Requests view or the Analyze Snapshots view, see the *HP Diagnostics User's Guide*.

From the reports listed below you can drill down to Diagnostics Synthetic Transactions view, which displays the back-end performance metrics for the synthetic transactions being executed:

<table>
<tr><th>End User Management Report</th><th>Data included in the HP Diagnostics Snapshot</th></tr>
<tr><td>Performance Analysis (for synthetic user data):
➤ Transaction Breakdown component
➤ Transaction Performance component</td><td rowspan="4">Server request instance details for the corresponding URL or action description, in the given time period.</td></tr>
<tr><td>Performance Analysis Raw Data > Transaction Performance component (for synthetic user data)</td></tr>
<tr><td>Triage > Transaction Breakdown component</td></tr>
<tr><td>Triage Raw Data > Transaction Breakdown component</td></tr>
</table>

For details on working with the Synthetic Transactions view see the *HP Diagnostics User's Guide*.

Notes and Limitations

The following notes and limitations apply when drilling down to HP Diagnostics:

- The drilldown button to HP Diagnostics in the EUM reports is enabled only if:
  - you have registered and enabled HP Diagnostics in BSM. To register and enable HP Diagnostics in BSM, select **Admin** > **Diagnostics**.
  - RUM has detected Diagnostics data for the requested action.

- If clickstream is not enabled for an application in EUM Administration, the integration between RUM and HP Diagnostics is disabled for the application. For details on enabling clickstream, see "Real User Monitor Application Data Collection Page" on page 381.
- The data displayed in the HP Diagnostics snapshot is data aggregated by URL/action description, whereas the data displayed in the EUM reports is data aggregated by time, except in reports that use raw data (for example, the RUM Session Analyzer and Session Details reports).
- If the URL of a page, or the description of an action, you have configured for monitoring in EUM Administration has passed through a Web server that uses URL rewriting, the URL/description in RUM differs from the corresponding URL/description in HP Diagnostics and a match is not found when drilling down.
- If an application is installed on multiple servers working behind a load balancer, the page URL, or action description, in RUM has multiple corresponding URLs/descriptions in HP Diagnostics. In such a case, when you drill down to the HP Diagnostics snapshot all the corresponding URLs/descriptions are displayed, but only one of those URLs/descriptions is selected.
- Parameter aggregation is enabled by default in the Diagnostics Probe points file. To obtain an exact match in HP Diagnostics for a RUM URL/description that contains a parameter, you must define keys for the parameter values in the Diagnostics Probe points file.

  If you do not define keys for the parameter values, or have turned off parameter aggregation in the Diagnostics Probe points file, and the URL/description that you are drilling down from in the EUM report includes a parameter, an exact match is not found when drilling down and you have to manually locate the server request in HP Diagnostics.
- For real user data, if the application server handling a particular page is not monitored by a Diagnostics probe, the drilldown button to HP Diagnostics is disabled.
- By default, HP Diagnostics does not monitor post parameters. To configure HP Diagnostics to monitor post parameters, see the Integration section of the *HP Diagnostics User's Guide*.

➤ If you are unable to drill down to view HP Diagnostics data from the Session Details report, if the Session Replay window is open, try closing it to solve the problem.

Viewing TransactionVision Data From End User Management Reports

If TransactionVision (TV) has been deployed on your BSM system, you can drill down to Transaction Management (TM) reports for specific transactions, pages, or actions from some of the EUM reports. For details on working with the (TM) reports, see *Using Transaction Management*.

This section includes:

➤ "Overview of End User Management and Transaction Management Integration" on page 719

➤ "End User Management Reports With Drilldown to Transaction Management Reports" on page 721

➤ "Configuring the Drilldown from End User Management to Transaction Management" on page 723

Overview of End User Management and Transaction Management Integration

When drilldowns from EUM reports to Transaction Management (TM) reports are enabled (for details, see "Configuring the Drilldown from End User Management to Transaction Management" on page 723), you can drill down to a number of TM reports to view data on the selected EUM entities (transactions, pages, or actions). The TM reports to which you can drill down depend on the EUM report you are viewing. For a list of the EUM reports and the available drilldowns to TM reports, see "End User Management Reports With Drilldown to Transaction Management Reports" on page 721.

The most common drilldown is to TM's Transaction Tracking report. In this report, you can view the raw data of the transaction instance that TV has collected for the transaction selected in the EUM report. This data includes:

- Business content data such as monetary value, customer names, account number, and so forth.
- Transaction state information such as success or failure, complete or incomplete.
- Response times and breakdown of all the back-end infrastructure across which the selected transaction flowed.

By viewing this data, you are also able to see a complete end to end response time that includes both the end-user time and the time of all the back-end components.

Since all BSM applications use a unified model to describe transactions and their impacted infrastructure, both EUM and TV can report metrics on exactly the same transaction CI and such data can be shared among all BSM applications. For this to occur, you must configure each application to monitor that transaction. For example, if you have a business transaction called Bond, in EUM you configure the Bond business transaction for RUM, BPM, or both and in TM you set up transaction tracing on the Bond business transaction CI. This enables you to see a holistic view of a transaction in TM reports, that combines data from all these sources as well as other applications such as Service Health and Service Level Management. Some other benefits of enabling both EUM and TV on the same transaction are:

- For BPM, TV reports and connects impacted infrastructure CIs to the business transaction CI on which BPM is configured. This enables you to see all the infrastructure connected to the transaction in other BSM applications, such as in Service Health's 360 View, Top View, and Topology Map.
- For RUM, TV also reports and connects impacted infrastructure CIs to the business transaction CI on which RUM is configured. This provides additional impacted CI's which are not visible to RUM, based on TV's in-depth knowledge of the back-end infrastructure, as well as reconciliation of the CIs that are visible to RUM with the more in-depth CIs from TV.
- When RUM and TV are configured to monitor the same transaction, the TM aggregate reports show a combined view of the transaction that uses metrics from RUM and TV put together.
  - In the Transaction Summary report, you can see transaction metrics that include both the full end-to-end transaction time, as well as a breakdown by end-user and back-end time.
  - In the Aggregated Topology report, you can see the flow of a transaction across infrastructure combining the end-user topology (such as Web clients and Web servers) provided by RUM with the back-end topology (such as messaging middleware, mainframes, databases, and application servers) provided by TV.
- The drilldowns from EUM reports to the Transaction Summary and Aggregated Topology reports will show matching data when TV and EUM are both configured on the same transaction.

End User Management Reports With Drilldown to Transaction Management Reports

The following table lists the applicable EUM reports and describes the TM reports to which you can drill down and the data included in them:

End User Management Report	Transaction Management Report	Data included in the Transaction Management Report
RUM Session Analyzer	Transaction Tracking	The first ten pages/actions included in the selected session.
Session Details	Transaction Tracking	The selected page/action hit only.
RUM Action Summary	Transaction Tracking	Up to ten hits of the selected page/action that have the slowest server time in the given time period.
Action Over Time > Load and Response Time Breakdown Over Time table		
End Users by Action		
Application Infrastructure by Action		
Action Raw Data		
Triage > Transaction Breakdown component	Transaction Tracking	All the transactions and locations configured in the report filter. **Note:** The drill down is applicable for synthetic user (BPM) data only.
Triage Raw Data > Transaction Breakdown component		
Performance Analysis > Transaction Breakdown component		

<table>
<tr><th>End User Management Report</th><th>Transaction Management Report</th><th>Data included in the Transaction Management Report</th></tr>
<tr><td>RUM Transaction Summary</td><td rowspan="4">Transaction Summary

and

Aggregated Topology</td><td rowspan="4">Data for the specific transaction selected in the report in EUM.</td></tr>
<tr><td>Application Health > Business Summary component</td></tr>
<tr><td>Triage > Transaction by Location component</td></tr>
<tr><td>Performance Analysis > Transaction Performance component</td></tr>
</table>

Note: The data displayed in the TM Transaction Tracking report is raw data, whereas the data displayed in the EUM reports is aggregated data, except in reports that use raw data (for example, the RUM Session Analyzer and Session Details reports).

Configuring the Drilldown from End User Management to Transaction Management

By default, the drill down from EUM reports to TM reports is not configured. To configure the drill down, you must do the following:

- Ensure that the required Business Transaction CIs are both configured for monitoring in the EUM application and enabled for tracing in the TM application.
  - For details on configuring transactions for monitoring by RUM, see "Business Transaction Real User Monitor Configuration Page" on page 330.
  - For details on configuring transactions for monitoring by BPM, see "Business Transaction Business Process Monitor Configuration Page" on page 203.
  - For details on enabling tracing in TM, see "Business Transaction Tracing" in *Using Transaction Management*.
- For real user data:
  - Configure an Analyzer in the TransactionVision deployment environment to process RUM events. See "Enabling an Analyzer for RUM" in *Using Transaction Management*.
  - Assign the TV default RUM communication link to that same Analyzer. See "Default Communication Links" in *Using Transaction Management*.
  - Configure at least one Real User Monitor engine to connect to the TransactionVision Analyzer configured to process RUM events. This involves using the Configuration drop-down menu on the Real User Monitor engine Web console to access the TV Connection Settings. For details, see "TransactionVision Connection Settings" in the *Real User Monitor Administration* PDF.
  - Ensure that clickstream is enabled for RUM applications in EUM Administration. If clickstream is not enabled for an application, the integration between RUM and TV is disabled for the application. For details on enabling clickstream, see "Real User Monitor Application Data Collection Page" on page 381.

➤ For synthetic user (BPM) Data

Enable Diagnostics/TV breakdown for the selected applications' transactions. For user interface details, see "Default Transaction Settings Page" on page 166.

Note: Once configured, the Transaction Tracking drilldown button in EUM reports is only enabled if TM data for the requested EUM entity (transaction or action) is detected. The drilldown buttons for the Transaction Summary and Aggregated Topology reports are always enabled.

Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports

If you have configured a link in BSM to an NNMi server, you can drill down to view NNMi data from some of the EUM reports. In NNMi you can see trace route information between a source (client) machine and destination (server) machine, which can help you identify the root cause of network problems and pinpoint common network problems. For details on working with NNMi, see the NNMi documentation.

This section includes:

End User Management Reports With Drilldown NNMi

The following table lists the EUM reports from which you can drill down to view NNMi data and describes the relevant source and destination machines for which trace route data is displayed:

Real User Monitor Report	Source and Destination Machines
Action Over Time Report (for details, see "Action Over Time Report" on page 843).	The source and destination IP addresses with the worst network time for the selected action. If more than one action is included in the filter, the first action is used.
Action Raw Data Report (for details, see "Action Raw Data Report" on page 853).	The source and destination IP addresses with the worst network time for the selected action.
RUM Action Summary Report (for details, see "RUM Action Summary Report" on page 919).	The source and destination IP addresses with the worst network time for the selected action.
RUM End User Group Over Time Report (for details, see "RUM End User Group Over Time Report" on page 950).	The source and destination IP addresses for the request-response with the worst network time in the selected application. If more than one end-user group is included in the filter, the first end-user group is used. **Note:** You can drill down to NNMi from this report only when it is generated for TCP applications, or Web applications with TCP data.
RUM End User Group Summary Report (for details, see "RUM End User Group Summary Report" on page 962).	The source and destination IP addresses for the request-response with the worst network time from the selected application. **Note:** You can drill down to NNMi from this report only when it is generated for TCP applications, or Web applications with TCP data.
RUM Tier Summary Report (for details, see "RUM Tier Summary Report" on page 983).	The source and destination IP addresses for the request-response with the worst network time in the selected application.

Real User Monitor Report	Source and Destination Machines
RUM Transaction Summary Report (for details, see "RUM Transaction Summary Report" on page 991).	The source and destination IP addresses with the worst network time for the selected transaction.
Session Details Report (for details, see "Session Details Report" on page 998).	The action server and session client IP addresses.
Tiers Over Time Report (for details, see "Tiers Over Time Report" on page 1023).	The source and destination IP addresses for the request-response with the worst network time in the selected application.
Transaction Over Time Report (for details, see "Transaction Over Time Report" on page 1035).	The source and destination IP addresses with the worst network time for the selected transaction. If more than one transaction is included in the filter, the first transaction is used.

Enabling the Drilldown from End User Management to NNMi

To configure a link in BSM to an NNMi server, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings:**

➤ Select **Foundations**.

➤ Select **Integrations with other applications**.

➤ In the **HP NNM** table, locate **HP NNM Integration URL**. Change the value to the protocol, host, and port number of the NNMi server.

NNMi uses Lightweight Single Sign-On (LW-SSO.) You must configure BSM for LW-SSO so that it can access NNMi, and the two systems must share a common key. If NNMi and BSM reside on different domains, you must update their LW-SSO configurations to accept multiple domains. For details on LW-SSO, see "Lightweight Single Sign-On Strategy" in *Platform Administration*.

Tasks

How to Customize End User Management Reports

You can customize some aspects of the EUM reports.

Note: The steps in the task are optional and can be performed in any order.

This task includes the following steps:

Configure Transaction Ordering

You can specify the order in which you want transactions that are part of an application to appear in the following EUM reports: BPM Performance Over Time, Performance Status, and Metrics Over Time (in the legend). For user interface details, see "Business Process Monitor Application Reports Configuration Page" on page 202.

Configure Transaction Coloring

You can modify the colors used to represent transactions in the Metrics Over Time report. For user interface details, see "Business Process Monitor Application Reports Configuration Page" on page 202.

Modify the Default Number of Rows Displayed in a Table

By default, each table in a report displays a maximum of 20 rows. You can configure BSM to display a different number of rows in a table, in the Infrastructure Settings Manager.

To modify the default number of rows displayed in a table, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**:

➤ Select **Applications**.

➤ Select **End User/System Availability Management**>.

➤ In the **End User/System Availability Management - Data** table, locate the **Max Table Rows** parameter. Change the value to the required number.

Modify the Number of Rows Returned from the Database

By default, the maximum number of rows that are returned from the database for EUM reports is 200. You can configure BSM to return a different number of rows from the database, in the Infrastructure Settings Manager.

To modify the default number of rows returned from the database, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**:

➤ Select **Applications**.

➤ Select **End User/System Availability Management**.

➤ In the **End User/System Availability Management - Data** table, locate the **Max rows returned from the database in EUM Reports** parameter. Change the value to the required number.

Note: Reports that display data over time may return more than the configured maximum number of rows, if not enough data is retrieved from the database for the report's time period.

Additional Customization Options

For details on additional report customization options, see "Customizing Reports" in *Reports*.

How to Enable Snapshot on Error When Recording Scripts

This task describes how to enable snapshot on error when recording HP Virtual User Generator and QuickTest Professional (QTP) scripts.

To enable the generation of snapshots when an error occurs in HP Virtual User Generator:

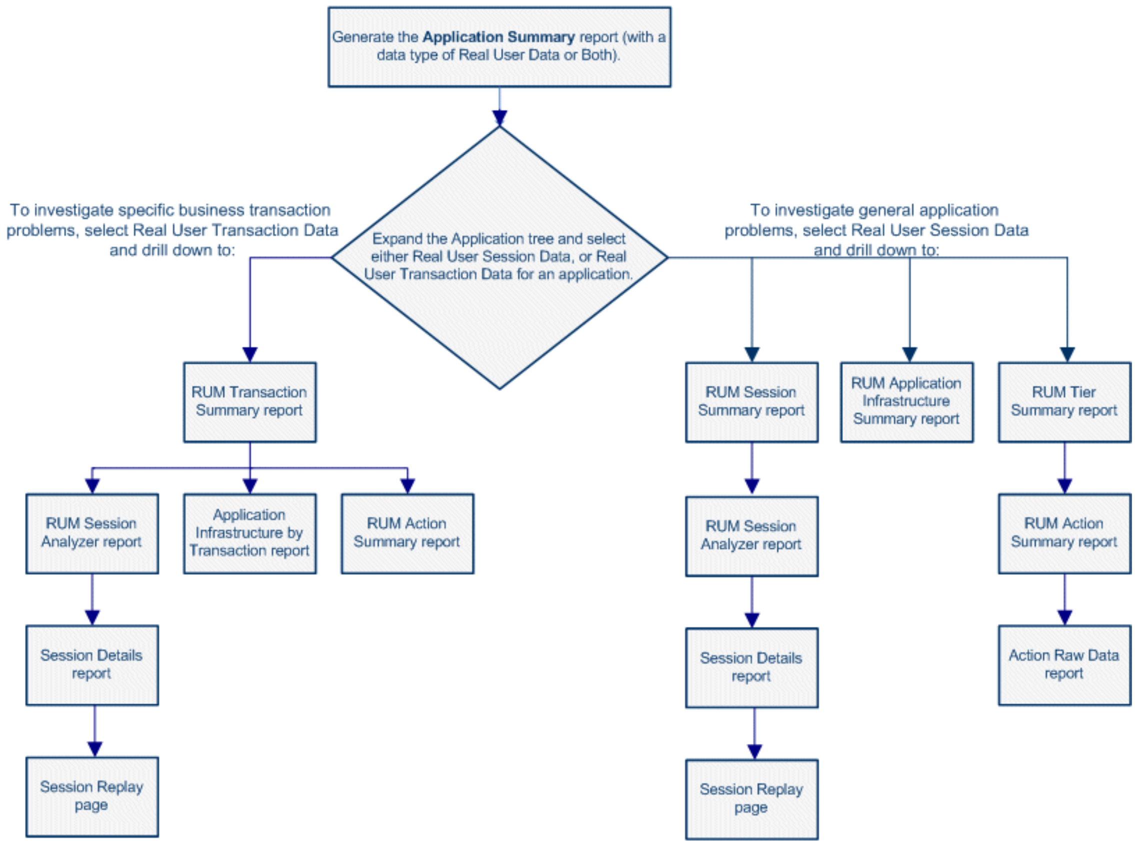
1. In the HP Virtual User Generator Run-Time Settings dialog box, select the **General: Miscellaneous** node.
2. In the Error Handling section, check that **Generate snapshot on error** is selected.
3. Click **OK** to close the Run-Time Settings dialog box.

To enable the generation of snapshots when an error occurs in QuickTest Professional:

1. In the Options dialog box, select **Run** > **Screen Capture**.
2. In the **Save still image capture to results** box, select **For errors**.
3. Click **OK** to close the Options dialog box.

How to Use End User Management Reports to Investigate Problems in Applications Monitored by Real User Monitor

This task describes a suggested working order for using EUM reports to check the status of applications monitored by RUM and to investigate any problems displayed in the reports.



This task includes the following steps:

- "Generate the Application Summary report" on page 731
- "Select a problematic application and expand its data" on page 731
- "Drill down to investigate real user session data - optional" on page 731

- "Drill down to investigate real user transaction data - optional" on page 733

1 Generate the Application Summary report

Generate the Application Summary report for the required applications, setting the data type in the report filter to either Real User Data or Both (that is, synthetic user data and real user data).

To access the Application Summary report, select **Applications** > **End User Management** > **Status Reports** > **Application Summary**. For user interface details, see "Application Summary Report" on page 781.

2 Select a problematic application and expand its data

After studying the data in the Application Summary report, select the application you want to investigate further and click the application name to expand its data. Real user data is displayed for transactions (real user transaction data) and sessions (real user session data).

3 Drill down to investigate real user session data - optional

Real user session data enables you to identify general problems in sessions, such as with actions or infrastructure elements. Drill down to the following reports to gain a deeper understanding of different aspects of the real user session data:

- **RUM Tier Summary** report. Use this report to identify problems within an application itself. The report breaks down the session data by application tiers, enabling to pinpoint problems with a specific tier, such as a database. For user interface details, see "RUM Tier Summary Report" on page 983.

  When you have identified a problematic tier, drill down from the RUM Tier Summary report to the RUM Action Summary report to view data for a specific action (such as a Web page, a SOAP operation, or a database query) and determine if the action is causing a problem. For user interface details, see "RUM Action Summary Report" on page 919.

Tip: From the RUM Action Summary report, you can drill down to the Action Raw Data report to view a sample of a specific instance of an a selected action. For user interface details, see "Action Raw Data Report" on page 853.

➤ **RUM Application Infrastructure Summary** report. Use this report to identify problems with the infrastructure on which an application is running. The report displays general information about the servers and running software used by the selected application, enabling you to see if a specific element, such as a specific server, is causing a problem. For user interface details, see "RUM Application Infrastructure Summary Report" on page 928.

➤ **RUM Session Summary** report. Use this report to identify problems with a single application by viewing event data, segmented by session properties. For user interface details, see "RUM Session Summary Report" on page 980.

From the RUM Session Summary report, you can drill down to the RUM Session Analyzer report, enabling you to identify problems with user input. The report displays general session data for the selected application, enabling you to see general user related problems in specific sessions. For user interface details, see "RUM Session Analyzer Report" on page 977.

From the RUM Session Analyzer report, you can drill down to the Session Replay page, enabling you to view snapshots of a session flow, page by page. For user interface details, see "Session Replay Page" on page 1005.

4 Drill down to investigate real user transaction data - optional

Drill down to the RUM Transaction Summary report to view performance, availability, and events data for transactions, enabling you to identify specific, problematic transactions. For user interface details, see "RUM Transaction Summary Report" on page 991. From the RUM Transaction Summary report, you can drill down to the following reports to gain a deeper understanding of different aspects of the real user transaction data:

- ➤ **Transaction Management Aggregated Topology** report. This report displays data for a specific transaction. For details on working with this report, see *Using Transaction Management*. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718.
- ➤ **RUM Action Summary** report. This report displays data for a specific action, such as a Web page or a SOAP operation, enabling you to determine if the action is causing a problem. For user interface details, see "RUM Action Summary Report" on page 919.
- ➤ **Rum Session Analyzer** report. This report displays general session data for the applications in which the selected transactions occurred, enabling you to see general user related problems in specific sessions. For user interface details, see "RUM Session Analyzer Report" on page 977.

Tip: From the RUM Action Summary report, you can drill down to the Action Raw Data report to view a sample of a specific instance of an a selected action. For user interface details, see "Action Raw Data Report" on page 853.

Reference

Reports Mapping

The following table lists the BAC 8.x End User Management reports and their equivalent report in BSM 9.x:

BAC 8.x Report	BSM 9.x Report	Comments
Status Snapshot	Status Snapshot	
Multi-Profile Summary	➤ No exact replacement, although the BPM Performance Status report includes most of the functionality, apart from alerts information. ➤ Location Performance component functionality is available in the Location Summary report. ➤ Profile Performance functionality is available in the Application Summary report.	

BAC 8.x Report	BSM 9.x Report	Comments
Single Profile Summary	No exact replacement, although the Application Health report includes most of the functionality. Other reports that include different parts of the functionality are: ➤ Performance Analysis ➤ BPM Performance Status ➤ Location Summary ➤ Application Summary ➤ Alert reports	
Performance Matrix	BPM Performance Over Time	
Triage	Triage	
Triage Raw Data	Triage Raw Data	
Availability Over Time	Metrics Over Time	Select the BPM Availability metric. If you use this frequently, save a favorite filter that includes the application, the metric, and other required filters.
Response Time Over Time	Metrics Over Time	Select the BPM Duration metric. If you use this frequently, save a favorite filter that includes the application, the metric, and other required filters.
Transaction Analysis	BPM Performance Over Time	Group by Transaction.

BAC 8.x Report	BSM 9.x Report	Comments
Error Summary	BPM Error Summary	Outlier information is available only in the BPM Performance Status report.
Location Analysis	BPM Performance Over Time	Group by Location. You can also review location performance in the Location Summary report.
Breakdown Over Time	No exact replacement. The following reports include a Breakdown Over Time component: ➤ Performance Analysis ➤ Triage ➤ BPM Performance Over Time	
Breakdown Summary	Performance Analysis	
Transaction Breakdown Raw data	Performance Raw Data	The Performance Analysis Raw Data report is reached by drilling down from the Performance Analysis report.
Component Breakdown (as a drill down from the Transaction Breakdown Raw Data report)	Page Component Breakdown	The Page Component Breakdown report is reached by drilling down from the Performance Raw Data report.
Min/Max Response Time	BPM Performance Status	
Response Time by Percentile	BPM Response Time by Percentile	
Global Statistics	RUM Global Statistics	
Page Summary	RUM Action Summary	

BAC 8.x Report	BSM 9.x Report	Comments
End Users by Page	RUM End User Group by Action	Available by drilling down from the RUM Action Summary report.
Page Over Time	Action Over Time	Available by drilling down from the RUM Action Summary report.
Event Summary	RUM Event Summary	
Event Analysis	Event Analysis	
Servers by Page Summary	Application Infrastructure by Action	Available by drilling down from the RUM Action Summary report.
Session Analyzer	RUM Session Analyzer	
Transaction Summary	RUM Transaction Summary	
End Users by Transaction	RUM End User Group by Transaction	Available by drilling down from the RUM Transaction Summary report.
Transaction Over Time	Transaction Over Time	Available by drilling down from the RUM Transaction Summary report.
End User Summary	RUM End User Group Summary	
End User Over Time	RUM End User Group Over Time	
Unconfigured End User by Country/State	This functionality exists in the RUM End User Group Summary report.	
End Users by Page	RUM End User Group by Action	

BAC 8.x Report	BSM 9.x Report	Comments
Server Summary	RUM Application Infrastructure Summary	
Server Over Time	Application Infrastructure Over Time	
Pages by Server Summary	This functionality exists in the RUM Action Summary report.	
TCP Poor Requests Summary	TCP Poor Requests Summary	
TCP Requests Analyzer	TCP Requests Analyzer	
Event Count Over Time	This functionality exists in the RUM Event Summary report.	
TCP Application Summary	RUM Tier Summary	
TCP Application Over Time	Tiers Over Time	
Network Analysis	BPM WebTrace	
WebTrace by Location	BPM WebTrace	
Page Component Breakdown	BPM Page Component Breakdown on Demand	

End User Management Reports User Interface

This section includes:

Active Filters Dialog Box

This dialog box enables you to set filters on specific report components, which helps you pinpoint problem areas, or on specific areas that you have already determined to be problematic.

To access	Click the **Active Filters** link in any of the EUM reports.
Important information	➤ The Active Filters dialog box includes all the filters available for EUM reports. Only the filters that are valid for the report from which you access the Active Filters dialog box are displayed. ➤ Active filters are saved across reports. For concept details, see "Drilling Down Within Reports" on page 702. ➤ Specific properties in a filter tab that are not supported by the selected report are disabled. ➤ In the user interface element tables described for the different filters, <report entities> represents the main entity of the report for which you are setting active filters. For example, in the End User Groups filter tab, there is an element with the description Show only <report entities> with poor average performance. If you are configuring this filter for the RUM Transaction Summary report, the element is actually displayed as Show only transactions with poor average performance, but if you are configuring the filter for the RUM Action Summary report, the element is displayed as Show only actions with poor average performance.
See also	"Report Settings Overview" on page 684

The Active Filters dialog box includes the following filter tabs and areas:

- "Common Filter Elements" on page 740
- "Actions" on page 742
- "Back-End Clients" on page 743
- "BPM Errors" on page 743

Common Filter Elements

The following table lists the elements that are common to all the filters that contain a hierarchical CI tree:

User interface elements are described below:

UI Element (A–Z)	Description
	**Select All.** Selects all the available CIs in the tree for inclusion in the filter.
	**Clear All.** Clears the check boxes of all the CIs in the tree.

UI Element (A–Z)	Description
Browse Views tab	Click the **Browse Views** tab to display the hierarchical tree of CIs relevant to the specific filter, as well as other relevant filter settings. Select the required CIs and settings. **Note:** When you select all the CIs under a parent CI (for example, all the transactions in a business transaction flow) the parent CI is automatically selected. When you clear all the CIs under a parent CI, the parent CI is automatically cleared.
Search CIs tab	Click the **Search CIs** tab to search for CI names that contain a specific string, or for CIs of a specific CI type. Search results are displayed in the lower part of the search tab. Right-click a CI in the search results table to open a Shortcut menu and click: **Select in tree.** Displays the hierarchical tree with the CI's check box selected. **Locate in tree.** Displays the hierarchical tree with the CI visible (that is, if the tree is too long for all of it to be visible without scrolling, the area that includes the CI is displayed). **Note:** ➤ The search is made on the hierarchical tree of relevant CIs displayed in the **Browse Views** tab. ➤ The search is not case sensitive. ➤ When searching for a CI name, you can use the asterisk (*****) wildcard in your string to match one or more words of text. ➤ In the **Locations** filter, location names in the hierarchical tree include extra text showing for what they are configured (**RUM** for Real User Monitor and **BPM** for Business Process Monitor). To find a location name, you must either enter the name in full including this extra text, or use the asterisk (*****) wildcard.

Actions

This filter enables you to filter the data included in the report according to specific actions that you select.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<Actions tree>	Displays the configured actions for the applications selected for the report. Select the check box for the actions you want to include in the filter. The hierarchy of the tree is applications > tiers > action folders > actions.
Show only configured actions	Select this check box to include only the actions that are configured in EUM Administration for the selected applications. Select specific actions you want to include from the Action tree, or leave the Action tree completely unselected to include all the actions you configured for the selected applications. Clear this check box to include both configured and unconfigured actions. **Default value:** Not selected
Show only <report entities> with low average availability	Select this check box to show the <report entities> that include only actions whose average availability is less than the action availability threshold you configured for them in EUM Administration. **Default value:** Not selected
Show only <report entities> with poor average performance	Select this check box to show the <report entities> that include only actions whose total time is less than the action time threshold you configured for them in EUM Administration. **Default value:** Not selected

UI Element (A–Z)	Description
Show only <report entities> with poor average server performance	Select this check box to show the <report entities> that include only actions whose average server time is less than the server time threshold you configured for them in EUM Administration. **Default value:** Not selected

Back-End Clients

This filter enables you to filter the data included in the report according to specific clients that are not end users (that is, a server that communicates with another server). Such clients are referred to as back-end clients.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<**Server tree**>	Displays a list of the servers that are monitored by RUM. Select the check box for the server you want to include in the filter.

BPM Errors

This filter enables you to filter the data included in the report according to specific BPM error IDs or categories.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<**Error category tree**>	Displays the valid error categories, as defined in LoadRunner. Select the check box for the categories you want to include in the filter.
Error ID	Enter an error ID number by which to filter the data.

BPM Custom Attributes

This filter enables you to filter the data included in the report according to custom attributes you configure for BPMs in EUM Administration.

User interface elements are described below:

UI Element (A–Z)	Description
Operator	Select the operator to use on a specific session property. Valid options are: ➤ **equals.** The custom attribute must equal the entry in the **Value** field. ➤ **ignore.** Do not use the custom attribute for filtering. ➤ **starts with.** The custom attribute must start with the entry in the **Value** field. **Default value:** ignore
Property	The names of all the custom attributes configured in EUM Administration for the BPMs assigned to the selected applications for the report are listed.
Value	Enter the value to be used when filtering report data by the specific custom attribute.

End-User Groups

This filter enables you to filter the data included in the report according to specific end-user groups that you select, or for a range of IP addresses.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<End-user group tree>	Displays configured CI collections, end-user groups and subgroups. Select the check box for the CIs you want to include in the filter. **Note:** ➤ Unconfigured end-user groups are included in the tree as a group called **Others**. Select this group in the tree to include data in the report applicable to unconfigured end-user groups. An unconfigured end-user group is one that is not configured in EUM Administration, but that is still detected and recognized by RUM. ➤ When you select an item in the hierarchical tree, a recursive selection of its children is also made.
IP between	Choose this option to specify a range of IP addresses to include in the filter. Enter the starting and ending IP addresses of the required range. The filter result selects all the end-user subgroup ranges that are included in the specified IP range.
Show only <report entities> with poor average performance	Select this check box to show the <report entities> that include only end-user group subgroups with poor average performance. That is, end-user group subgroups whose latency is greater than the latency threshold you configured for the end-user group in EUM Administration.

Events

This filter enables you to filter the data included in the report according to specific events that you select.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<Event tree>	Displays the configured events for the applications selected for the report. Select the check box for the events you want to include in the filter. The hierarchy of the tree is applications > tiers > events (error events, informational events, and performance events). **Note:** ➤ When you select an item in the hierarchical tree, a recursive selection of its children is also made. ➤ If you do not select the check boxes for any of the event classifications (error, informational, or performance) all event classifications are included. ➤ The filter uses an AND correlation between the <Event tree> and the event classification check boxes. Only events that match all the selected items are included in the filter.
Show all error events	Select this check box to select all error events for all the tiers included in the tree.
Show all informational events	Select this check box to select all informational events for all the tiers included in the tree.
Show all performance events	Select this check box to select all performance events for all the tiers included in the tree.

Locations

This filter enables you to filter the data included in the report according to specific locations that you select.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<**Location tree**>	Displays configured locations. Select the check box for the locations you want to include in the filter. **Note:** ➤ Each location entry in the tree includes a description of the monitor that monitors the location (RUM, BPM, or both). ➤ When you select an item in the hierarchical tree, a recursive selection of its children is also made.

Servers

This filter enables you to filter the data included in the report according to specific hosts (servers) and software elements that you select.

User interface elements are described below:

UI Element (A–Z)	Description
<**Server tree**>	Displays the servers and running software elements reported by Real User Monitor. Select the check box for the servers and running software elements you want to include in the filter.

UI Element (A–Z)	Description
Show only <report entities> with low average application availability	Select this check box to show the <report entities> that include only running software elements with availability less than the average server availability threshold you configured for them in EUM Administration. **Note:** This setting applies to Web (HTTP-Web and SOAP) based applications only.
Show only <report entities> with low average network availability	Select this check box to show the <report entities> that include only running software elements with network availability less than the server connection availability threshold you configured in the TCP settings of an application in EUM Administration. **Note:** This settings applies to Web (HTTP-Web and SOAP) based applications for which you defined TCP settings, and TCP applications only.

Session Properties

This filter enables you to filter the sessions displayed in the report according to session status and session properties.

User interface elements are described below:

UI Element (A–Z)	Description
Application	The name of the application for which the session property is configured.
Operator	Select the operator to use on a specific session property. Valid options are: ➤ **equals.** The session property must equal the entry in the **Value** field. ➤ **ignore.** Do not use the session property for filtering. ➤ **starts with.** The session property must start with the entry in the **Value** field. **Default value:** ignore

UI Element (A–Z)	Description
Session Property	The names of all the session properties configured in EUM Administration for the selected applications for the report are listed.
Session status	Select the session status by which sessions are included in the report. Valid options are: ➤ **All.** Include all session in the report. ➤ **Active.** Include only active sessions in the report. ➤ **Closed.** Include only closed sessions in the report. **Default value:** All **Note:** Sessions are filtered for inclusion in the report by status AND session properties.
Show only sessions with data for generating VuGen scripts	Select this check box to show only the sessions for which snapshots have been made of all included actions. Fully captured sessions can be used to create VuGen scripts in the Session Details and Business Process Distribution reports. For user interface details, see "Session Details Report" on page 998 and "RUM Business Process Distribution Report" on page 1128. You can only configure applications that use http-based protocols for full capturing. For user interface details, see "Snapshot Collection Area" on page 388.
Tier	The name of the application tier for which the session property is configured.
Value	Enter the value to be used when filtering sessions by the specific session property.

Tiers

This filter enables you to filter the data included in the report according to specific application tiers that you select.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<Tiers tree>	Displays the configured tiers for the applications selected for the report. Select the check box for the tiers you want to include in the filter.
Group tiers by	Select a radio button to group the tiers tree by: ➤ **Application.** The hierarchical tree displays each selected application and its monitored tiers. ➤ **Type.** The hierarchical tree displays tier types and for each type, the relevant tiers for the selected applications. The tier name includes the application to which it belongs (in parentheses).

Transactions

This filter enables you to filter the data included in the report according to specific transactions that you select.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<Transaction tree>	Displays the configured CI collections and transactions for the applications selected for the report. Select the check box for the CIs you want to include in the filter. **Note:** When you select an item in the hierarchical tree, a recursive selection of its children is also made.
Show only <report entities> with low average availability	Select this check box to show the <report entities> that include only transactions whose average availability is less than the transaction availability threshold you configured in EUM Administration.
Show only <report entities> with poor average net performance	Select this check box to show the <report entities> that include only transactions whose average net performance time is less than the net performance time threshold you configured in EUM Administration.
Show only <report entities> with poor average performance	Select this check box to show the <report entities> that include only transactions whose average total transaction time is less than the total transaction time threshold you configured in EUM Administration.
Show only <report entities> with poor average server performance	Select this check box to show the <report entities> that include only transactions whose average server time is less than the server time threshold you configured in EUM Administration.

User Properties

This filter enables you to filter the data displayed in the report according to users, computers, and IP addresses.

Important information	If more than one field is used for filtering, all conditions must be met for data to be included in the report. That is, there is an AND relationship between the fields.

User interface elements are described below:

UI Element (A–Z)	Description
Computer name	Enter the name of a computer by which to filter the data. Any computer whose name includes the text you enter is added to the filter. **Note:** You can use the asterisk (*) wildcard to represent any string of characters in the computer name.
IP Address	Enter an IP address by which to filter the data.
User name	Enter the name of a user by which to filter the data. Any user whose name includes the text you enter is added to the filter. **Note:** You can use the asterisk (*) wildcard to represent any string of characters in the user name.

WebTrace Destinations

This filter enables you to filter the data displayed in the report according to WebTrace destinations.

User interface elements are described below:

UI Element	Description
<WebTrace tree>	Displays the configured WebTraces for the applications selected for the report. Select the check box for the WebTraces you want to include in the filter. **Note:** The tree hierarchy includes WebTraces configured directly for applications, as well as business transaction flows with their configured WebTraces.

Applications Dialog Box

This dialog box enables you to select the applications for which data is included in EUM reports.

To access	Click the **Applications** link in any of the EUM reports.
See also	"Report Settings Overview" on page 684

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Browse Views tab	Click the **Browse Views** tab to display a hierarchical tree of configured application and CI collection CIs. Select the check boxes for the CIs you want to include in the report. **Note:** ➤ Only applications that are valid for the report you are generating are enabled in the tree. For example, applications which are configured for BPM only are disabled for reports that show real user data only. ➤ The type of data for which the application is configured is displayed next to the name—RUM, BPM, or Both (RUM, BPM). ➤ For single application reports (for example, the Application Health report), you cannot select multiple applications. Check boxes for the applications and the **Select All** button are not displayed. Select a single application by clicking the application name in the tree. ➤ When you select all the CIs under an application (for example, all the transactions in an application) the application CI is automatically selected. When you clear all the CIs under an application, the application CI is automatically cleared.

UI Element (A–Z)	Description
Search CIs tab	Click the **Search CIs** tab to search for CI names that contain a specific string, or for CIs of a specific CI type. Search results are displayed in the lower part of the search tab. Right-click a CI in the search results table to open a Shortcut menu and click **Select in tree** to display the hierarchical tree with the CI's check box selected. **Note:** ➤ The search is made on the hierarchical tree of relevant CIs displayed in the **Browse Views** tab. ➤ The search is not case sensitive. ➤ When searching for a CI name, you can use the asterisk (*) wildcard in your string to match one or more words of text. ➤ Application names in the hierarchical tree include extra text showing for what they are configured (**RUM** for Real User Monitor and **BPM** for Business Process Monitor). To find an application name, you must either enter the name in full including this extra text, or use the asterisk (*) wildcard.

BPM Current Transaction Thresholds Window

This windows displays the transaction threshold values for a single BPM transaction, for each location from which the transaction is run.

To access	Select a BPM transaction in one of the following reports, and click the **Show BPM Current Transaction Thresholds** button: ➤ BPM Performance Status (when grouped by transaction) ➤ BPM Performance Over Time > Performance Matrix component ➤ Performance Analysis > Transaction Performance component (table view) ➤ Application Health > Business Summary component (table view)
Important information	If a location does not have specific thresholds configured for the selected transaction, the default transaction thresholds are used.
See also	"Location Threshold Offsets Overview" on page 29

User interface elements are described below:

UI Element (A-Z)	Description
Critical (sec)	The response time threshold for the location, in seconds, above which the transaction's status is Critical.
Minor (sec)	The response time thresholds for the location, in seconds, between which the transaction's status is Minor. **Note:** The Minor transaction threshold is automatically set to the range between the **OK** and **Critical** thresholds that you configure for the transaction.
OK (sec)	The response time threshold for the location, in seconds, below which the transaction's status is OK.

UI Element (A-Z)	Description
Outlier (sec)	The response time threshold for the location, in seconds, above which the transaction is considered to be an Outlier. Outliers are transactions whose response time exceeds a defined time range. **Note:** You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. For user interface details, see "Default Transaction Thresholds" on page 167.
Scripts	The transaction monitor script in which the transaction is included.
Transaction	The transaction name and a hierarchical list of the locations from which the transaction is run.

RUM Current Transaction Thresholds Window

This windows displays the net and total time threshold values for a single RUM transaction, for each location configured in BSM.

To access	Select a RUM transaction in one of the following reports, and click the **Show RUM Current Transaction Thresholds** button: ➤ RUM End User Group by Transaction > Highlights tab ➤ Application Infrastructure by Transaction > Highlights tab ➤ Transaction Over Time > All components (table view) ➤ Performance Analysis > Transaction Performance component (table view) ➤ RUM Transaction Summary > Highlights tab ➤ Application Health > Business Summary component (table view)
Important information	➤ The default transaction threshold values are displayed above the table. ➤ If a location does not have specific thresholds configured for the selected transaction, the default transaction thresholds are used.
See also	"Location Threshold Offsets Overview" on page 29

User interface elements are described below:

UI Element (A-Z)	Description
Location	A hierarchical tree of all the locations configured in BSM.
Monitored by	A check mark denotes that the location is monitored by RUM. A location is considered to be monitored by RUM if an IP range has been configured for the location (or one of its child locations), or if the location (or one of its child locations) has been configured for an end-user group. For user interface details on configuring locations, see "Location Manager" in *Platform Administration*. For user interface details on configuring end-user groups, see "Add End User Group with Real User Monitor Configuration Dialog Box" on page 322.
Net Time (sec)	The transaction net time threshold, in seconds, configured for the location.
Total Time (sec)	The transaction total time threshold, in seconds, configured for the location.

Troubleshooting and Limitations

This section includes the following troubleshooting and limitations for EUM reports:

- "Report Time Periods are Automatically Changed" on page 760
- "No Data is Displayed When Drilling Down to HP Diagnostics or Transaction Management From End User Management Reports" on page 761
- "Changes to the End User Management Monitoring Model are not Reflected in Reports" on page 762
- "Historical Data is Displayed for a Different Entity Name" on page 762
- "Drilldowns to Other Reports do not Drill Down for the Selected Row" on page 762
- "Aggregated Data may not Include all Real User Monitor Samples" on page 762
- "Adobe Flash Player Crashes When Viewing EUM Reports" on page 762
- "Tooltips do not Display Location Aware Thresholds" on page 763

Report Time Periods are Automatically Changed

If you select **Week**, **Month**, **Quarter**, **Year**, **Past Week**, **Past Month**, **Past Quarter**, or **Past Year** from the **View** box, the query is rounded to full days, 12 AM to 12 AM, based on the time zone set for the database (set by the database administrator in Platform Administration). The query is based only on aggregated data—not raw data—and can therefore be processed more quickly. The data is displayed according to the time zone set for the user, which is indicated on the right-hand side of the report title bar.

No Data is Displayed When Drilling Down to HP Diagnostics or Transaction Management From End User Management Reports

The inability to see data in HP Diagnostics or Transaction Management when you drill down from an EUM report may be caused by the following:

- The Diagnostics server or TransactionVision sensor probe is not set to the same time as the RUM engine (including the resolution in minutes).

Tip: You can use the Network Time protocol (NTP) to ensure that the systems are synchronized.

- The relevant Diagnostics or Transaction Management data has been purged. For details on data retention, refer to:
  - *HP Diagnostics Installation and Configuration Guide*
  - *Using Transaction Management*

For details on drilling down to HP Diagnostics, see "Viewing HP Diagnostics Data From End User Management Reports" on page 714. For details on drilling down to Transaction Management, see "Viewing TransactionVision Data From End User Management Reports" on page 718.

Changes to the End User Management Monitoring Model are not Reflected in Reports

When you make changes to the EUM monitoring model (such as adding, or renaming entities), it can take some time (up to approximately 20 minutes) until the changes are reflected in EUM reports.

Historical Data is Displayed for a Different Entity Name

EUM reports always use the current names of the entities in the EUM monitoring model. If you change an entity's name, report data relevant to the old name is displayed as data for the new name. For example, if you change a location name from New York to NY, historical data for New York is now displayed as data for NY.

Drilldowns to Other Reports do not Drill Down for the Selected Row

When you drill down from an EUM report that has multiple tabs, the target report (to which you drill) is not always generated for the row selected in the source report (from which you drill). This occurs if you sort the source report in one tab, but drill down to the target report from a different tab.

Workaround: Order the report in the tab from which you drill down to another report.

Aggregated Data may not Include all Real User Monitor Samples

RUM samples reported during the first hour after you configured the first RUM application in EUM Administration, may be not a part of hourly and daily aggregations and therefore may be missing in reports based on such aggregated data.

Adobe Flash Player Crashes When Viewing EUM Reports

When viewing EUM reports in Mozilla Firefox version 3.64 and later, the Adobe Flash Player may crash.

Workaround: Disable Flash Player protection features, or reload the report.

Tooltips do not Display Location Aware Thresholds

If you have configured thresholds for specific locations for a transaction (location aware thresholds), these are used when determining transaction status in EUM reports. However, the tooltips in the reports display the transaction level thresholds without taking into account location specific thresholds.

9

Status Reports

This chapter includes:

Concepts

Reference

Concepts

Status Reports Overview

Status reports provide an overall view of your applications and enable you to understand general problematic areas, which you can investigate in more detail using the analysis reports.

Status reports include data collected by Business Process Monitors (synthetic user data) and Real User Monitors (real user data), and provide response time and availability data from application, transaction, and location perspectives.

You access status reports from the Status Reports tab in the End User Management (EUM) application (**Applications** > **End User Management** > **Status Reports**). For user interface details, see "Status Reports User Interface" on page 767.

Reference

Status Reports User Interface

This section includes (in alphabetical order):

Application Health Report

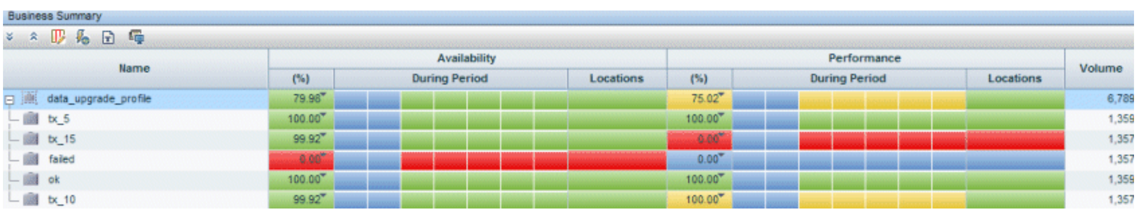
This report enables you to see the general status of a selected application by viewing different aspects of its performance, availability, load, and impact on end users. The report enables you to drill down to other reports that displays additional data that can help identify problems with the application.

To access	Use one of the following: ➤ Select **Applications** > **End User Management** > **Status Reports** > **Application Health** ➤ In the **Application Summary** report, select an application and click the **Drill down to Application Health** button.
Important information	The components included in the report depend on the selected application and data types.

Data type	➤ Synthetic user data ➤ Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. **Note:** You cannot select the time granularity for this report. Default time units are used for the time period you configure for the report. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. **Note:** You can generate this report for a single application only.

Business Summary

This report displays the overall status of an application by availability and performance and also by location, over a period of time. The report uses the data from the transactions included in the selected application.



User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	➤ "BPM Current Transaction Thresholds Window" on page 756 (for synthetic user data only) ➤ "RUM Current Transaction Thresholds Window" on page 758 (for real user data only)

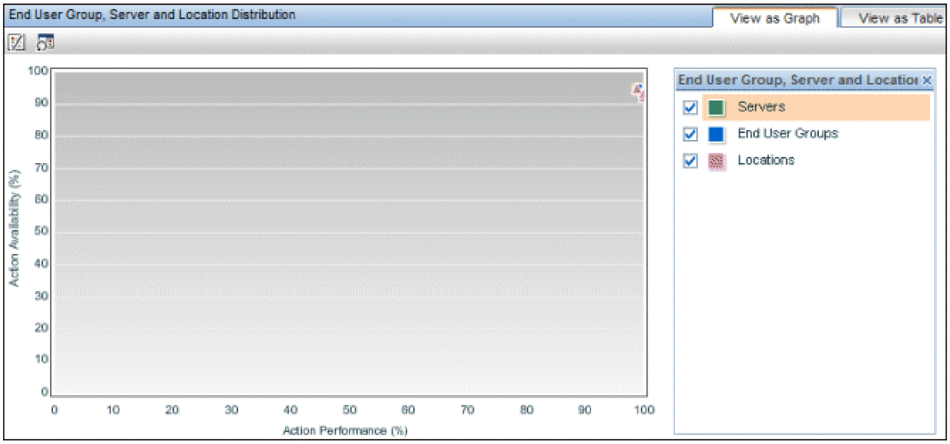
UI Element	Description
	"BPM Error Summary Report" on page 876 (for synthetic user data only).
	"RUM Event Summary Report" on page 973 (for real user data for HTTP applications only).
	"RUM Transaction Summary Report" on page 991 (for real user data only).
	"Performance Analysis Report" on page 906.
	"Location Summary Report" on page 799.
	**Drill down to Transaction Management Transaction Summary.** Opens Transaction Management's Transaction Summary report for the selected transaction or business transaction flow. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718.
	**Drill down to Transaction Management Aggregated Topology.** Opens Transaction Management's Aggregated Topology report for the selected transaction. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718. **Note:** This button is disabled if you select a business transaction flow.
Report Columns	
Name	A tree of the selected application's business transaction flows. Expand a business transaction flow to display its included transactions.
Volume	The total number of transaction hits. **Note.** For parent business transaction flows, the volume is the total of all its included transactions.

UI Element	Description
Availability	
%	The percentage of available transaction runs out of all the transaction runs for the transaction in the business transaction flow, for the entire report time period. **Note:** This column is colored according to the status of the transaction availability threshold configured in EUM Administration.
During Period	Each cell represents the default time unit into which the report is broken down and is colored according to the availability status for that time. For concept details on how the statuses are calculated and colored, see "Status Aggregation Rules Overview" on page 675. **Note:** Right-click a time unit cell to display a Shortcut menu and click **Drill down to Application Health** to regenerate the report with a higher time resolution. For example, if you click a cell that displays data for a two-hour time period, the time resolution changes to single hours for the specific two-hour period.
Locations	This cell is a horizontal, stacked bar that shows the availability status of the locations for the application. The proportion of good locations from the total number of locations is colored green, and the proportion of bad locations is colored red. Good locations are those with a status of OK and minor. **Note:** ➤ When you view the report as a table, the Locations column displays the percentage of locations with good availability. ➤ Right-click a cell value in this column to open a Shortcut menu and click **Drill down to Location Summary** to drill down to the Location Summary report. For user interface details, see "Location Summary Report" on page 799.

UI Element	Description
Performance	
Response TIme (sec)	The average response time of transaction runs for the entire report time period. **Note:** This column is colored according to the status of the transaction response time threshold configured in EUM Administration.
During Period	Each cell represents the default time unit into which the report is broken down and is colored according to the performance status for that time. For concept details on how the statuses are calculated and colored, see "Status Aggregation Rules Overview" on page 675. **Note:** Right-click a time unit cell to display a Shortcut menu and click **Drill down to Application Health** to regenerate the report with a higher time resolution. For example, if you click a cell that displays data for a two-hour time period, the time resolution changes to single hours for the specific two-hour period.
Locations	This cell is a horizontal, stacked bar that shows the availability status of the locations for the application. The proportion of good locations from the total number of locations is colored green, and the proportion of bad locations is colored red. Good locations are those with a status of OK and minor. **Note:** ➤ When you view the report as a table, the Locations column displays the percentage of locations with good availability. ➤ Right-click a cell value in this column to open a Shortcut menu and click **Drill down to Location Summary** to drill down to the Location Summary report. For user interface details, see "Location Summary Report" on page 799.

End User Group, Server, and Location Distribution

This graph displays the performance and availability of the servers, end-user groups, and locations for the selected application.



Important information	If all the tiers selected for the report are UDP connectionless protocol tiers, this component is not displayed.

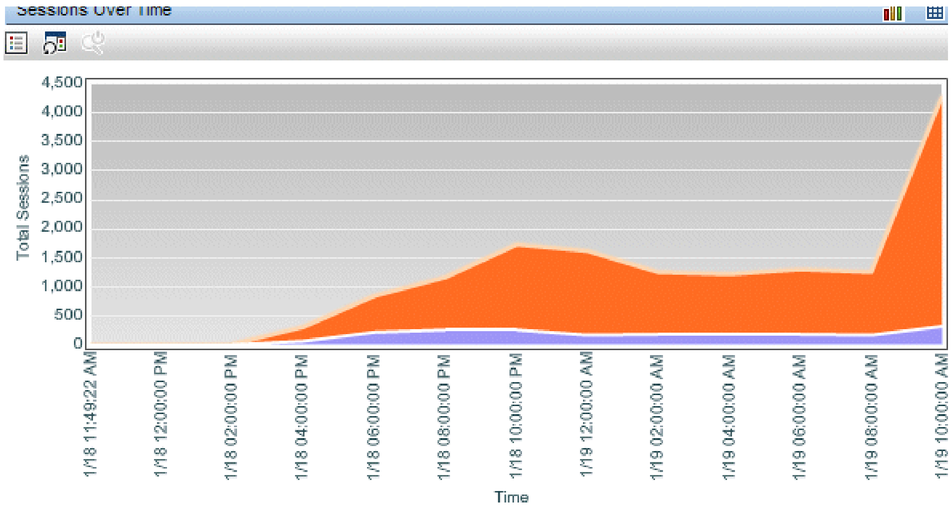
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns -Table View	
	"RUM Application Infrastructure Summary Report" on page 928 (for servers). **Graph view:** Right-click a data point and click **Drill down to RUM Application Infrastructure Summary** from the Shortcut menu.

UI Element	**Description**
	"RUM End User Group Summary Report" on page 962 (for Real User Monitor end-user groups). **Graph view:** Right-click a data point and click **Drill down to RUM End User Group Summary** from the Shortcut menu.
	"Location Summary Report" on page 799 (for locations). **Graph view:** Right-click a data point and click **Drill down to Location Summary** from the Shortcut menu.
Graph Elements	
<X-axis>	**Action Performance (%).** The percentage of transaction hits (for synthetic user data), action hits (for real user data), or requests (for real user TCP request-response type application data) with a status of OK or minor, from the total number of available hits. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.
<Y-axis>	**Action Availability (%).** The percentage of available transaction hits (for synthetic user data), action hits (for real user data), or connections (for real user TCP request-response type application data) from the total number of hits or connections. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

Sessions/Connections Over Time

This graph displays the average number of sessions or connections for the application (according to the selected application type) for the selected time period and out of those, the percentage of sessions or connections with availability or performance problems.



The following table describes what is shown in the graph, according to the different application and data types:

Data Type	Application Type	Measurements
Synthetic user	N/A	N/A
Real user	HTTP	Sessions
	TCP request-response	Connections
	TCP streaming	Connections

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns -Table View	
	"RUM Session Analyzer Report" on page 977 **Graph view:** Right-click an area's border and click **Drill down to RUM Session Analyzer** from the Shortcut menu.
Graph Elements	
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis>	**Avg number of sessions/connections.** The average number of sessions/connections for the selected application and of those, the percentage of sessions that experienced availability or performance problems, or the percentage of unsuccessful connections. The numbers are denoted by colored areas. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, connection data is not displayed.

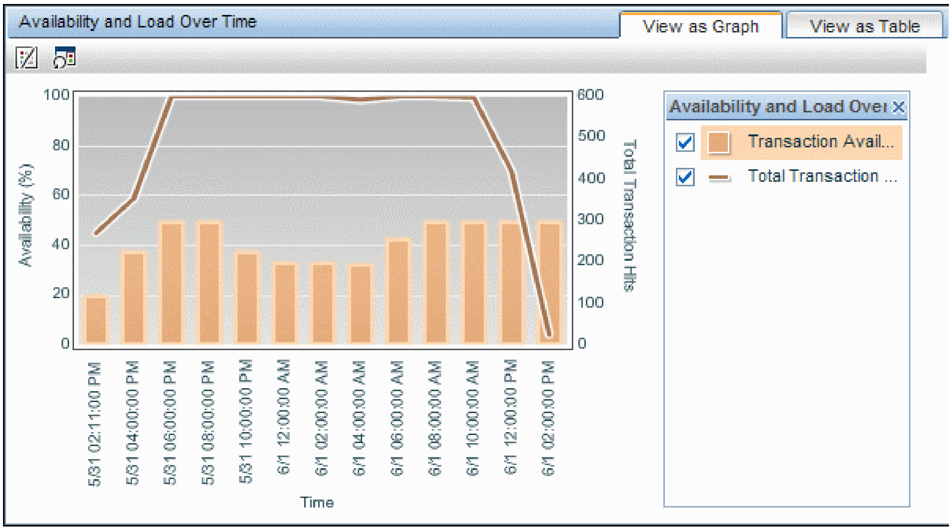
Alerts Count Over Time

This graph displays, for the selected application, the number of alerts that occurred over the specified time range, organized by time and severity.

Important information	➤ For data to be displayed, alerts must be configured for the application. For task details, see "How to Create EUM Alert Schemes" on page 533. ➤ For user interface details of the Alerts Over Time graph, see "Alerts Count Over Time Report" on page 1098. **Note:** The drilldown capabilities described in the Alerts Count Over Time report are not available in the Alerts Count Over Time component of the Application Health report.

Availability and Load Over Time

This graph displays the total number of, and the percentage of available transaction hits, action hits, or connections (according to the selected application and data types) over the selected time period. The graph enables you to see the correlation between transaction availability and the number of transaction hits.



Important information	If all the tiers selected for the report are UDP connectionless protocol tiers, connection data as well as the **Availability %** element (the left Y-axis) are not displayed.

The following table describes what is shown in the graph, according to the different application and data types:

Data Type	Application Type	Measurements
Synthetic user	N/A	Transactions

Data Type	**Application Type**	**Measurements**
Real user	HTTP	➤ Actions ➤ Connections (if TCP is enabled for the application)
	TCP request-response	Connections
	TCP streaming	Connections

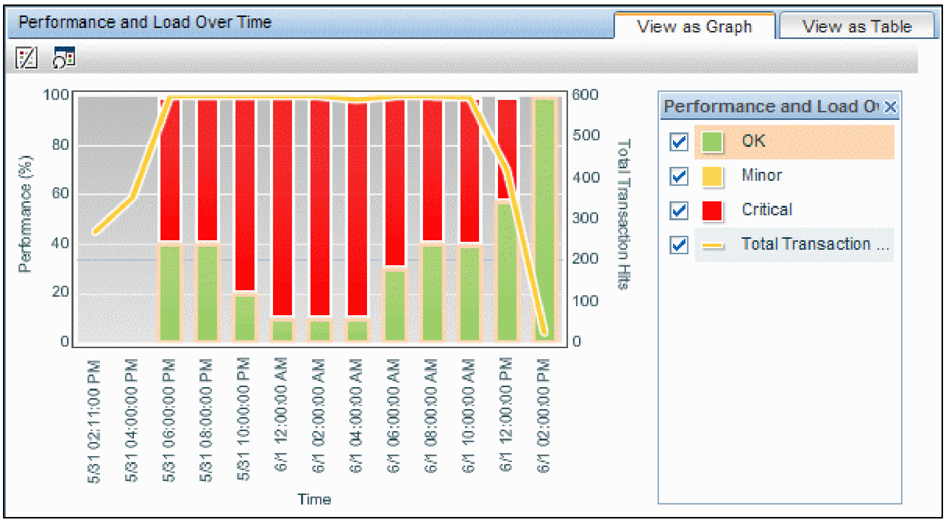
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	**Description**
Drilldowns -Table View	
	"BPM Error Summary Report" on page 876 (for synthetic user data only). **Graph view:** Right-click a graph bar or data point that represents transactions and select **Drill down to BPM Error Summary** from the Shortcut menu.
	"RUM Event Summary Report" on page 973 (for real user data for HTTP applications only). **Graph view:** Right-click a graph bar or data point that represents actions and click **Drill down to RUM Event Summary** from the Shortcut menu.
	"RUM Tier Summary Report" on page 983 (for real user data for TCP applications, or HTTP applications with TCP enabled only). **Graph view:** Right-click a graph bar or data point that represents connections and click **Drill down to RUM Tier Summary** from the Shortcut menu.

UI Element	Description
	"Application Health Report" on page 767 (for real user data for synthetic user transactions only). **Graph view:** Right-click a graph bar or data point that represents synthetic user transaction availability and click **Drill down to Application Health** from the Shortcut menu. **Note:** Regenerates the Application Health report for synthetic user data for the selected application.
Graph Elements	
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis left>	**Availability (%).** The percentage of available transaction hits, action hits, or connections from the total number of transaction hits, action hits, or connections. Available transaction hits, action hits, or connections are those whose status is OK or minor. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data. **Note:** ➤ If all the tiers selected for the report are UDP connectionless protocol tiers, this element and connection data are not displayed. ➤ The availability percentages are denoted by graph bars.
<Y-axis right>	**Total Hits/Connections.** The total number of transaction hits, action hits, or connections. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data. **Note:** ➤ The total number of hits or connections are denoted by connected data points. ➤ If all the tiers selected for the report are UDP connectionless protocol tiers, this element is the single Y-axis in the graph and also, connection data is not displayed.

Performance and Load Over Time

This graph displays the total number of transaction hits, action hits, or requests (according to the selected application and data types) and the percentage of available hits or requests by status (OK, minor, or critical), over the selected time period. The graph enables you to see the correlation between the transaction/action/request performance and the number of transaction/action hits or requests.



The following table describes what is shown in the graph, according to the different application and data types:

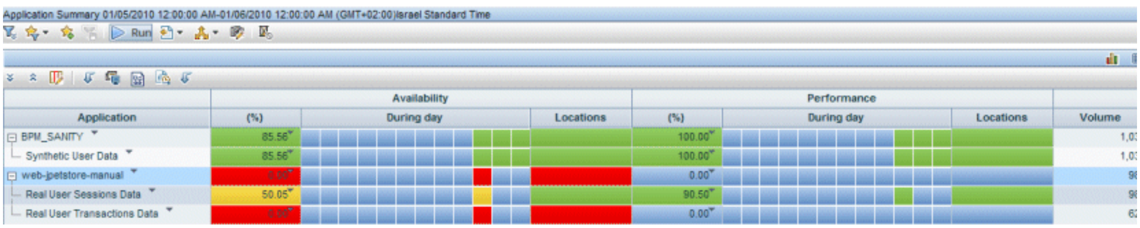
Data Type	Application Type	Measurements
Synthetic user	N/A	Transactions
Real user	HTTP	Actions
	TCP request-response	Requests
	TCP streaming	N/A

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns -Table View	
	"RUM Tier Summary Report" on page 983 **Graph view:** Right-click a graph bar or data point and click **Drill down to RUM Tier Summary** from the Shortcut menu.
Graph Elements	
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis left>	**Performance (%).** The percentage of transaction hits (for synthetic user data) or action hits (for real user data) by status, from the total number of available hits. The performance is broken down according to status—OK, minor, and critical. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data. **Note:** The performance percentages are denoted by stacked bars.
<Y-axis right>	**Total Transaction Hits/Action Hits/Requests.** The total number of transaction hits, action hits, or requests. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data. **Note:** The total number of hits or requests are denoted by connected data points.

Application Summary Report

This report displays the overall status of your applications by availability and performance, and also by location, over a period of time. The report uses the data from the transactions included in the selected applications, as well as real user session and connection data. The Application Summary report provides a snapshot of those applications with performance and availability problems and enables you to drill down to other reports to display additional data to help pinpoint the problems.



To access	Use one of the following: ➤ Select **Applications** > **End User Management** > **Status Reports** > **Application Summary** ➤ In the **Location Summary** report > **Details** tab > **Summary** table, select a row and click the **Drill down to Application Summary** button. ➤ In the **Status Snapshot** > **Least Available Applications** component: ➤ **Table view:** Select a row and click the **Drill down to Application Summary** button. ➤ **Graph view:** Right-click a bar and select **Drill down to Application Summary** from the Shortcut menu.

Data type	➤ Synthetic user data ➤ Real user data ➤ Both
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. **Note:** You cannot select the time granularity for this report. Default time units are used for the time period you configure for the report. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	"Application Health Report" on page 767
	"Location Summary Report" on page 799
	"RUM Tier Summary Report" on page 983 (enabled for real user data only)
	"RUM Transaction Summary Report" on page 991 (enabled for real user transaction data only)
	"RUM Application Infrastructure Summary Report" on page 928 (enabled for real user data only)
	"RUM Session Summary Report" on page 980 (enabled for real user data only)

<table>
<tr><th>UI Element</th><th>Description</th></tr>
<tr><td colspan="2">Report Columns</td></tr>
<tr><td>Application</td><td>A tree of the selected applications. Expand an application to display its included data sources, which can be:
➤ Synthetic user data
➤ Real user session data
➤ Real user transaction data
Note:
➤ Real user session data is not affected by the transaction active filter and all relevant session data is included, even though other data in the report may be filtered for specific transactions.
➤ If you include synthetic user data only, you cannot expand the applications as by default, synthetic user data is the only data source available.
➤ In the table view, there is no summary row for an application and each data source for an application is a separate row in the table, with columns indicating the application name and the data source.
➤ In the graph view, click the triangle in a cell and then click Drill to Application Health, to drill down to the Application Health report for the specific application. For user interface details, see "Application Health Report" on page 767.</td></tr>
<tr><td>Volume</td><td>Volume. The total number of transactions or sessions (according to the data type).
Note. In an application summary row, the volume is the same as the included data type with the highest volume.</td></tr>
</table>

UI Element	Description
Availability	
%	The percentage of available transaction runs, connections, or sessions out of all the transaction runs, connections, or sessions for the application, for the entire report time period. **Note:** ➤ This column is colored according to the availability status for the selected time period. ➤ In the graph view, click the triangle in a cell and then click **Drill down to Application Health**, to drill down to the Application Health report for the specific application. For user interface details, see "Application Health Report" on page 767.
During <time period>	Each cell represents the default time unit into which the report is broken down and is colored according to the availability status for that time. For concept details on how the statuses are calculated and colored, see "Status Aggregation Rules Overview" on page 675. **Note:** Click a time unit cell to drill down to a higher time resolution for a specific application. For example, if you click a cell that displays data for a two-hour time period in the row for the myapp application, the time resolution changes to single hours for the specific two-hour period and only data for the myapp application is displayed.

<table>
<tr><th>UI Element</th><th>Description</th></tr>
<tr><td>Locations</td><td>This cell is a horizontal, stacked bar that shows the availability status of the locations for the application. The proportion of good locations from the total number of locations is colored green, and the proportion of bad locations is colored red. Good locations are those with a status of OK and minor.

Note:
➤ When you view the report as a table, the Locations column displays the percentage of locations with good availability.
➤ Right-click a cell value in this column to open a Shortcut menu and click Location Summary to drill down to the Location Summary report. For user interface details, see "Location Summary Report" on page 799.</td></tr>
<tr><td colspan="2">Performance</td></tr>
<tr><td>%</td><td>The percentage of transaction runs, connections, or sessions whose response time was within their configured thresholds, out of all the available transaction runs, connections, or sessions for the application, for the entire report time period.

Note:
➤ This column is colored according to the performance status for the selected time period.
➤ In the graph view, click the triangle in a cell and then click Drill to Application Health, to drill down to the Application Health report for the specific application. For user interface details, see "Application Health Report" on page 767.</td></tr>
</table>

UI Element	Description
During <time period>	Each cell represents the default time unit into which the report is broken down and is colored according to the performance status for that time. For concept details on how the statuses are calculated and colored, see "Status Aggregation Rules Overview" on page 675. **Note:** Click a time unit cell to drill down to a higher time resolution for a specific application. For example, if you click a cell that displays data for a two-hour time period in the row for the myapp application, the time resolution changes to single hours for the specific two-hour period and only data for the myapp application is displayed.
Locations	This cell is a horizontal, stacked bar that shows the performance status of the locations for the application. The proportion of good locations from the total number of locations is colored green, and the proportion of bad locations is colored red. Good locations are those with a status of OK and minor. **Note:** ➤ When you view the report as a table, the Locations column displays the percentage of locations with good performance. ➤ Right-click a cell value in this column to open a Shortcut menu and click **Location Summary** to drill down to the Location Summary report. For user interface details, see "Location Summary Report" on page 799.

BPM Performance Over Time Report

The BPM Performance Over Time report displays a matrix of the distribution of average transaction response times—organized by transaction or location—over a specified period of time. Additional components display different aspects of a selected transaction or of the transactions for a selected location. The report gives you the ability to investigate in more detail, transaction hits for selected transactions or locations.

If you group the report by location and select one location from the Performance Matrix component, you can view transaction performance for the selected location from different angles. If you group the report by transaction, and select one transaction from the Performance Matrix component, you can view the performance of the transactions from all locations, or from a specific location. By using the active filter to filter the report by BPM custom attributes, you can gain flexibility when investigating specific transactions' performance by using a common denominator other than location.

To access	Select **Applications** > **End User Management** > **Status Reports** > **BPM Performance Over Time**
Important information	All the components in this report (except the Performance Matrix component) display data for the transaction or location you select in the Performance Matrix component. When you generate the report, the first row in the Performance Matrix component is selected by default. When data for a transaction is displayed, the data is based on all the hits of the selected transaction, in all locations. When data for a location is displayed, the data is based on all the hits of all transactions, in the selected location.

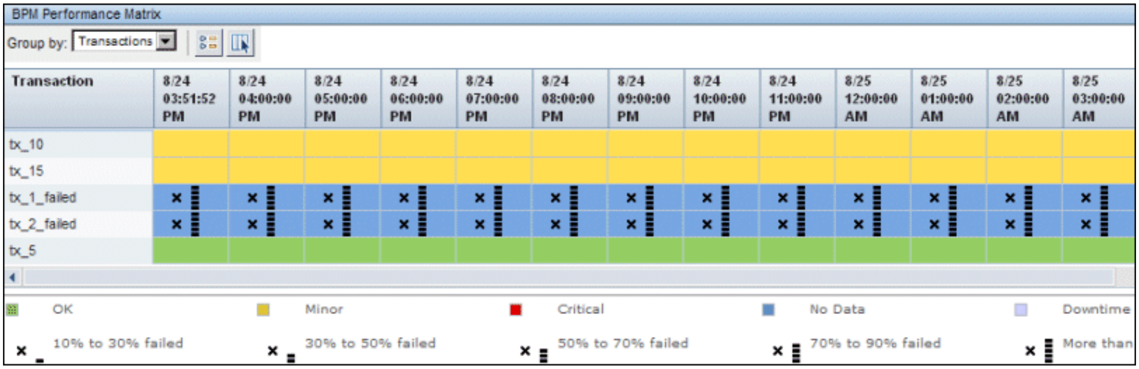
Data type	Synthetic user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Performance Matrix

The Performance Matrix component displays a distribution of average transaction response times—organized by transaction or location—over a specified period of time.

This component helps you pinpoint and characterize specific problem areas related to average transaction response time and transaction availability. By breaking down the table by transaction or location across different time frames, you can identify where and when average transaction response times are too slow and/or when there are too many failed transactions. For example, you may determine that response times of transactions running from a particular location are consistently in the poor range. This could indicate a problem with the network connections in that location.

The report's color-coded cells enable you to analyze average transaction response times at a glance and get a quick snapshot of overall transaction health. For example, if most of the cells in the report are green, then average response times are generally OK. If most of the cells are red, then average response times are generally critical.



User interface elements are described below (unlabeled elements are shown in angle brackets):

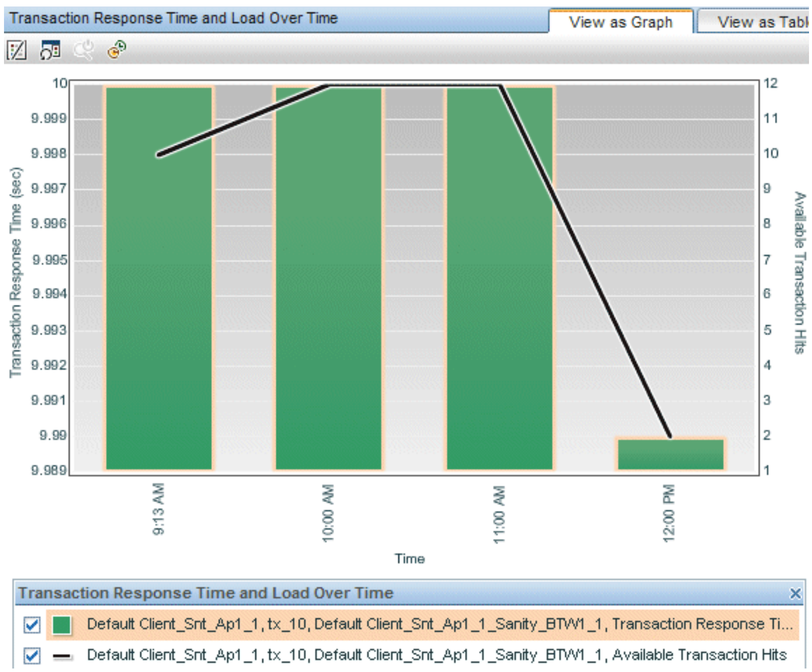
UI Element	Description
Drilldowns	
	"BPM Current Transaction Thresholds Window" on page 756
Component Settings	
Group by	Select whether to display the data grouped by transaction or location. **Default value:** Transaction
Report Columns (A-Z)	
<Time units>	Each column represents a time division unit for the time range that you defined when generating the report.

UI Element	Description
Application	The application in which the transaction is included. **Note:** ➤ This column is displayed only when the report is generated for more than one application. Otherwise it is hidden. ➤ This column is applicable only when you group the data by transaction.
Business Transaction Flow	The business transaction flow in which the transaction is included. **Note:** ➤ This column is hidden by default. ➤ This column is applicable only when you group the data by transaction.
Location	The location name. **Note:** This column is applicable only when you group the data by location.
Transaction	The transaction name. **Note:** This column is applicable only when you group the data by transaction.
Report Rows	
<Rows>	There is a row for each transaction or location, depending on the way you choose to view the data. Click a transaction or location name to display data for that transaction or location only.

UI Element	Description
Data Cells	
<**Data cells**>	The report's color-coding corresponds to that of the transaction threshold settings—green for OK, yellow for minor, red for critical, and blue for no data. When one or more transactions fail or exceed their outlier value within the tracking period represented by one cell in the table, a black X is displayed in the cell. In addition to the black X, 1 to 5 horizontal bars are used to signify transaction failure or outlier values. For details on the transaction failure and outlier values used in the report, see "Transaction Failures and Outlier Values" on page 795. HP Business Service Management classifies transactions as outliers if they do not complete within a specified time range. For details on setting transaction thresholds and outlier values in EUM Administration, see "Set Transaction Thresholds Page" on page 182. **Tooltip:** Hold the cursor over a cell to display a tooltip with additional information relevant to the data. **Note:** Click a cell that contains data to regenerate the report for a specific transaction or location and with a higher time resolution. For example, if you click a cell that displays data for a two-hour time period, the time resolution changes to single hours for the specific two-hour period. The highest time resolution you can display is for a five minutes, with each cell showing data for a single minute.

Transaction Response Time and Load Over Time

This component displays the average transaction response time and the number of available transaction hits over time, for the transaction or location selected in the Performance Matrix component. Since not all transactions have complete breakdown data (for example, when the report is grouped by transaction the breakdown may not show response times, or when grouped by location only partial breakdown data (aggregated data for transactions that have breakdown times) may be displayed), the data in this component helps complement the data in the Performance Matrix component.



User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis left>	**Transaction Response Time (sec).** The average response time, in seconds, for all the transaction runs of the selected transaction, or in the selected location. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data. **Note:** The transaction response times are denoted by graph bars.
<Y-axis right>	**Available Transaction Hits.** The number of available transaction hits for the selected transaction or location. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data. **Note:** The total number of available hits are denoted by connected data points.

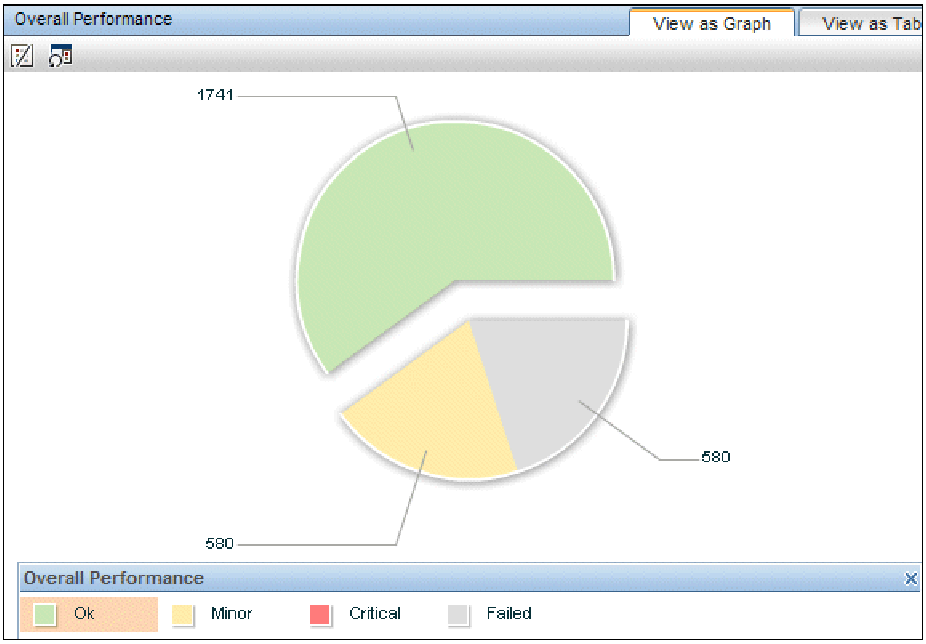
Transaction Response Time Breakdown and Load Over Time

This component displays the average transaction response time broken down by category and the number of transaction hits over time, for the transaction or location selected in the Performance Matrix component.

For user interface details, see "Transaction Breakdown" on page 1053.

Overall Performance

This component displays the number of transaction hits broken down by transaction status (OK, minor, critical, or failed), for the transaction or location selected in the Performance Matrix component.



User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<Pie chart slices>	Each pie chart slice represents a different transaction status (OK, minor, critical, or failed) and the number of transactions with this status during the report's time period is indicated.

Errors Vs. Availability Over Time

This component displays the transaction availability and the number of errors over time, for the transaction or location selected in the Performance Matrix component.

For user interface details, see "Errors Vs. Availability Over Time" on page 878.

Error Log

This component displays a detailed log of the errors that occurred for the transaction or location selected in the Performance Matrix component, over the report's time period.

For user interface details, see "Error Log" on page 886.

Transaction Failures and Outlier Values

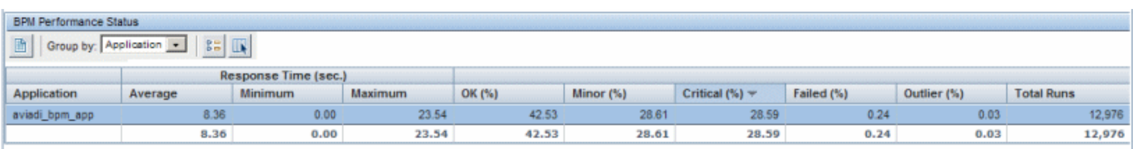
The following table lists the icons used to denote transaction failure and outlier values in the Performance Matrix report.

Icon	Description
	Less than 10% of the transactions failed or exceeded the outlier value.
	Between 10% to 30% of the transactions failed or exceeded the outlier value.
	Between 30% to 50% of the transactions failed or exceeded the outlier value.
	Between 50% to 70% of the transactions failed or exceeded the outlier value.
	Between 70% to 90% of the transactions failed or exceeded the outlier value.
	Over 90% of the transactions failed or exceeded the outlier value.

You use the black Xs and horizontal bars to analyze the frequency of failed and outlier transactions. For example, if many of the cells display black Xs, transactions are consistently failing or exceeding their outlier value over time. If black Xs appear only at certain times, but with 5 horizontal bars (over 90 percent failure rate), there may be a problem with server availability during specific time periods.

BPM Performance Status Report

This report displays a high level overview of application performance status, by listing the performance status of the transactions that are configured for the application. You can view the data by application, transaction, or location, enabling you to identify problematic transactions or locations that need further investigation. The report displays the percentage of transaction runs for each threshold status, as well as the percentage of failed runs and, if configured, the percentage of outliers. The report also displays transaction average response time.



BPM Performance Status

Group by: Application

	Response Time (sec.)								
Application	Average	Minimum	Maximum	OK (%)	Minor (%)	Critical (%)	Failed (%)	Outlier (%)	Total Runs
aviadi_bpm_app	8.36	0.00	23.54	42.53	28.61	28.59	0.24	0.03	12,976
	8.36	0.00	23.54	42.53	28.61	28.59	0.24	0.03	12,976

To access	Use one of the following: ➤ Select **Applications** > **End User Management** > **Status Reports** > **BPM Performance Status** ➤ In the **Performance Analysis** report, select a transaction or location and click the **Drill down to BPM Performance Status** button.
Data type	Synthetic user data

See also	"Set Transaction Thresholds Page" on page 182
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **Group by.** Select whether to display the data by application, or grouped by transaction or location. **Default value:** Application

Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	"Performance Raw Data Report" on page 913
	"BPM Current Transaction Thresholds Window" on page 756 **Note:** This button is visible only when the report is grouped by transaction.
Report Columns (A-Z) Hold the cursor over a cell to display a tooltip with additional information relevant to the data.	
Application	The application name. **Note:** This column is displayed only when you group the report by application or transaction.
Average Response Time (sec)	The average transaction response time, in seconds.

UI Element	Description
Business Transaction Flow	The name of the business transaction flow that includes the transaction. **Note:** This column is applicable only when you view the data grouped by transaction, and it is hidden by default.
Critical (%)	The percentage of transaction runs whose status was critical.
Failed (%)	The percentage of transaction runs that failed.
Maximum Response Time (sec)	The maximum transaction response time, in seconds.
Minimum Response Time (sec)	The minimum transaction response time, in seconds.
Minor (%)	The percentage of transaction runs whose status was minor.
OK (%)	The percentage of transaction runs whose status was OK.
Outlier (%)	The percentage of transaction runs that were outliers. Outliers are transactions whose response time exceeds a defined time range. **Note:** ➤ You can specify whether outlier transactions are treated as failed transactions or ignored completely in reports. For user interface details, see "Default Transaction Settings Page" on page 166. If you configure outlier transactions to be ignored, a minus sign (-) is displayed in this column, but a tooltip displays the number of transaction runs that were outliers. ➤ Outlier transactions are not included in the number of total runs displayed in the report.
Total Runs	The total number of transaction runs.

Location Summary Report

This report displays the performance and availability status of applications by end-user location, enabling you to see at a glance if any locations are problematic.

To access	Use one of the following:
	➤ Select **Applications** > **End User Management** > **Status Reports** > **Location Summary**
	➤ In the **Application Summary** report, select an application and click the **Drill down to Location Summary** button.
	➤ In the **Application Health** report:
	  ➤ In the **Business Summary** component, select a transaction and click the **Drill down to Location Summary** button.
	  ➤ In the **Location Distribution** table, select a location and click the **Drill down to Location Summary** button.
	  ➤ In the **Location Distribution** graph, right-click a location data point and select **Drill down to Location Summary** from the Shortcut menu.
	➤ In the **Status Snapshot** report:
	  ➤ In the **Least Available Locations** table, select a location and click the **Drill down to Location Summary** button.
	  ➤ In the **Least Available Locations** graph, right-click a bar and select **Drill down to Location Summary** from the Shortcut menu.

Data type	➤ Synthetic user data ➤ Real user data ➤ Both

See also	"Location Manager" in *Platform Administration*.
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **Show status according to.** Select a radio button to configure whether the status of the icons (denoted by different colors) displayed in the geographical map is calculated based on performance, availability, or both. **Note:** The status of the icons is determined by the worst included status.

Details Tab - Summary Table

The summary table displays key performance and availability data by location.

Important information	➤ Locations are displayed in a hierarchical tree and each parent location displays the aggregated data of its children. If a parent location is itself directly monitored (for example, if you configure a Business Process Monitor (BPM) for that location, or if Real User Monitor (RUM) resolves an IP address to that location), the displayed data will be greater than the total of its children's data as it also includes the parent location's own data. **Example:** The location USA has three children—New York, California, and Washington. For each of the children one transaction was monitored for a selected application. In addition, two transactions were monitored for the application in the location USA. One transaction is displayed for each of the children, but the total displayed for the location USA is five. The breakdown is included in the performance and availability tooltips. ➤ The actual columns displayed in the Summary table depend on the report options you select. ➤ From the Summary table, you can drill down to various reports for more detailed information to investigate specific problems. ➤ The **Availability**, **Performance**, and **Latency** columns are color-coded, based on their relevant thresholds configured in EUM Administration. For concept details, see "Status Aggregation Rules Overview" on page 675.

User interface elements are described below:

UI Element	Description
Drilldowns	
	"Application Summary Report" on page 781
	"Performance Analysis Report" on page 906 (for synthetic user data only).
Report Columns	
Geographical Coordinates	A check mark denotes that geographical coordinates have been configured for the location in the Location Manager. For details, see "Location Manager" in *Platform Administration*. **Note:** This column is hidden by default.
Location	A hierarchical tree of the selected locations.
Synthetic User Transactions	
Availability (%)	The percentage of transaction runs for all the transactions included in the selected BPM applications in each location, for which there were no availability problems.
Critical (%)	The percentage of transaction runs with Critical status, out of all the transaction runs of the transactions included in the selected BPM applications in each location. **Note:** This column is hidden by default, when real user data is also included in the report
Minor (%)	The percentage of transaction runs with Minor status, out of all the transaction runs of the transactions included in the selected BPM applications in each location. **Note:** This column is hidden by default, when real user data is also included in the report.

UI Element	Description
OK (%)	The percentage of transaction runs with OK status, out of all the transaction runs of the transactions included in the selected BPM applications in each location. **Note:** This column is hidden by default, when real user data is also included in the report.
Performance (%)	The percentage of transaction runs with a status less than Critical, out of all the transactions included in the selected BPM applications in each location.
Volume	The total number of runs of all the transactions included in the selected BPM applications in each location.
Real User Transactions **Note:** If all the tiers selected for the report are UDP protocol tiers, Real User transaction data is not displayed.	
Availability (%)	The percentage of transaction runs for all the transactions included in the selected RUM applications in each location, for which there were no availability problems.
Performance (%)	The percentage of transaction runs with a status less than Critical, out of all the transactions included in the selected RUM applications in each location.
Volulme	The total number of hits of all the transactions included in the selected RUM applications in each location.

UI Element	**Description**
Real User Sessions	
Availability (%)	The average percentage of sessions for the selected RUM applications in each location, for which there were no availability problems (that is, none of the actions included in the session had availablility problems). The availability is calculated for each session for each sample (that is, for each five minute period) so a session can be counted any number of times depending on how long it is open during the report time period. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this element is not displayed. **Example:** If you generate the report for a one hour time period and a specific session is open during that entire hour, the session availability is caclulated for twelve sessions (one for each five minute sample of the specific session) and the availability percentage is the average of the twelve availability calculations.
Performance (%)	The average percentage of sessions for the selected RUM applications in each location, for which there were no performance problems (that is, none of the actions included in the session had performance problems). The performance is calculated for each session for each sample (that is, for each five minute period) so a session can be counted any number of times depending on how long it is open during the report time period. **Note:** If all the tiers selected for the report are streaming protocol tiers (UDP or TCP), this element is not displayed. **Example:** If you generate the report for a one hour time period and a specific session is open during that entire hour, the session performance is caclulated for twelve sessions (one for each five minute sample of the specific session) and the performance percentage is the average of the twelve performance calculations.

UI Element	Description
Volume	The total number of open sessions for the selected RUM applications in each location during the report time period.
Real User Network **Note:** If you generate the report to include both synthetic user data and real user data, these columns are hidden by default. For details on selecting columns to display, see "Common Report and Page Elements" in *Reports*.	
Availability (%)	The percentage of connection availability for the selected RUM applications in each location. That is, the number of accepted connections out of the total number of connections. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this element is not displayed.
Latency (ms)	The average network latency for the selected RUM applications in each location. That is, the total latency divided by the total number of packets. **Note:** If all the tiers selected for the report are UDP protocol tiers, this element is not displayed.
Volume	The total number of connections for the selected RUM applications in each location.

Details Tab - Transaction Threshold Breaches

This component displays details of transactions included in the selected applications that breached their total time threshold defined in EUM Administration, for the locations selected in the Summary table.

Important information	➤ If all the tiers selected for the report are transactionless protocol tiers (for example UDP, TCP streaming, and TCP request-response), this component is not displayed. ➤ Data for a parent location does not include data from its children and is only the data relating directly to the parent location.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
Drilldowns -Table View	
	"Performance Analysis Report" on page 906 (for synthetic user data only). **Graph view:** Right-click a pie chart slice and select **Drill down to Performance Analysis** in the Shortcut menu.
	"RUM Event Summary Report" on page 973 (for real user data only). **Graph view:** Right-click a pie chart slice and select **Drill down to RUM Event Summary** in the Shortcut menu.
Pie Chart	
<Pie chart slices>	Color-coded slices represent the different locations at which the threshold breaches occurred. A legend describes the color coding used in the chart. **Tooltip:** Hold the cursor over a slice of the pie chart to display a tooltip with additional information relevant to that slice. **Note:** Up to 10 different slices can be displayed per chart. If there are more than 10 locations to be displayed, the ones with the least number of threshold breaches are grouped together in a slice called **others**.

Details Tab - Transactions with Errors

This component displays details of the selected applications’ transactions that had errors, for the locations selected in the Summary table.

Important information	➤ If all the tiers selected for the report are transactionless protocol tiers (for example UDP, TCP streaming, and TCP request-response), this component is not displayed. ➤ Data for a parent location does not include data from its children and is only the data relating directly to the parent location.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
Drilldowns -Table View	
	"BPM Error Summary Report" on page 876 (for synthetic user data only). **Graph view:** Right-click a pie chart slice and select **Drill down to BPM Error Summary** in the Shortcut menu.
	"RUM Event Summary Report" on page 973 (for real user data only). **Graph view:** Right-click a pie chart slice and select **Drill down to RUM Event Summary** in the Shortcut menu.

UI Element (A-Z)	Description
Pie Chart	
<**Pie chart slices**>	Color-coded slices represent the different locations in which transactions with errors occurred. A legend describes the color coding used in the chart. **Tooltip:** Hold the cursor over a slice of the pie chart to display a tooltip with additional information relevant to that slice. **Note:** Up to 10 different slices can be displayed per chart. If there are more than 10 locations to be displayed, the ones with the least number of failures are grouped together in a slice called **others**.

Geographical Map Tab

This tab displays a geographical map showing the high level status of the selected applications at the selected locations. The color-coded icons provide quick visual feedback on the monitored locations. For details on working with and navigating the geographical map, see "Geographical Map Component User Interface" in *Using Service Health*.

Important information	➤ If all the tiers selected for the report are transactionless protocol tiers (for example UDP, TCP streaming, and TCP request-response), this component is not displayed. ➤ The geographical map is not automatically refreshed periodically and the **Last update** label and data (that is included in the geographical map in Service Health) is not displayed. ➤ Only locations configured with geographical coordinates are displayed on the map.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Location status icons>	For each selected location, an icon that shows the type of application it represents, as well as the status of the application at the location, is displayed. The icons are: ➤ OK BPM application ➤ OK RUM application ➤ OK Both ➤ Minor BPM application ➤ Minor RUM application ➤ Minor Both ➤ Critical BPM application ➤ Critical RUM application ➤ Critical Both **Tooltip:** Place your cursor over an icon to display a tooltip that includes (according to the report options you select): ➤ The location name ➤ Synthetic user data performance status ➤ Synthetic user data availability status ➤ Real user data performance status ➤ Real user data availability status **Note:** ➤ If more than one monitor of the same type (BPM or RUM) is displayed for a location (that is, if a number of monitors have the same geographical data), the performance and availability status displayed is that of the worst monitor included. ➤ If a number of locations share the same geographical data, the tooltip includes a section with the relevant data for each separate location.

RUM Global Statistics Report

This report displays general action, end-user, location, and broken link data that is not related to the specific actions, end-users, and locations that you define for RUM in EUM Administration. For details on configuring monitoring settings for RUM Global Statistics report data, see "Statistics Collection Area" on page 391.

To access	Select **Applications** > **End User Management** > **Status Reports** > **RUM Global Statistics**

Important information	➤ The data displayed in the components is based on all data collected from the selected applications, and not on the specific actions, end-user groups, and locations configured for them. The data is collected according to the statistics collection settings defined for the applications in EUM Administration.
	➤ The **Broken Links** component is viewable only as a table.
	➤ By default, a maximum of ten items (actions, end user subgroups, or locations) are displayed in each component of the report. To modify the maximum number of items displayed, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**:
	  ➤ Select **Applications**.
	  ➤ Select **End User/System Availability Management**.
	  ➤ In the **End User/System Availability Management - Data** table, locate the **Maximum number of items displayed in Global Statistics components** setting. Change the value to the number you want.
	➤ End-user subgroup components display data for front-end tiers only, and are not affected by tier filtering.

Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Most Active End User Subgroups

This component displays data for the most active end-user subgroups—that is, the end-user subgroups with the highest number of action hits or bandwidth, depending on the configuration you made for the application in EUM Administration.

Important information	➤ In calculating the most active end-user subgroups, RUM takes into account which end-user subgroups were most active during each one-hour interval and the number of intervals for which the end-user subgroups were most active. ➤ If you select multiple applications of which some are configured to measure end-user activity by action hits and others by bandwidth, the most active end-user subgroups are displayed based on action hits. ➤ By default, this component is displayed as a graph.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<**X-axis**>	**End User Subgroup.** The names and IP addresses of the most active end-user subgroups.
<**Y-axis**>	**Number of requests.** The total number of action hits generated by each end-user subgroup for the entire amount of time that it was most active. Bars indicate the total number of hits for each end-user subgroup. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Slowest End User Subgroups

This component displays data for the end-user subgroups that experienced the highest average network latency.

Important information	➤ In calculating the slowest end-user subgroups, RUM takes into account which end-user subgroups were slowest during each five-minute interval and the number of intervals for which the end-user subgroups were slowest. ➤ By default, this component is displayed as a graph.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**End User Subgroup.** The names and IP addresses of the slowest end-user subgroups.
<Y-axis>	**Latency (ms).** The average network latency, in milliseconds, for each end-user subgroup. Bars indicate the latency for each end-user subgroup. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Most Active Locations

This component displays data for the most active locations—that is, the locations with the highest number of action hits or bandwidth, depending on the configuration you made for the application in EUM Administration.

Important information	➤ In calculating the most active locations, RUM takes into account which locations were most active during each one-hour interval and the number of intervals for which the locations were most active. ➤ If you select multiple applications of which some are configured to to measure location activity by action hits and others by bandwidth, the most active locations are displayed based on action hits. ➤ By default, this component is displayed as a graph.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Location.** The names of the most active locations.
<Y-axis>	**Number of requests.** The total number of action hits generated by each location for the entire amount of time that it was most active. Bars indicate the total number of hits for each location. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Slowest Locations

This component displays data for the locations that experienced the highest average network latency.

Important information	➤ In calculating the slowest locations, RUM takes into account which locations were slowest during each five-minute interval and the number of intervals for which the locations were slowest. ➤ By default, this component is displayed as a graph.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Location.** The names of the slowest locations.
<Y-axis>	**Latency (ms).** The average network latency, in milliseconds, for each location. Bars indicate the latency for each location. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Most Popular Actions

This component displays data for the actions that received the highest number of hits.

Important information	➤ In calculating the most popular actions, RUM takes into account which actions were most popular during each one-hour interval and the number of intervals for which the actions were most popular. ➤ By default, this component is displayed as a table.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	**Define Action.** In the table view, opens the Real User Monitor Application <Actions> page in a new window, where you can add and define a new action for an application. When you access the **New Action** dialog box from the Real User Monitor Application <Actions> page, the selected action's description or URL is automatically entered in the dialog box. For user interface details, see "<Action> Dialog Box" on page 310. **Note:** ➤ The Define Action button is only available in the table view. ➤ The Define Action button is enabled only for selected actions that are not yet defined in EUM Administration.
<**X-axis**>	**Action.** The descriptions or URLs of the most popular actions.
<**Y-axis**>	**Action Hits.** The total number of requests that each action received for the entire amount of time that it was most popular. Bars indicate the total number of hits for each action. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Actions with Slowest Server Times

This component displays data for the actions with the slowest server time, from those actions whose average server time is greater than the server time threshold you configured for the action in EUM Administration.

Important information	➤ In calculating the actions with the slowest server time, RUM takes into account which actions had the slowest server time during each five-minute interval, and the number of intervals for which the actions were slowest. ➤ It is possible that an action included in the Actions with Slowest Server Time component has a number of hits that would seem to qualify it for inclusion in the Most Popular Actions table, but it is not included. This is due to the different aggregation schedule between the Slowest Actions (aggregated every five minutes) and the Most Popular Actions (aggregated every hour). ➤ By default, this component is displayed as a table.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	**Define Action.** In the table view, opens the Real User Monitor Application <Actions> page in a new window, where you can add and define a new action for an application. When you access the **New Action** dialog box from the Real User Monitor Application <Actions> page, the selected action's description or URL is automatically entered in the dialog box. For user interface details, see "<Action> Dialog Box" on page 310. **Note:** ➤ The Define Action button is only available in the table view. ➤ The Define Action button is enabled only for selected actions that are not yet defined in EUM Administration.

UI Element	Description
<X-axis>	**Action.** The descriptions or URLs of the most popular actions.
<Y-axis>	**Server Time (sec).** The average amount of time, in seconds, that it took the server to process the requests for each action. Bars indicate the server time for each action. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Actions with Most Errors

This component displays data for the actions on which the most errors occurred.

Important information	➤ In calculating the actions with most errors, RUM takes into account which actions had the most errors during each five-minute interval and the number of intervals for which the actions had most errors. ➤ By default, this component is displayed as a table.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	**Define Action.** In the table view, opens the Real User Monitor Application <Actions> page in a new window, where you can add and define a new action for an application. When you access the **New Action** dialog box from the Real User Monitor Application <Actions> page, the selected action's description or URL is automatically entered in the dialog box. For user interface details, see "<Action> Dialog Box" on page 310. **Note:** ➤ The Define Action button is only available in the table view. ➤ The Define Action button is enabled only for selected actions that are not yet defined in EUM Administration.
<X-axis>	**Action.** The descriptions or URLs of the most popular actions.
<Y-axis>	**Errors.** The total number of errors that occurred on each action. Bars indicate the total number of errors for each action. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Broken Links

This component displays data for the broken links encountered on specific host machines that you configure for RUM in EUM Administration, experienced most frequently by end-users.

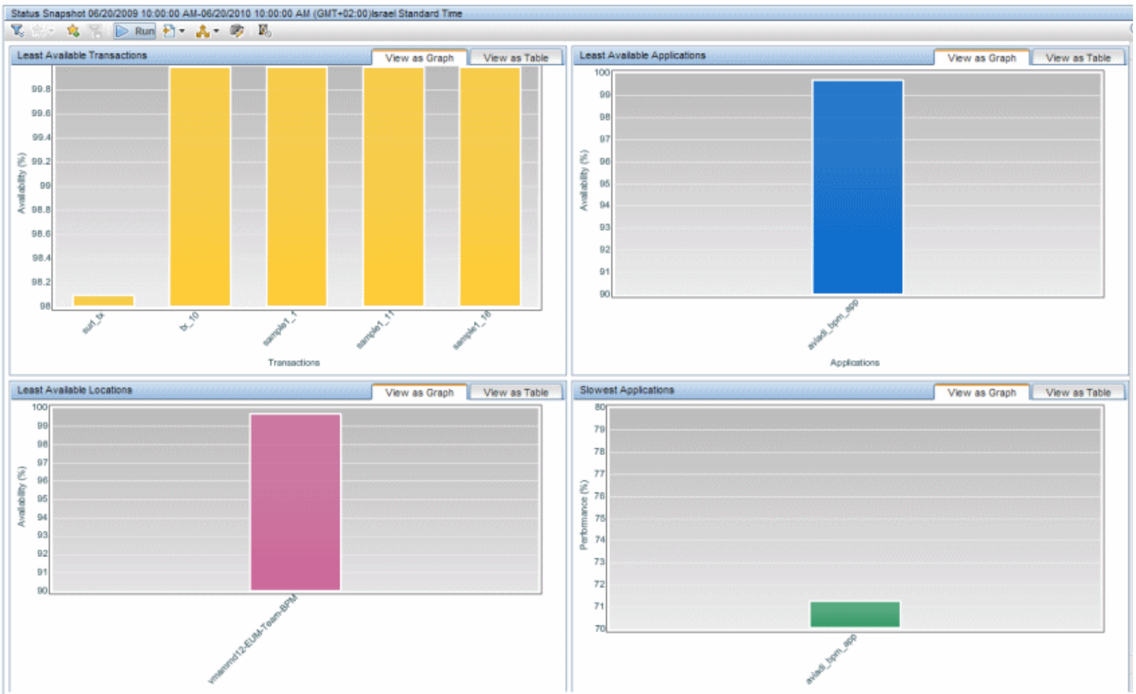
Important information	➤ This component is viewable only as a table. ➤ In calculating the most frequent broken links, RUM takes into account which broken links were most frequent during each five-minute interval and the number of intervals for which the broken links were most frequent.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
# of Occurrences	The total number of occurrences of each broken link for the entire amount of time that it was considered a frequent broken link.
Action Description	The descriptions of the broken actions, or URLs of the broken pages.
Application	The application in which the broken link was experienced.
First Occurrence	The time at which an end-user group first experienced the broken link.
Last Occurrence	The time at which an end-user group last experienced the broken link.
Referring Descriptor	The action description, or page URL, from which each broken link was accessed.
Tier	The application tier in which the broken link was experienced.

Status Snapshot

This report displays a summary of the five least available transactions, locations, and applications, as well as the five slowest applications, for the selected time period.



To access	Select **Applications** > **End User Management** > **Status Reports** > **Status Snapshot**
Important information	Real user session data is not affected by the **transaction** active filter and all relevant session data is included, even though other data in the report may be filtered for specific transactions.

Data type	➤ Real user data ➤ Synthetic user data ➤ Both
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Least Available Transactions

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns - Table View	
	"Performance Analysis Report" on page 906 **Graph view:** Right-click a bar and select **Drill down to Performance Analysis** from the Shortcut menu, to drill down to the Performance Analysis report for that transaction.
Graph Elements	
<X-axis>	**Transactions.** The names of the five worst transactions.
<Y-axis>	**Availability (%).** The percentage of availability. Bars indicate the availability percentage for a specific transaction. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Least Available Locations

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns - Table View	
	"Location Summary Report" on page 799 **Graph view:** Right-click a bar and select **Drill down to Location Summary** from the Shortcut menu, to drill down to the Location Summary report for that location.
Graph Elements	
<X-axis>	**Locations.** The names of the five worst locations.
<Y-axis>	**Availability (%).** The percentage of availability. Bars indicate the availability percentage for a specific location. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Least Available Applications

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns - Table View	
	"Application Summary Report" on page 781 **Graph view:** Right-click a bar and select **Drill down to Application Summary** from the Shortcut menu, to drill down to the Application Summary report for that application.

UI Element	Description
Graph Elements	
<X-axis>	**Applications.** The names of the five worst applications. **Note:** When displaying real user data, the applications are chosen according to the worst transactions or sessions and the applicable data source is displayed in the tooltip.
<Y-axis>	**Availability (%).** The percentage of availability. Bars indicate the availability percentage for a specific application. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Slowest Applications

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns - Table View	
	"Application Summary Report" on page 781 **Graph view:** Right-click a bar and select **Drill down to Application Summary** from the Shortcut menu, to drill down to the Application Summary report for that application.
Graph Elements	
<X-axis>	**Applications.** The names of the five slowest applications. **Note:** When displaying real user data, the applications are chosen according to the worst transactions or sessions and the applicable data source is displayed in the tooltip.

UI Element	Description
<Y-axis>	**Performance (%).** The percentage of transaction hits or sessions with a perfomance status of OK or Minor, from the total number of available hits or sessions. Bars indicate the performance percentage for a specific application. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

10

Analysis Reports

This chapter includes:

Concepts

Reference

Concepts

Analysis Reports Overview

Analysis reports provide a focused view of your applications and related entities, such as transactions, actions, running software, end-user groups, and so forth. You use analysis reports for troubleshooting specific problems and to help you determine their root cause.

You access analysis reports from the Analysis Reports tab in the End User Management (EUM) application (**Applications** > **End User Management** > **Analysis Reports**). For user interface details, see "Analysis Reports User Interface" on page 838.

Snapshot on Error

When recording scripts with HP Virtual User Generator or QuickTest Professional (QTP), you can enable the Snapshot on Error option. For task details, see "How to Enable Snapshot on Error When Recording Scripts" on page 729. Once enabled, during a script run HP Business Service Management (BSM) saves a snapshot of a page as it appears when an error occurs during the script run.

BSM supports Snapshot on Error for the following HP Virtual User Generator protocols:

- **Web protocols.** General_Js, HTTP, OracleWebJS, PS8, PS8WebJs, QTWeb, SAP-Web, SapJS, Siebel-Web, SOAP, WebJS, and WinSockWeb.
- **Non-Web protocols.** Citrix_ICA, General-Vba, General-Vbs, SAPGUI, and Tulip.

You can access the recorded snapshot from the Error Log. There are two ways to access the snapshot:

➤ Click the **View Snapshot** button to display the screen that is saved at the time of error. For Web protocols, the snapshot opens a new browser window and displays a page built from the HTML code that is saved at the time of error. Page resources, such as images, are displayed by linking to the original Web site—resources are not saved by BSM. For non-Web protocols, an image is displayed in the browser window.

➤ Click the **Download Snapshot** button to download the snapshot in zipped format to a local or network drive. This method is recommended for viewing the actual HTML code of the saved page, for example, if the HTML code contains scripts which can be harmful if run. For Web protocols, to view the snapshot in a browser after unzipping it, you may need to add the BASE element to the HTML code specifying the original URL of the recorded Web site. This is necessary to see page resources if the original HTML page did not contain a BASE element. In addition, you may need to add the original URL to other HTML elements such as anchor tags and image source tags.

For details on the Error Log, see "Error Log" on page 886.

Note: When BSM records a snapshot for scripts recorded using one of the Web protocols, it saves only HTML code. Resources such as images and JavaScript are not saved. Thus, errors that occur due to missing resources may be difficult to trace later on from the snapshot, especially in cases where the missing resource problem has been fixed. For example, if an image resource is missing during a script run, causing an error to be recorded, but the missing image problem is later fixed, the image is present when you open the snapshot of the page.

For additional information, see "Configuring Snapshot on Error" in the *Business Process Monitor Administration* PDF.

Analyzing the Breakdown Over Time Component

The Breakdown Over Time component in the Triage and Performance Analysis reports helps you determine whether poor transaction response times are being caused by network or server problems, or by client delays, and enables you to pinpoint exactly when the problems are occurring. Using the time range selector and active filters, you can highlight the exact time and source of a poorly performing transaction.

For details on the Triage report, see "Triage Report" on page 1046. For details on the Performance Analysis report, see "Performance Analysis Report" on page 906.

For details on the breakdown categories used in the report, see "Understanding Transaction Breakdown in Reports" on page 686.

This section also includes:

- "Working with Breakdown Over Time Component Data" on page 832
- "Correlating Breakdown Over Time Component Data with Other HP Business Service Management Reports" on page 834

Working with Breakdown Over Time Component Data

The Breakdown Over Time report's color-coded graph enables you to quickly differentiate between retry time, DNS resolution time, connect time, SSL handshake time (if relevant), time to first buffer, download time, and client time.

You can cross-reference data for a specific transaction from the Transaction Performance component in the Performance Analysis report with breakdown over time component data (use active filters to isolate the specific transaction as the breakdown over time component is not filtered according to the selected row in the Transaction Performance component, but according to all transactions selected in the report's filter) to quickly spot the time of day at which a problem is occurring. Once you have ascertained the time at which the problem is occurring, you determine whether the problem is being caused by network, server, or client delays. Depending on the source of the delay, you then view additional reports to isolate the root-cause of the problem.

For example, you might use the Transaction Performance component to determine that download time is higher than usual for a transaction named Search_Flights. You could generate the Breakdown Over Time report, filtered to the transaction Search_Flights, to determine the exact hour at which download time was slow. You could then view the BPM WebTrace report for the same time period to determine whether there were problems with the network during this time period. In addition, if you are monitoring your servers using SiteScope monitors, you could check server performance during the same time period.

Alternatively, you can use the Breakdown Over Time component to spot ongoing or recurring performance problems. Depending on whether the delays are server-, network-, or client-related, you then view additional reports to isolate the cause of the problem.

For example, you might notice that download time is consistently high over the course of several hours or days. Using the active filters, you could isolate the download time delays to a specific transaction. You could then drill to the Performance Raw Data report, and view the performance of each of the transaction instances. For each instance you can view the performance of the transaction pages (in the Transaction Response Time Breakdown component). For each page, drill down to view a Page Component Breakdown report, which displays a breakdown for every element on the Web page accessed by the transaction. In doing so, you might find that a particular page component is causing the page to download slowly, for example, a large image or Java applet that was recently added to the Web site.

Correlating Breakdown Over Time Component Data with Other HP Business Service Management Reports

You can cross-reference transaction breakdown data with data in other BSM reports. For example:

- To analyze the source of high download time, you can analyze server performance in System Availability Management reports to pinpoint potential server-side problems. For concept details, see "SAM Reports" in *Using System Availability Management*.
- To analyze the source of slow network times, click anywhere in the transaction breakdown bar except the Retry Time, Time to First Buffer, Server Time to First Buffer, or Download segments to open the WebTrace report for the current time period. To ensure meaningful correlation between the transaction breakdown data and the WebTrace data, it is recommended that you configure WebTrace to access the same servers that your transactions are accessing. For details on the WebTrace report, see "BPM WebTrace Report" on page 1082. For details on configuring WebTraces, see "WebTrace Dialog Box" on page 257.
- To trace the cause of retry time, move to the Error Summary report using the same filter (a drilldown is available from the Transaction Performance component). The Error Summary report shows the distribution of errors by location, category, type and more and enables you to drill down to the Error Log, which details all the errors. For details on the error log, see "Error Log" on page 886.

Note: To view errors in the Error Summary report and the Error Log, you must have enabled transaction breakdown error reporting for the application. For user interface details, see "Default Transaction Breakdown" on page 169.

- To analyze the source of slow server time to first buffer or download times, click the appropriate segment to open HP Diagnostics (a licensed version of HP Diagnostics is required for this drill down). For details about HP Diagnostics, see the *HP Diagnostics User's Guide*.

Viewing Session Details in the RUM Session Analyzer Report

When you view session details from the RUM Session Analyzer report, the report is regenerated and contains the most current data for the selected session. This means that if the session was still open when the RUM Session Analyzer report was originally generated, the data included in the Session Detail page is more up to date, and may differ from that included in the RUM Session Analyzer report for the same session.

When viewing session details, all the actions that are included in all monitored application sessions that started on the same day as the application session for which you are viewing data, and that are part of the entire application server session, are displayed.

For example, in EUM Administration you configure three applications. My_application_A consists of page_1, page_2, and page_3, my_application_B consists of page_4, page_5, and page_6, and my_application_C consists of page_7, page_8, and page_9. You log in to BSM and at 11:59 PM you hit page_1. After midnight (that is, when the date has changed) you hit all the other pages. You then log out of BSM.

You run the RUM Session Analyzer report for my_application_B and the session described above is included in the report and shows 3 page hits (page_4, page_5, and page_6), but when you drill down to view session details, all the pages from my_application_B and my_application_C are displayed and not only the pages for my_application_B. The pages for my_application_A are not displayed as the application session was started on the previous day to the requested application (my_application_B).

Note:

- Events displayed when viewing session details are the events that occurred only on the actions configured in EUM Administration as being part of the application.
- When clicking on the breadcrumb to return to the RUM Session Analyzer report, the report is not regenerated and the original RUM Session Analyzer report is redisplayed.

Determining How the Real User Monitor Snapshot Applet Retrieves Snapshots

By default, the Real User Monitor Snapshot applet communicates with the Real User Monitor (RUM) engine through the BSM Gateway Server to retrieve snapshots. This enables the Real User Monitor Snapshot applet to work properly when there is no network communication between a client machine and the RUM engine. You can configure BSM so that the Real User Monitor Snapshot applet communicates directly with the RUM engine to retrieve snapshots. You configures this for each individual engine. For user interface details, see "Edit Real User Monitor Engine Properties Dialog Box" on page 513.

Action Classifications in Action Reports

RUM correlates monitored actions in the following order:

➤ **Configured actions.** If RUM can correlate the monitored action to an action that you have configured in EUM Administration, data is recorded and reported for that specific action. For details on configuring actions in EUM Administration, see "<Action> Dialog Box" on page 310.

➤ **Meaningful actions.** If Real User Monitor cannot correlate the monitored action to an action configured in EUM Administration, it tries to create a meaningful name for the action. If successful, data is recorded and reported for the action under the name that Real User Monitor created. For details on meaningful names, see "Configuring Meaningful Page Names" in the *Real User Monitor Administration* PDF.

➤ **By classification.** For actions that cannot be correlated to a configured action in EUM Administration, and for which a meaningful action name cannot be created, RUM looks for common classifications. A classification is a commonly repeated pattern in action requests (for example, the same SQL query in which only a specific parameter value may vary in each request). If RUM successfully correlates an action to a classification, data is recorded and reported for the action under that classification description. For details on classifications in RUM, see "Real User Monitor Transaction Flow Monitoring" in the *Real User Monitor Administration* PDF.

Note: You enable classification per application in EUM Administration. For user interface details, see "Real User Monitor Application Data Collection Page" on page 381.

➤ **Undefined actions.** All other actions that cannot be correlated to a configured action, a meaningful action name, or a classification, are reported as undefined actions.

Reference

Analysis Reports User Interface

This section includes (in alphabetical order):

Action Details Page

This page displays general data for a selected action.

To access	In the **Session Details** or **Action Raw Data** report, select an action and click the **View Action Details** button.
Important information	The Action Details page opens in a new window.
Data type	Real user data

Action Description Area

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Protocol attributes>	A list of attributes that are specific to the application's protocol.
Action description	The action description. **Note:** For pages, the action description is the page URL.
Action name	The name configured for the action in EUM Administration, or N/A if the action has not been configured.
Copy descriptor	Copies the action description to your clipboard.
Host	The name of the server on which the action was located.

Action Parameters Area

This area displays the names and values of any parameters defined in the application protocol's template in EUM Administration.

Connection Details Area

User interface elements are described below:

UI Element (A-Z)	Description
Client IP	The IP address of the client machine from which the action was hit.
Client name	The name of the client machine from which the action was hit.
Client port	The port of the client machine from which the action was hit.
Running software	The software element on which the action was located.

UI Element (A-Z)	Description
Server IP	The IP address of the server on which the action was located.
Server name	The name of the server on which the action was located.
Server port	The port on the server that was accessed for the action hit.

General Area

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Protocol information>	A list of additional information that is specific to the action's protocol. **Note:** A default HTTP status code of 202 is displayed for pages for which no server response is detected by the RUM probe.
Received traffic (KB)	The amount of traffic, in kilobytes, received from the server for the action.
Sent traffic (KB)	The amount of traffic, in kilobytes, sent to the server for the action.
Start time	The date and time the action was hit.
Stopped action hit	Displays whether the action was stopped by the end-user.
Total requests	The total number of requests sent for the action.
Total traffic (KB)	The total amount of traffic (both sent and received), in kilobytes, for the action.

Performance Area

User interface elements are described below:

UI Element (A-Z)	Description
Client time (sec)	The amount of time, in seconds, that the action was active on the client machine.
Connect time (sec)	The amount of time, in seconds, that it took to establish an initial connection to the server from the first request sent for the action.
Network time (sec)	The amount of time, in seconds, that the action was active on the network.
Retransmit time (sec)	The amount of time, in seconds, that passed from the moment a request was started for the action, until the moment an error message is returned. **Note:** Retransmit time only relates to errors that execute a retry after the error.
Server time (sec)	The amount of time, in seconds, that it took the server to process the request for the action.
Server time to first buffer (sec)	The amount of time, in seconds, that passed from the receipt of ACK of the initial request (usually GET for an HTTP request) until the first buffer is successfully received back from the Web server.
SSL handshake time (sec)	The amount of time, in seconds, taken to establish an SSL connection for the action. **Note:** SSL handshake time is applicable only for HTTPS communications.
Total time (sec)	The total amount of time, in seconds, from when the action was requested until it finished.

Events Area

User interface elements are described below:

UI Element (A–Z)	Description
Description	The event description
Event Name	The event name

Action Over Time Report

This report includes four components that display the availability, performance, load, response time, and events for a selected action, over the course of time. The report enables you to investigate the behavior over time of a problematic action in the RUM Action Summary report.

To access	In the **RUM Action Summary Report**, select an action and click the **Action Over Time Report** button.
Important information	➤ When you view a component as a graph, you can drill down to a higher time resolution by clicking a data point or bar. For example, if you click a bar that displays data for a day, the time resolution changes to hours for the specific day. When you drill down to a higher time resolution, all the components in the graphs are updated for the new time resolution. ➤ If active filters are used to add more than one action to the report, the displayed data is the average of all the included actions. ➤ Hold the cursor over a data point or bar to display a tooltip with additional information relevant to the data.
Data type	Real user data

See also	➤ "Analysis Reports Overview" on page 830 ➤ "Real User Monitor Application <Actions> Page" on page 366 ➤ "RUM Action Summary Report" on page 919
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

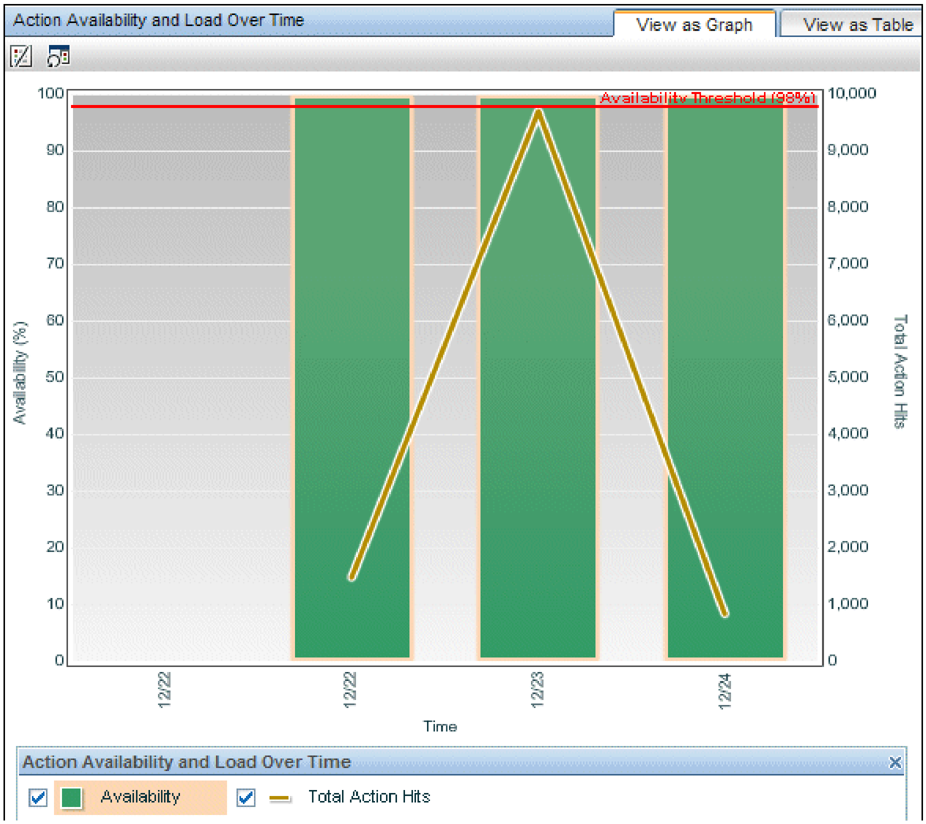
General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"Action Over Time Report" on page 843. In any table, select a row and click the **Drill down to Action Over Time** button to drill down to a higher time resolution. For example, if you drill down from a report that displays data for a day, the time resolution changes to hours for the specific day. **Note:** You cannot drill down to a resolution higher than five minutes. **Graph view:** Right-click a bar or data point to display a Shortcut menu and click **Drill down to Action Over Time** from the Shortcut menu.

Action Availability and Load Over Time

This graph displays the total number of action hits and the percentage of available action hits over the selected time period. The graph enables you to see the correlation between action availability and the number of action hits.

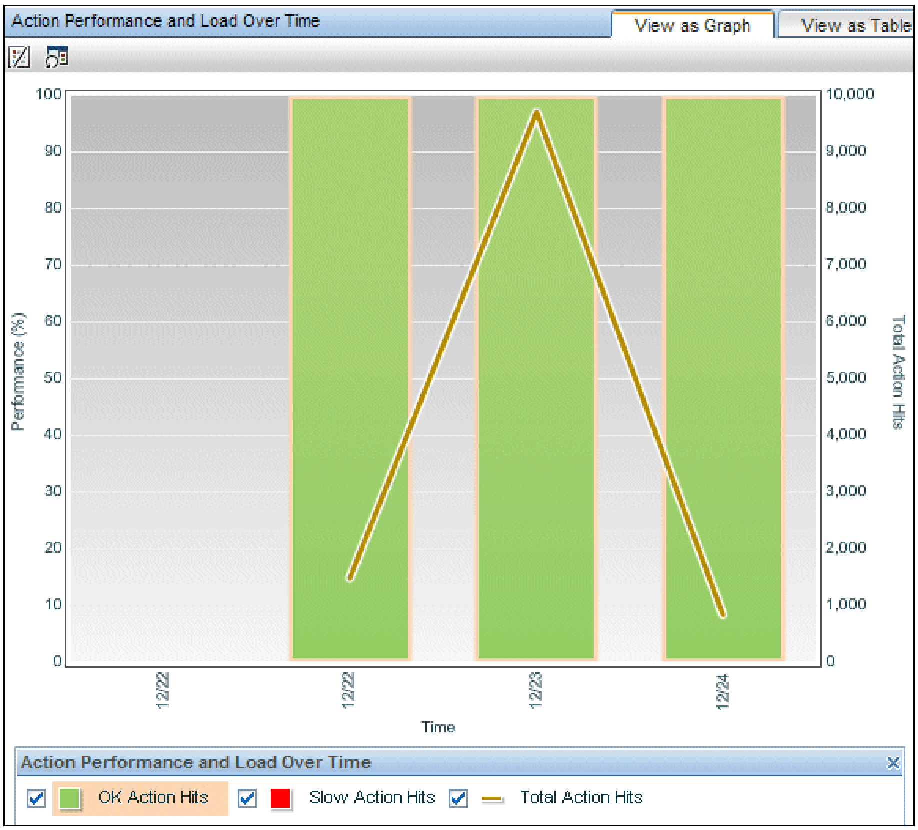


User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis> (left)	**Availability (%).** The percentage of available action hits from the total number of action hits.
<Y-axis > (right)	**Total Action Hits.** The total number of action hits.
Availability threshold	The availability threshold you configured for the action in EUM Administration. **Note:** This element is displayed only when you select a single action for the report.

Action Performance and Load Over Time

This graph displays the total number of action hits, the percentage of available action hits, and the number of available actions hits whose total time was less than or equal to the action's total time threshold, over the selected time period. The graph enables you to see the correlation between the action performance and the number of action hits.

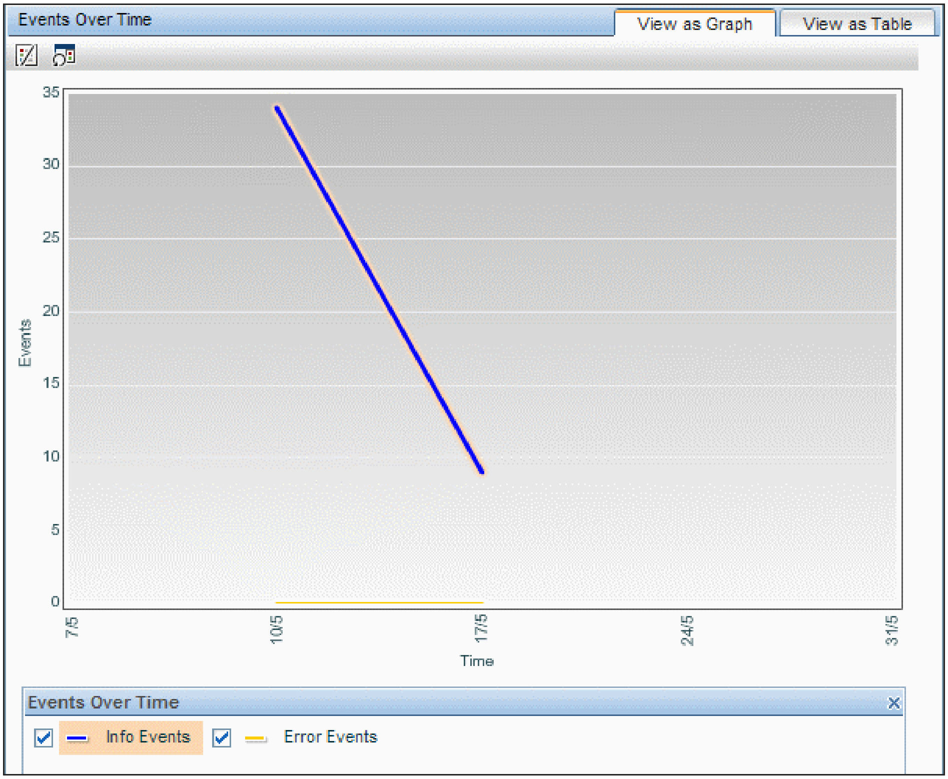


User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis> (left)	**Performance (%).** ➤ The percentage of available action hits whose total time was less than or equal to the total time threshold you configured for the action in EUM Administration. ➤ The percentage of available action hits whose total time was greater than the total time threshold you configured for the action in EUM Administration. **Note:** The performance percentages are denoted by stacked bars.
<Y-axis> (right)	**Total Action Hits.** The total number of action hits. **Note:** The total action hits are denoted by connected data points.

Events Over Time

This graph displays the total number of events that occurred on the action over the selected time period. The graph enables you to determine in what time period the most, or least, number of events occurred.



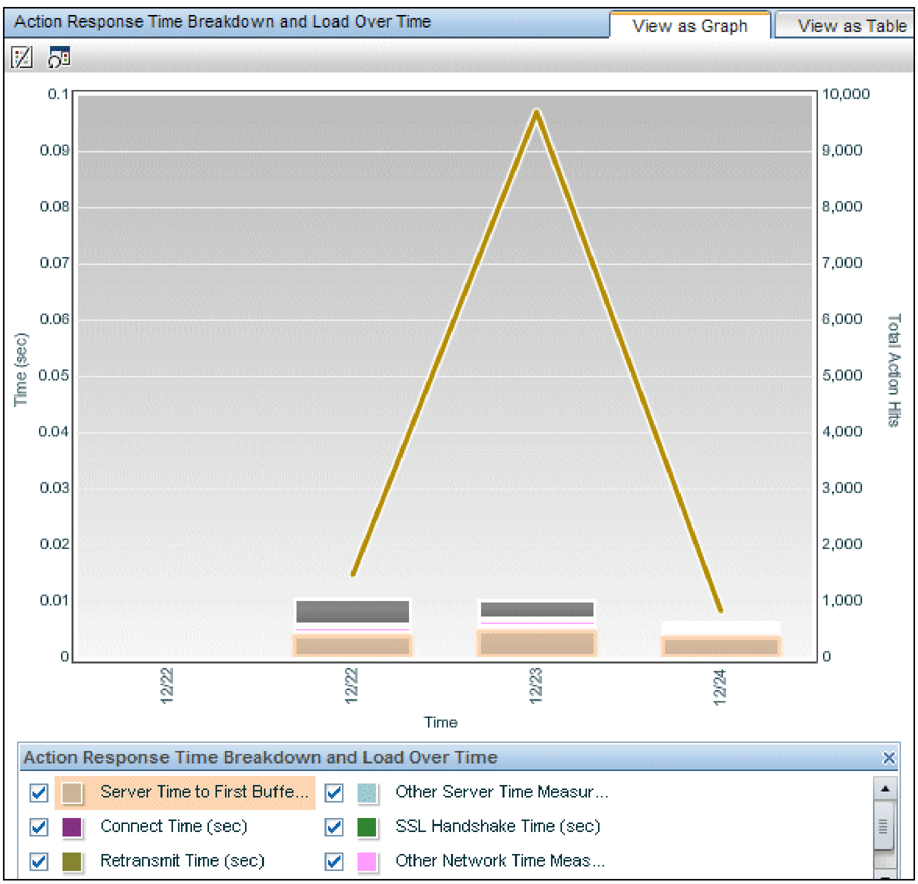
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<X-axis>	**Time.** The time units for the selected time period.

UI Element (A–Z)	Description
<Y-axis>	**Events.** The number of error events and the number of information events that occurred on the action. **Note:** Error and information events are each represented by a different set of data points.

Action Response Time Breakdown and Load Over Time

This graph displays the total number of action hits and the average response time broken down by categories, over the selected time period. The graph enables you to see the correlation between the total response times and the number of action hits.



User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	**Description**
Drilldowns -Table View	
	**Drill down to Transaction Tracking.** Opens Transaction Management's Transaction Tracking report, where you can see detailed information of the actions within the session. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718. **Graph view:** Right-click a data point or bar and click **Drill down to Transaction Tracking** from the Shortcut menu.
	**Drill down to Diagnostics.** Drills down to HP Diagnostics for a specific action. For concept details, see "Viewing HP Diagnostics Data From End User Management Reports" on page 714. **Graph view:** Right-click a data point or bar and click **Drill down to Diagnostics** from the Shortcut menu.
	**Drill down to NNMi.** For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724. **Graph view:** Right-click a data point or bar and click **Drill down to NNMi** from the Shortcut menu.

UI Element	Description
Graph Elements	
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis> (left)	**Time (sec).** The total action time in seconds, as well as the time of each breakdown category that comprise the total time. **Note:** The total action time is denoted by a bar. Each colored segment in the bar denotes the time of a different breakdown category. For details on the breakdown categories used in the report, see "Overview of HP Real User Monitor Performance Measurements" in the *Real User Monitor Administration* PDF.
<Y-axis> (right)	**Total Action Hits.** The total number of action hits. **Note:** The total action hits are denoted by connected data points.
Total time threshold	The action time threshold you configured for the action in EUM Administration. **Note:** ➤ This element is displayed only when you select a single action for the report. ➤ This element is not displayed if the configured action time threshold is greater than the fourth highest action time measurment displayed in the graph.
Server time threshold	The server time threshold you configured for the action in EUM Administration. **Note:** ➤ This element is displayed only when you select a single action for the report. ➤ This element is not displayed if the configured server time threshold is greater than the fourth highest action time measurment displayed in the graph.

Action Raw Data Report

This report displays raw data (that is, non aggregated data) for a single action, enabling you to see all the hits for a specific action ID or action description (for an undefined action).

To access	In the **RUM Action Summary** report, select an action and click the **Drill down to Action Raw Data** button.
Important information	The data included in the **Action Details** page is available in the Action Raw Data report as columns that are hidden by default. You can select the columns to display them in the report. When you export data from the Action Raw Data report, this data is included in the exported file even if the columns are not displayed. For user interface details, see "Action Details Page" on page 839.
Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	"Action Details Page" on page 839
	"Page Component Breakdown Report (RUM)" on page 903

UI Element	Description
	**View Snapshot.** Opens the Session Replay page, where you can view a snapshot of a selected action. For user interface details, see "Session Replay Page" on page 1005. **Note:** If no snapshot exists for the selected action, this button is disabled.
	**Drill down to NNMi.** For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724.
Actions	
	**Define Action.** Opens the Real User Monitor Application <Actions> page in a new window, where you can add and define a new action for an application. When you access the **New Action** dialog box from the Real User Monitor Application <Actions> page, the selected action's description or URL, attibutes, and parameters are automatically entered in the dialog box. For user interface details, see "<Action> Dialog Box" on page 310. **Note:** The Define Action button is enabled only for selected actions that are not yet defined in EUM Administration.
Report Columns (A-Z) Hold the cursor over a cell to display a tooltip with additional information relevant to the data.	
Action	The name of the action that was hit, as defined by you in EUM Administration, or for an undefined action, its action description.
Application	The application in which the action is defined. This field is colored blue for actions included in the selected application session.
Client	The name, or if there is no name the IP address, of the client that hit the action.

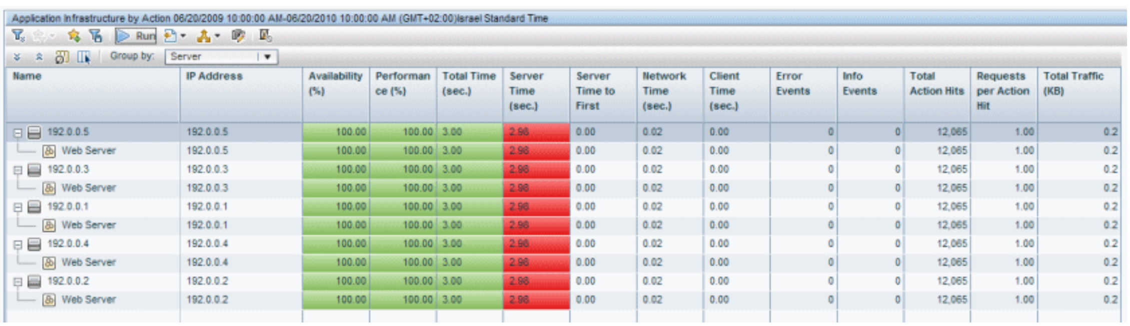
UI Element	Description
Client time (sec)	The amount of time, in seconds, that the action was active on the client machine.
Events	Displays an icon and the name of events that occurred on the action, based on the events you defined for the action in EUM Administration. If there are multiple events on an action, the icon of the most severe event is displayed and the string "Multiple events" is displayed instead of the event name. **Note:** The order of severity of event types is errors and informational events. **Tooltip:** For single errors, the event type is displayed and for multiple errors, the event names are displayed.
Has Snapshot	Indicates whether a snapshot exists for the action. If a snapshot exists, you can click the **View Snapshot** button to display it. **Note:** This column is hidden if there are no HTTP tiers selected in the report filter.
Network Time (sec)	The amount of time, in seconds, that the action was active on the network.
Running Software	The running software in which the action was hit.
Server	The name, or if there is no name the IP address, of the server on which the action was hit.
Server Time (sec)	The amount of time, in seconds, that it took the server to process the request for the action. **Note:** This column is color-coded based on the server time threshold you configured for the action in EUM Administration, or that you configured for the tier for undefined actions.
Start Time	The date and time the action was hit.

UI Element	Description
Total Time (sec)	The total amount of time, in seconds, from when the action was requested until it finished. **Note:** This column is color-coded based on the total time threshold you configured for the action in EUM Administration, or that you configured for the tier for undefined actions.
Total Traffic (KB)	The total amount of network traffic (action traffic and TCP layer overhead traffic), in kilobytes, for the action.

Application Infrastructure by Action Report

This report displays data for a selected action (configured for RUM in EUM Administration), broken down by infrastructure running software (for example, application server, database, services running on the server, and so forth). Each measurement in the report is for the action for specific running software. The report enables you to investigate the status of infrastructure elements, by looking at the actions that occurred on them.

You access the Application Infrastructure by Action report by drilling down to it from the RUM Action Summary report for an action with bad measurements. You can then see on which infrastructure elements the action occurred and how it performed on each element. This indicates which infrastructure elements may be causing problems.


Application Infrastructure by Action 06/20/2009 10:00:00 AM-06/20/2010 10:00:00 AM (GMT+02:00)Israel Standard Time

Run

Group by: Server

Name	IP Address	Availability (%)	Performance (%)	Total Time (sec.)	Server Time (sec.)	Server Time to First	Network Time (sec.)	Client Time (sec.)	Error Events	Info Events	Total Action Hits	Requests per Action Hit	Total Traffic (KB)
192.0.0.5	192.0.0.5	100.00	100.00	3.00	2.98	0.00	0.02	0.00	0	0	12,065	1.00	0.2
Web Server	192.0.0.5	100.00	100.00	3.00	2.98	0.00	0.02	0.00	0	0	12,065	1.00	0.2
192.0.0.3	192.0.0.3	100.00	100.00	3.00	2.98	0.00	0.02	0.00	0	0	12,065	1.00	0.2
Web Server	192.0.0.3	100.00	100.00	3.00	2.98	0.00	0.02	0.00	0	0	12,065	1.00	0.2
192.0.0.1	192.0.0.1	100.00	100.00	3.00	2.98	0.00	0.02	0.00	0	0	12,065	1.00	0.2
Web Server	192.0.0.1	100.00	100.00	3.00	2.98	0.00	0.02	0.00	0	0	12,065	1.00	0.2
192.0.0.4	192.0.0.4	100.00	100.00	3.00	2.98	0.00	0.02	0.00	0	0	12,065	1.00	0.2
Web Server	192.0.0.4	100.00	100.00	3.00	2.98	0.00	0.02	0.00	0	0	12,065	1.00	0.2
192.0.0.2	192.0.0.2	100.00	100.00	3.00	2.98	0.00	0.02	0.00	0	0	12,065	1.00	0.2
Web Server	192.0.0.2	100.00	100.00	3.00	2.98	0.00	0.02	0.00	0	0	12,065	1.00	0.2

To access	In the **RUM Action Summary Report**, select an action and click the **Drill down to Application Infrastructure by Action Report** button.
Important information	➤ The **Availability**, **Performance**, **Total Time**, and **Server Time** columns are color-coded, based on the action's relevant thresholds configured in EUM Administration. ➤ **Green.** OK ➤ **Yellow.** Minor (not valid for Availability) ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)
Data type	Real user data
See also	➤ "Analysis Reports Overview" on page 830 ➤ "Real User Monitor Application <Actions> Page" on page 366 ➤ "RUM Action Summary Report" on page 919
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **Group by.** Select whether to display the data by running software, or to group the data by the servers on which the running software is located. **Default value:** Running software (ungrouped)

Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	**Drill down to Transaction Tracking.** Opens Transaction Management's Transaction Tracking report, where you can see detailed information of the actions within the session. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718.
	**Drill down to Diagnostics.** Drills down to HP Diagnostics for a specific action. For concept details, see "Viewing HP Diagnostics Data From End User Management Reports" on page 714.
Report Columns (A-Z) Hold the cursor over a cell to display a tooltip with additional information relevant to the data.	
Availability	The percentage of available action hits on the running software or server.
Client time	The average amount of time, in seconds, that the action's requests were delayed on the client machine.
Error events	The number of error events that occurred on the action, based on the error events you defined for the action, or application, in EUM Administration.
Info events	The number of informational events that occurred on the action, based on the informational events you defined for the action, or application, in EUM Administration.
IP Address	The IP address of the server of running software element on which the action occurred.
Name	The name of the server or running software element on which the action occurred.

UI Element	Description
Network time	The average amount of time, in seconds, that the action's requests were delayed on the network. Connect, SSL handshake, and retransmit times are also included in the total network time.
Performance	The percentage of action hits for which the action's total time was less than or equal to the action's total time threshold defined in EUM Administration. **Note:** If an action is unavailable, its data is not included in the performance calculations.
Requests per action hit	The average number of requests sent for each action hit.
Running Software	The name of the running software element on which the action occurred.
Server time	The average amount of time, in seconds, that it took the server to process the requests for the action. This column is color-coded, based on the action's server time in relation to the server time threshold you defined in EUM Administration.
Server time to First Buffer	The average amount of time, in seconds, from when a server received a request for the action, until it started sending the response.
Total action hits	The total number of hits the action received.
Total time	The average total time, in seconds for the action. This column is color-coded, based on the action's total time in relation to the total time threshold you defined in EUM Administration.
Total traffic	The average amount of network traffic (action traffic and TCP layer overhead traffic), in kilobytes, for the action.

Application Infrastructure by Transaction Report

This report displays general, availability, and performance data for each server or running software element on which the transaction you selected in the RUM Transaction Summary report ran. For details on configuring RUM transactions in EUM Administration, see "Business Transaction Real User Monitor Configuration Page" on page 330.

To access	Select **Applications** > **End User Management** > **Analysis Reports** > **RUM Transaction Summary**. Select a transaction and click the **Drill down to Application Infrastructure by Transaction** button.
Important information	The **Availability**, **Total Time**, **Net Time**, and **Total Server Time** columns are color-coded, based on the relevant thresholds configured in EUM Administration. (Availability is based on action thresholds and total time and server time are based on tier thresholds.) The following are the valid statuses: ➤ **Green.** OK ➤ **Yellow.** Minor (not valid for Availability) ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)
Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **Group by.** Select whether to display the data grouped by running software or server. **Default value:** Server **Note:** When grouped by server, click a server to expand a hierarchical tree of its running software elements.

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"Application Infrastructure Over Time Report" on page 868
	"RUM Current Transaction Thresholds Window" on page 758 **Note:** This button is displayed only when you filter the report for a single transaction.

Highlights Tab

The Highlights tab displays selected data from the other tabs in the report and enables you to view key information at one time, without having to move from tab to tab.

Important information	The **Availability (%)**, **Total Time, Net Time**, and **Total Server Time** columns and tooltips are color-coded, based on the relevant thresholds configured for them in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor (not valid for Availability) ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.

UI Element (A–Z)	Description
Availability (%)	The percentage of transaction runs for a server or running software element, for which there were no availability problems. **Note:** If a transaction is unavailable, its data is not included in the transaction performance calculations.
Name	The server name or the running software element, according to the entity in the hierarchical tree.
Net Time (sec)	The net time, in seconds, of the transaction (that is, server time + network time + client time of all the actions included in the transaction), for a server or running software element.
Runs	The total number of run instances for the transaction, for a server or running software element.
Server	The server name or IP address. **Note:** This column is displayed when you group the report by running software (the default setting).
Server/Running Software	The server name or the running software element, according to the entity in the hierarchical tree. **Note:** This column is displayed when you group the report by server.
Total Server Time (sec)	The total server time of all the actions included in the transaction, for a server or running software element.
Total Time (sec)	The average of the overall transaction time (from the start of the first action to the end of the last action), in seconds, for a server or running software element.
Transaction Size (KB)	The total size, in kilobytes, of all the actions in the transaction, for a server or running software element.

Availability and Events Tab

The Availability and Events tab displays the transaction availability for each configured transaction that was monitored.

Important information	The **Availability (%)** column and tooltip are color-coded, based on the relevant threshold configured for the transaction in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<**Tooltip**>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Availability (%)	The percentage of transaction runs for a server or running software element, for which there were no availability problems. **Note:** If a transaction is unavailable, its data is not included in the transaction performance calculations.
Error Events	The total number of error events for the transaction, for a server or running software element.
Info Events	The total number of info events for the transaction, for a server or running software element.
IP Address	The IP address of the server or running software element.
Name	The server name or the running software element, according to the entity in the hierarchical tree.
Runs	The total number of run instances for the transaction, for a server or running software element.

UI Element (A–Z)	Description
Server	The server name or IP address. **Note:** This column is displayed when you group the report by running software (the default setting).
Unavailable Runs	The total number of transaction run instances for which availability problems occurred, for a server or running software element.

Performance Tab

The Performance tab displays data about the duration of each configured transaction that was monitored.

Important information	The **Total Time** and **Net Time**, and **Total Server Time** columns and tooltips are color-coded, based on the relevant thresholds configured for the transaction in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<**Tooltip**>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Client Time	The total time, in seconds, that each action included in the transaction was delayed on the client machine. **Note:** This column is hidden by default.

UI Element (A–Z)	Description
Connect Time (sec)	The average amount of time, in seconds, that it took to establish an initial connection to the server from the first HTTP request sent. **Note:** This column is hidden by default.
Name	The server name or the running software element, according to the entity in the hierarchical tree.
Net Time (sec)	The net time, in seconds, of the transaction (that is, server time + network time + client time of all the actions included in the transaction).
Retransmit Time (sec)	The overall amount of time that passes from the moment an HTTP request is started until the moment an error message is returned. **Note:** ➤ Retransmit time only relates to errors that execute a retry after the error. ➤ This column is hidden by default.
Runs	The total number of run instances for the transaction.
Server	The server name or IP address. **Note:** This column is displayed when you group the report by running software.
Server Time to First Buffer	The amount of time that passes from the receipt of ACK of the initial HTTP request (usually GET) until the first buffer is successfully received back from the Web server. **Note:** The server time to first buffer measurement is a good indicator of Web server delay.
Slow Runs	The number of run instances whose total transaction time exceeded the configured total time threshold.
Slow Transaction Net Time (sec)	The average net transaction time, in seconds, of the transaction's runs that exceeded the net time threshold configured for the transaction.

UI Element (A–Z)	Description
Slow Transaction Server Time (sec)	The average server time, in seconds, of the transaction's runs that exceeded the server time threshold configured for the transaction.
Slow Transaction Total Time (sec)	The average total transaction time, in seconds, of the transaction's runs that exceeded the total time threshold configured for the transaction.
SSL Handshake Time (sec)	The average amount of time taken to establish an SSL connection. **Note:** ➤ SSL handshake time is applicable only for HTTPS communications. ➤ This column is hidden by default.
Think Time (sec)	The average think time for the transaction (that is, the time between page downloads which is calculated as transaction time - server time - network time - client time).
Total Network Time (sec)	The total time, in seconds, that each action included in the transaction was delayed on the network. Connection, SSL handshaking, and retransmit times are also included in the total network time.
Total Server Time (sec)	The total server time of all the actions included in the transaction.
Total Time (sec)	The average of the overall transaction time (from the start of the first action to the end of the last action), in seconds.

Application Infrastructure Over Time Report

This report displays details of the availability, traffic requests, throughput, and errors for a selected running software or server over the course of time.

To access	Use one of the following: ➤ In the **RUM Application Infrastructure Summary** report, select a running software element or server and click the **Drill down to Application Infrastructure Over Time** button. ➤ In the **Application Infrastructure by Transaction** report, select a transaction and click the **Drill down to Application Infrastructure Over Time** button.

Important information	➤ The component names in the report are determined by the grouping of the RUM Application Infrastructure Summary report—running software or server.
	➤ The available components in the report depend on the types of the applications for which you generate the report. For concept details, see "Viewing Data for Different Application Tier Types in Real User Monitor Reports" on page 705.
	➤ If all the tiers selected for the report are UDP connectionless protocol tiers, in table views the **Connection Availability** column is not displayed.
	➤ In table views, the **Application Availability** and **Connection Availability** columns are color-coded, based on the relevant thresholds configured in EUM Administration. The following are the valid statuses:
	  ➤ **Green.** OK
	  ➤ **Red.** Critical
	  ➤ **Blue.** No data

Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"Application Infrastructure Over Time Report" on page 868. In any table, select a row and click the **Drill down to Application Infrastructure Over Time** button to drill down to a higher time resolution. For example, if you drill down from a report that displays data for a day, the time resolution changes to hours for the specific day. **Note:** You cannot drill down to a resolution higher than five minutes. **Graph view:** In any graph, right-click a bar or data point and click **Drill down to Application Infrastructure Over Time** from the Shortcut menu.

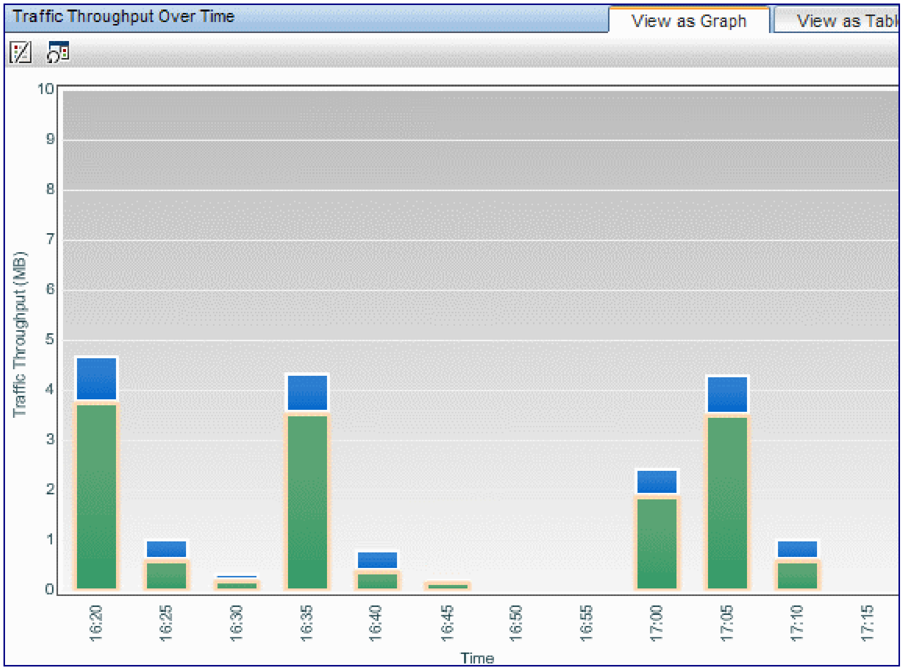
Server Availability Over Time

Important information	If all the tiers selected for the report are UDP connectionless protocol tiers, this component is not displayed.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<**X-axis**>	**Time.** The time units for the selected time period.
<**Y-axis**>	**Availability (%).** Running software/server availability percentage units. Data points indicate: ➤ The percentage of HTTP requests for which each running software/server was available at each point over the course of the defined time period. ➤ The percentage of total connections that were successful for each server at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.
<**Application Availability Threshold line**>	The running software/server availability threshold that you configured in EUM Administration.
<**Connection Availability Threshold line**>	The running software/server connection availability threshold that you configured for the application in EUM Administration.
<**Availability Threshold line**>	If the application and connection availability thresholds are the same, they are displayed together as this one threshold line.

Traffic Throughput Over Time



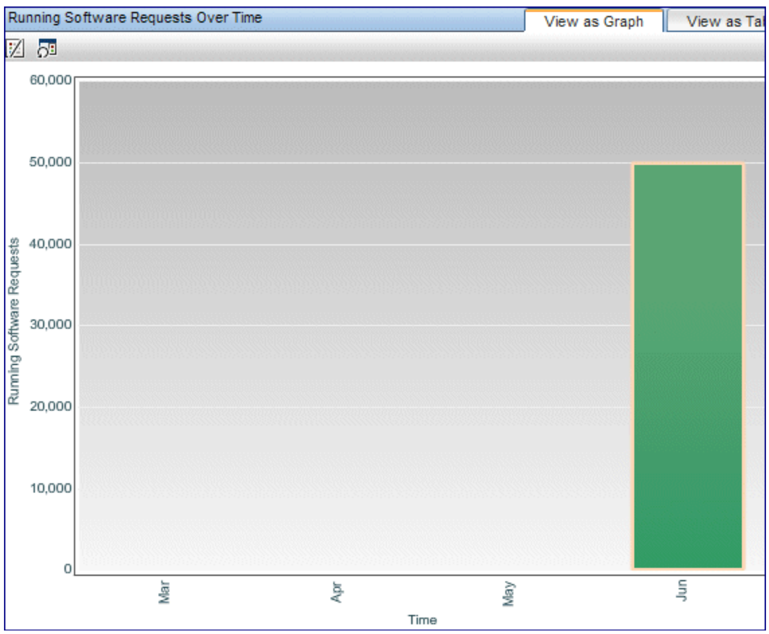
Important information	When viewed as a table, if all the tiers selected for the report are UDP connectionless protocol tiers, the **Connection Availability** column is not displayed.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.

UI Element	Description
<Y-axis>	**Traffic Throughput (MB).** The traffic throughput in megabytes. Stacked bars indicate the total traffic throughput for the applications on the running software/server at each point over the course of the defined time period, broken down to application traffic and network layer overhead. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Server Requests Over Time

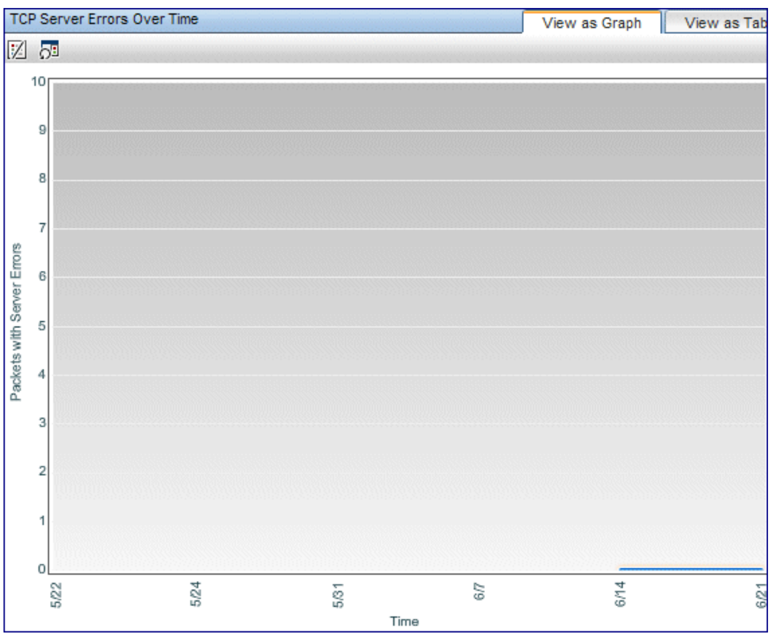


Important information	When viewed as a table, if all the tiers selected for the report are UDP connectionless protocol tiers, the Connection Availability column is not displayed.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis>	**Server Requests/Running Software Requests.** The number of server/running software requests. Bars indicate the total number of requests for the applications on the server/running software, at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

TCP Server Errors Over Time

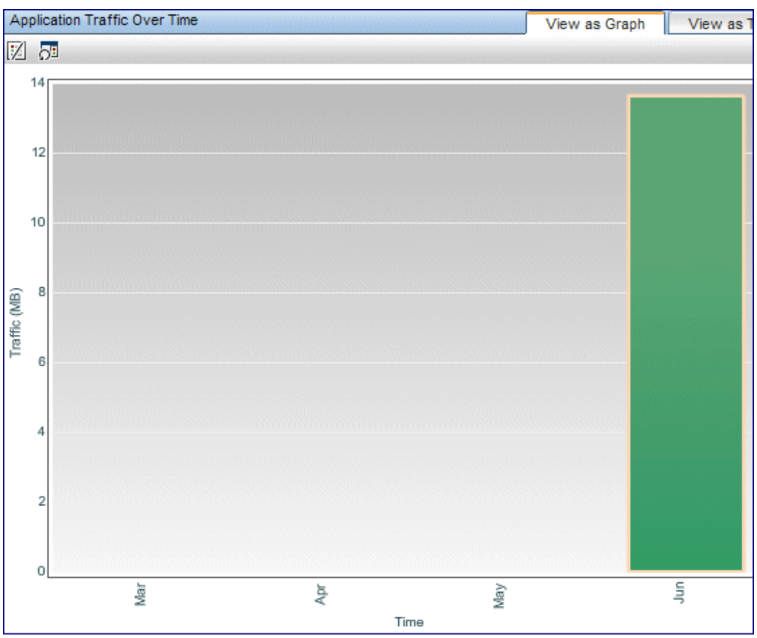


Important information	If all the tiers selected for the report are UDP protocol tiers, this component is not displayed.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis>	**Packets with Server Errors.** The number of packets with server errors. Data points indicate: ➤ The number of packets with Stuck Window errors at each point over the course of the defined time period. ➤ The number of packets with Zero Window errors at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

Application Traffic Over Time



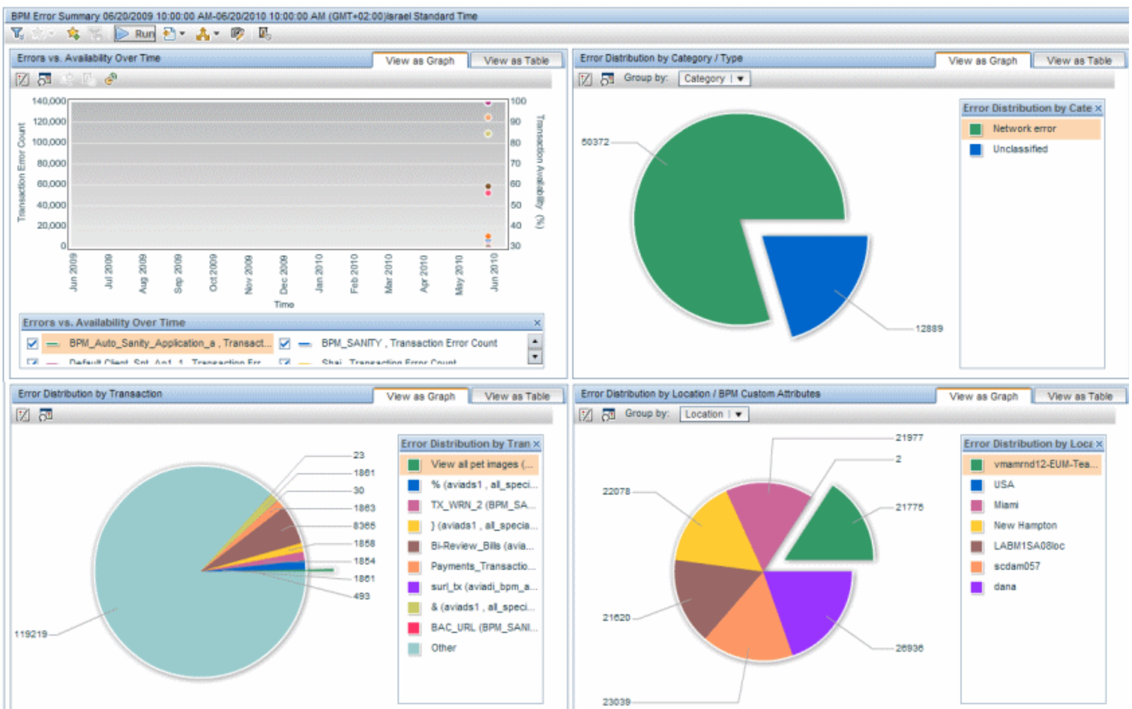
Important information	If all the tiers selected for the report are UDP protocol tiers, this component is not displayed.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<**X-axis**>	**Time.** The time units for the selected time period.
<**Y-axis**>	**Traffic (MB).** The amount of traffic in megabytes. Stacked bars indicate the total traffic throughput, in megabytes, for the applications on the running software element/server at each point over the course of the defined time period, broken down to plain traffic and SSL traffic. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

BPM Error Summary Report

This report displays summary data about the transaction errors that occurred during an application's runs in Business Process Monitor (BPM), over the specified time period. The data is displayed to show different aspects of the errors and enables you to drill down to view a particular aspect in more detail, such as for one location or one transaction. Since not all errors cause transactions to fail, the BPM Error Summary report includes errors for transactions that completed successfully as well as those that failed.



To access	Use one of the following:
	➤ Select **Applications** > **Analysis Reports** > **BPM Error Summary**
	➤ In the **Performance Analysis** report, select a transaction or location in the **Transaction Performance** component and click the **Drill down to BPM Error Summary** button.
	➤ In the **Application Health** report > **Business Summary** table, select an application or business transaction flow and click the **Drill down to BPM Error Summary** button.
	➤ In the **Application Health** report > **Availability and Load Over Time** component:
	    ➤ **Table view:** Select a row and click the **Drill down to BPM Error Summary** button.
	    ➤ **Graph view:** Right-click a data point or bar and select **Drill down to BPM Error Summary** from the Shortcut menu.
	➤ In the **Location Summary** report > **Transactions with Errors** component:
	    ➤ **Table view:** Select a location and click the **Drill down to BPM Error Summary** button.
	    ➤ **Graph view:** Right-click a pie chart slice and select **Drill down to BPM Error Summary** from the Shortcut menu.

Data type	Synthetic user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Errors Vs. Availability Over Time

UI Element (A–Z)	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis> (left)	**Transaction Error Count.** The number of errors that occurred. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.
<Y-axis> (right)	**Transaction Availability.** Transaction availability percentage units. Data points indicate the percentage of available transactions at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

Error Distribution by Category/Type

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	"Error Log" on page 886 **Note:** You cannot drill down to the Error Log for the **Unclassified** category. **Graph view:** Right-click a pie chart slice and select **Drill down to Error Log** from the Shortcut menu. The Error Log opens in a new window and includes the errors for the selected category or type.

UI Element	Description
	**Drill down to Error Distribution by Type.** The component is regenerated and shows the error types that comprise the category from which you drilled down. **Note:** ➤ This option is available only when you view the component by category. ➤ You cannot drill down to view the Error Distribution by Type for the **Unclassified** category. **Graph view:** Right-click a pie chart slice and select **Drill down to Error Distribution by Type** from the Shortcut menu.
Common Elements	
<**Group by**>	Select whether to view the data grouped by category, or by error type.
Graph Elements	
<**Pie chart**>	Consists of color-coded slices representing the different error categories or types. **Tooltip:** Hold the cursor over a pie chart slice to display a tooltip with additional information relevant to the data. **Note:** ➤ Up to 10 different slices can be displayed per chart. If there are more than 10 categories or types to be displayed, the ones with the least number of events are grouped together in a slice called **others**. ➤ In the pie chart showing data by category, the unconfigured error types are grouped together in a slice called **Unclassified**.
Table Elements	
Category	The error category. Note: This column is visible only when the component is grouped by category.

UI Element	Description
Error	A description or code of the error that occurred during script execution. **Note:** ➤ The error code -17999 represents user-defined errors—errors defined in HP Virtual User Generator using the **lr_error_message** function. ➤ This column is visible only when the component is grouped by type.
Example of Error Message	The error message that BSM generated at the time of the error. **Tooltip:** If there is a partial message, point to it to view a tooltip with the full message. **Note:** ➤ For user-defined errors (error type -17999), BSM displays the user message. ➤ This column is visible only when the component is grouped by type.
Error Occurrences	The number of transaction instances that failed due to the error, out of the total number of transaction instances that occurred during the specified time period.
Transactions/Total	The number of defined transactions that caused the error, out of the total number of transactions defined in the profile.
Locations/Total	The number of locations from which errors occurred, out of the total number of locations from which scripts ran.

Error Distribution by Transaction

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns - Table View	
	"Error Log" on page 886. The Error Log opens in a new window and includes the errors for the selected transaction. **Graph view:** Right-click a pie chart slice and select **Drill down to Error Log** from the Shortcut menu.
	**Drill down to Error Distribution by Transaction.** Regenerates the BPM Error Summary report for the selected transaction. **Graph view:** Right-click a pie chart slice and select **Drill down to Error Summary** from the Shortcut menu.
Graph Elements	
<Pie chart>	Consists of color-coded slices representing the different transactions for the selected applications. **Tooltip:** Hold the cursor over a pie chart slice to display a tooltip with additional information relevant to the data. **Note:** Up to 10 different slices can be displayed per chart. If there are more than 10 transactions to be displayed, the ones with the least number of events are grouped together in a slice called **others**.

Error Distribution by Location/BPM Custom Attributes

Important information	After you configure custom attributes and assign them to BPMs in EUM Administration, you must wait for the database to refresh (usually approximately ten minutes) before they are available in the report. For user interface details on configuring custom attributes for BPMs, see "Manage Custom Attributes Dialog Box" on page 516.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns - Table View	
	"Error Log" on page 886. The Error Log opens in a new window and includes the errors for the selected location or BPMs with the selected custom attribute. **Graph view:** Right-click a pie chart slice and select **Drill down to Error Log** from the Shortcut menu.
	**Drill down to Error Distribution by Location/BPM Custom Attributes.** Regenerates the BPM Error Summary report for the selected location or BPMs with the selected custom attribute. **Graph view:** Right-click a pie chart slice and select **Drill down to Error Summary** from the Shortcut menu.
Graph Elements	
<Group by>	Select whether to view the data grouped by location, or by BPM custom attributes.
<Pie chart>	Consists of color-coded slices representing the different locations or custom attributes. **Tooltip:** Hold the cursor over a pie chart slice to display a tooltip with additional information relevant to the data. **Note:** Up to 10 different slices can be displayed per chart. If there are more than 10 locations or custom attributes to be displayed, the ones with the least number of events are grouped together in a slice called **others**.

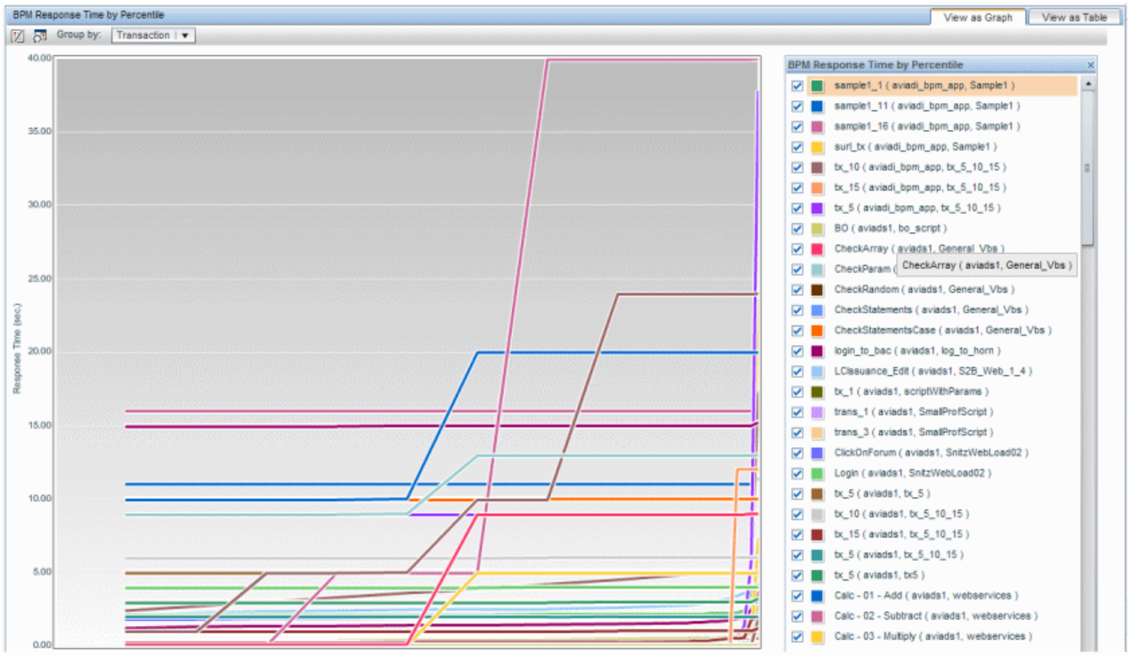
BPM Response Time by Percentile Report

This report displays, for the defined time range, the specific response time value that all measured response time values are equal to or below, for the 10th to 100th percentile. For the 10th to the 90th percentile data is shown in 10% increments, and for the 90th to 100th percentile in 1% increments. Each point on the graph, or cell in the table, shows the percentage of transactions whose response time was less than or equal to the response time for the corresponding percentile group.

The BPM Response Time by Percentile data helps you identify response time problems and pinpoint their source. The data enables you to determine whether the highest or lowest response times are not typical of response times in general. For example, if the top 10 percent of transaction response times are significantly higher (for example, because they ran during a server reboot), there would be a sharp increase in the chart slope between the 90th and 100th percentile.

The data also enables you to spot response time trends. For example if the slope of the line suddenly increases at the 50th percentile point, something has caused transaction response times to significantly increase during that time period.

By filtering the data by transaction or location across different time frames, you can identify exactly where and when transaction response times are too slow.



To access	Select **Applications** > **End User Management** > **Analysis Reports** > **BPM Response Time by Percentile**
Data type	Synthetic user data

Important information	➤ To improve the report's performance, displayed transaction response times are up to 50 milliseconds less than real transaction response times. ➤ When viewed as a table, the columns for the 91st to the 94th percentiles, and the 96th to the 99th percentiles, are hidden by default. You can select these columns to display them. ➤ The graph tooltips and table cells are colored to show the status of the transaction based on the average response time compared to the current transaction time threshold you configured in EUM Administration. For concept details, see "Status Aggregation Rules Overview" on page 675. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Tooltip:** Hold the cursor over a data point or cell to display a tooltip with additional information relevant to the data.
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **Group by.** Select whether to display the data grouped by transaction or location. **Default value:** Transaction

Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<X-axis>	**Percentile.** Displays the percentiles, in 10% increments.
<Y-axis>	**Response Time.** The response time, in seconds.

Error Log

This report displays a detailed log of the errors that occurred in selected BPM transactions, during a given time period.

To access	Use one of the following: ➤ In the **Performance Raw Data** report select a row and click the **Drill down to Error Log** button. (You can also drill down directly from the **Errors** column in the report.) ➤ In the **BPM Error Summary** report: 　➤ **Table View.** Select a row in the table and click the **Drill Down to Error Log Report** button. 　➤ **Graph View.** Click a slice in one of the error distribution pie charts and then click **Error Log**. ➤ The Error Log is a default component in the **Triage Raw Data** report.
Data type	Synthetic user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

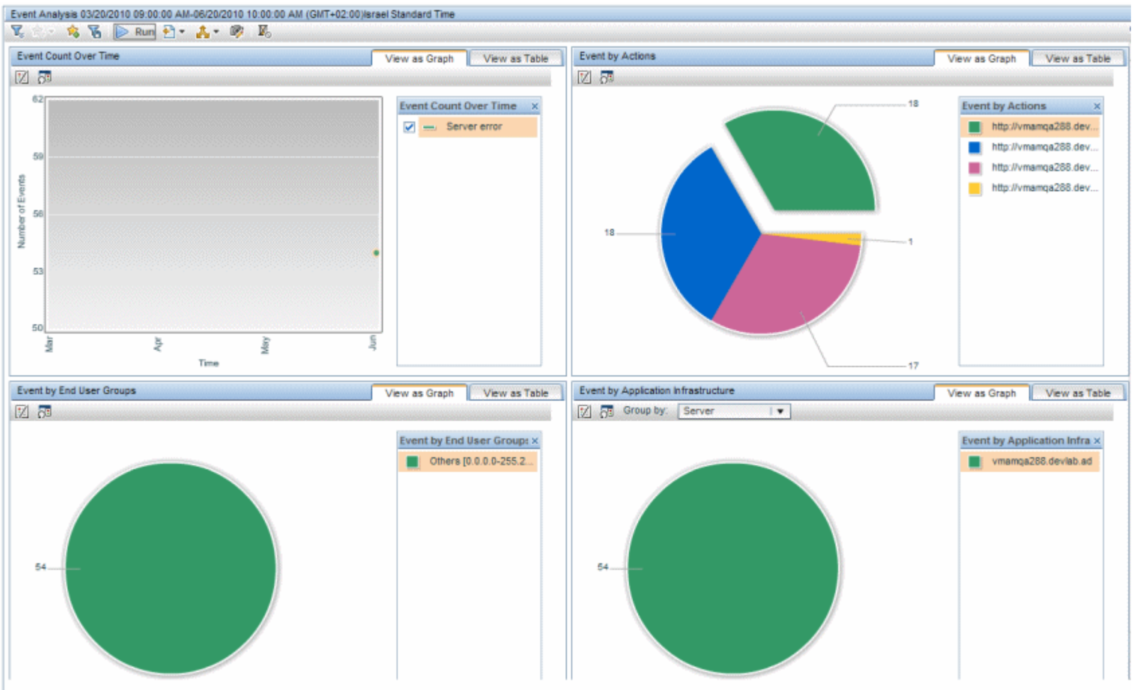
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns - Table View	
	**View Snapshot Button.** Opens a snapshot of the error in a new browser window. For concept details, see "Snapshot on Error" on page 830. **Note:** ➤ The snapshot is of the first error that occurred in the transaction, even if more than one error occurred. ➤ This button is enabled if the original BPM script is configured to save snapshots. For details, see "Advanced Configuration Options" in the *Business Process Monitor Administration* PDF.
	**Download Snapshot Button.** Downloads a copy of the snapshot to a .zip file. For concept details, see "Snapshot on Error" on page 830. **Note:** This button is enabled if the original BPM script is configured to save snapshots. For details, see "Advanced Configuration Options" in the *Business Process Monitor Administration* PDF.
Report Columns (A-Z)	
<**Tooltip**>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Application	The name of the application in which the error occurred. **Note:** This column is displayed only when you select multiple applications for the report.
Business Transaction Flow	The name of the business transaction flow in which the error occurred. **Note:** This column is hidden by default.
Error Line	The line in the file referenced in the **File Name** column at which the error occurred.

UI Element	Description
Error Messasge	The error message that BSM generates at the time of the error. **Note:** For user-defined errors (error type -17999), BSM displays the user message.
Error Name	The error name.
File Name	The name of the file in the script directory containing the script steps that were running when the error occurred.
Location	The name of the location of the transaction that is in error.
Snapshot	Displays a check mark if there is a snapshot of the error, or a minus sign if there is no snapshot of the error.
Time	The time that the error occurred.
Transaction	The name of the transaction that is in error.

Event Analysis Report

This report displays data for a selected event type, broken down by actions, by end-user groups and by servers. The report also displays the Event Count Over Time report for the selected event type.



To access	In the **RUM Event Summary** report ➤ **Table view:** Select the row of the event type for which you want to drill down and click the **Drill down to Event Anlysis** button. ➤ **Graph view:** Right-click a pie chart slice or graph data point and select **Drill down to Event Analysis** from the Shortcut menu.
Important information	If you filter the report by the **Transactions** active filter, you can only select a single transaction. Also, the filter is based on raw transaction data so the report time frame is limited to up to two weeks back.
Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Event Count Over Time

UI Element (A–Z)	Description
<**Drilldown**>	"Event Analysis Report" on page 889. Regenerate the Event Analysis report with a higher time resolution. For example, if you click a data point or cell that displays data for an hour, the time resolution changes to five minute intervals for the specific hour. To regenerate the report: ➤ **Table view:** Click a data cell value. ➤ **Graph view:** Right-click a data point and select Drill down to Event Analysis from the Shortcut menu. **Note:** When you drill down to a higher time resolution, all the components in the Event Analysis report are updated for the new time resolution.
<**X-axis**>	**Time.** The time units for the selected time period.
<**Y-axis**>	**Number of Events.** The number of events that occurred. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

Event by Actions, End-User Groups, or Application Infrastructure

There is a different component (pie chart or table) for each type of data displayed.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns - Table View	
	"Event Analysis Report" on page 889 (in the **Event by Actions** component only). Select an action and click the **Drill down to Event Analysis** button, to regenerate the Event Analysis report for the specific action. **Graph view:** Right-click a pie chart slice and select **Drill Down to Event Analysis** from the Shortcut menu
	"Event Log" on page 893 **Graph view:** Right-click a pie chart slice and select **Drill down to Event Log** from the Shortcut menu.
Graph Elements	
<Pie chart>	Consists of color-coded slices representing the different pages, end-user groups, or running software on which the events occurred. **Tooltip:** Hold the cursor over a pie chart slice to display a tooltip with additional information relevant to the data. **Note:** ➤ Up to 10 different slices can be displayed per chart. If there are more than 10 actions, end-user groups, or running software to be displayed, the ones with the least number of events are grouped together in a slice called **others**. ➤ In the pie chart showing data by actions, events that occurred in a session and that are not related to a specific action description or URL, are grouped together in a slice called **Session Events**.

Event Log

This report displays a log of the occurrences of a specific event type for a selected time frame.

To access	In the **Event Analysis** report ➤ **Table view:** Click the **Drill down to Event Log** button. ➤ **Graph view:** Right-click a pie chart slice and then click **Drill down to Event Log** in the Shortcut menu.
Important information	If you filter the report by the **Transactions** active filter, you can only select a single transaction. Also, the filter is based on raw transaction data so the report time frame is limited to up to two weeks back.
Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element: (A-Z)	Description
Drilldowns	
	"Session Details Report" on page 998
Report Columns	
Time	The date and time that the event occurred.
Application	The application in which the event occurred.

UI Element: (A-Z)	Description
Event Name	The event name as you configured in EUM Administration.
Tier	The application tier in which the event occurred.
Server	The name or IP address of the server on which the event occurred.
Action Name	The name of the action on which the event occurred.
End User Group	The name or IP address of the end-user group that hit the action on which the event occurred. **Tooltip:** Hold the cursor over an End User cell to display a tooltip with additional information relevant to the end user.
Event Details	The actual event data (for example, an actual response time or an HTTP status code).

Metrics Over Time Report

This report enables you to select one or more metrics for selected applications and to view their behavior over a period of time. By selecting multiple metrics, you can compare their behavior to discover possible correlations between them.

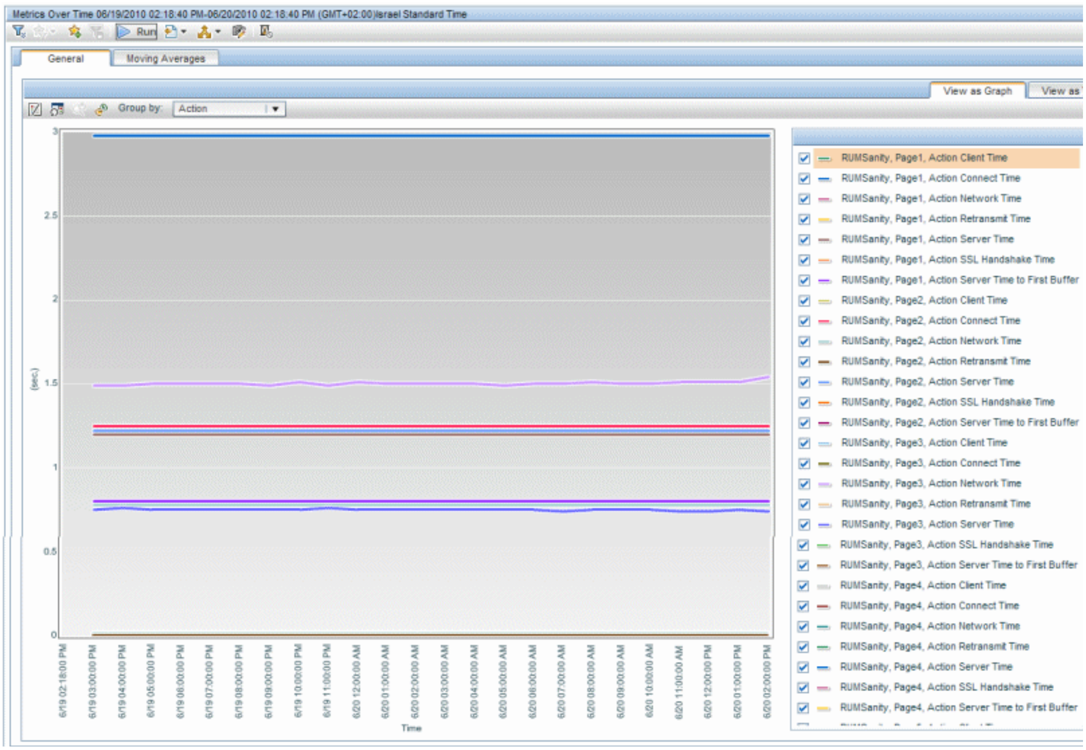
The report includes the following two components (graphs or tables):

- **General.** Displays data for the actual metric behavior over the selected time period.
- **Moving Averages.** Displays both the actual metric data, as well as additional data based on a moving average of the previous three data measurments.

For example, the following table shows the values for both the actual metric behavior and the moving averages for the total number of transactions for an application, for the time period of a week which is broken down into days:

Included in Report Time Period	Date	Actual Metric Value	Moving Average (based on 3 previous measurements)
	March 1st.	7	NA
	March 2nd.	5	NA
	March 3rd.	6	NA
✔	March 4th.	9	6 ((7+5+6) / 3)
✔	March 5th.	7	6.67 ((5+6+9) / 3)
✔	March 6th.	5	7.33 ((6+9+7) / 3)
✔	March 7th.	11	7 ((9+7+5) / 3)
✔	March 8th.	8	7.67 ((7+5+11) / 3)
✔	March 9th.	8	8 ((5+11+8) / 3)
✔	March 10th.	6	9 ((11+8+8) / 3)

You can also view data for up to four different time comparisons.



To access	Select **Applications** > **End User Management** > **Analysis Reports** > **Metrics Over Time**
Data type	Real user data Synthetic user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **Metrics.** Opens the Metrics dialog box, where you select the metrics you want to include in the report. For user interface details, see "Metrics Dialog Box" on page 900. **Note:** You can only select metrics that between them, use up to two different units of measure. ➤ **Group by.** Select how to group the data. The available options depend on the metrics you select for the report. If a selected metric is valid in more than one entity, the different entities are the available **Group by** options. For example, if you select **Total Transactions** as a metric for the report and Total Transactions is a metric for applications, end-user groups, and locations, then the available **Group by** options are applications, end-user groups, and locations. **Note:** ➤ The **Group by** setting is only available after you have generated the report. ➤ Only groupings that are common to all the selected metrics are available as **Group by** options.

Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis> (left)	The first unit of measurement for the selected metrics.
<Y-axis > (right)	The second unit of measurement for the selected metrics, if applicable.
<Data lines>	Data lines indicate the metric measurement at each point over the course of the defined time period. There is a data line for each selected metric for each selected application. In the **Moving Averages** graph there are two data lines for each metric for each application. The first displays the actual metric behavior and the second displays the moving averages metric behavior. If you view time comparison data, there is an additional data line for each metric for each application, for each time comparison (you can view a maximum of four time comparisons). **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data. When applicable, the tooltip is colored to indicate the metric status. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical

UI Element	Description
<Legend>	The legend describes the color coding used in the graphs. Legend names consist of the **Group by** setting, the application name, the transaction name (when applicable), the sample type, and the metric. **Note:** ➤ When you view the Moving Averages graph, there are two data lines for each metric displayed. The first is for the actual metric behavior and the second is for the moving averages metric behavior. The legend name for the moving averages data line is the same as for the regular data line, with the addition of **(MA)** at the end. ➤ When you view time comparisons, there is an additional data line for each metric for each time comparison (you can view a maximum of four time comparisons). The legend name for the time comparisons is the same as for the actual metric data line, with the addition of the time comparison name at the end.

Metrics Dialog Box

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Browse Views tab	Click the **Browse Views** tab to display a hierarchical tree of the metrics available for the selected applications. Select the check boxes for the metrics you want to include in the report. **Note:** ➤ Only metrics that are valid for the selected applications are included in the tree. ➤ The tree shows the entities included in the selected applications (for example, transactions, actions, and so forth) and their available metrics. Only the actual metrics are enabled for selection. ➤ The metrics are grouped by data type according to the selected applications. That is, metrics for synthetic user data and metrics for real user data. The same metric may appear in each data type. ➤ You can only select metrics that between them, use up to two different units of measure (for example, percentage and kilobytes).

UI Element	Description
Search CIs tab	Click the **Search CIs** tab to search for entity names in the tree that contain a specific string, or for CIs of a specific CI type. Search results are displayed in the lower part of the search tab. Right-click an entry in the search results table to open a Shortcut menu and click: **Select in tree.** Displays the hierarchical tree with the entity's check box selected. **Locate in tree.** Displays the hierarchical tree with the entity visible (that is, if the tree is too long for all of it to be visible without scrolling, the area that includes the entity is displayed). **Note:** ➤ The search is made on the hierarchical tree displayed in the **Browse Views** tab. ➤ The search is not case sensitive. ➤ When searching for an entity name, you can use the asterisk (*) wildcard in your string to match one or more words of text.

Page Component Breakdown Report (BPM)

This report displays a component breakdown for a selected BPM transaction's page in the Performance Raw Data report.

To access	In the **Performance Raw Data** report > **Transaction Response Time Breakdown** component, select a page and click the **Drill down to Page Component Breakdown Report** button.
Data type	Synthetic user data
See also	"Performance Raw Data Report" on page 913
Report settings	**Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element: (A-Z)	Description
Action Descriptor	The page name.
Average Size (KB)	The average size, in kilobytes, of the page component.
Component URL	The URL of the page component.
Net Time (sec)	The net time of the page component, in seconds.
Total Time Distribution	Each color coded segment of the bar represents a different category of the page component, as described in the legend. The size of the segment is proportionate to the average category time in relation to the page component's total time. **Note:** When viewed as a table, the total time is broken down into individual page component categories, with a column for each category that shows the page component time for the category.

Page Component Breakdown Report (RUM)

This report displays data for the individual components included in a selected page monitered by RUM.

To access	Select a page and click the **Drill down to Page Component Breakdown Report** button in one of the following: ➤ **Performance Raw Data** report > **Transaction Response Time Breakdown** component ➤ **Session Details** report > **Actions** area ➤ **Action Raw Data** report
Important information	This report is enabled for Web applications that are configured for component breakdown, and for which breakdown data exists. For details on configuring RUM applications for component breakdown, see "General Area" on page 382.
Data type	Real user data
Report settings	**Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*.

Action Details Area

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element: (A-Z)	Description
Action description	The URL of the page.
Action name	The page name.
Application	The application name.
Number of components	The total number of components included in the page.
Start time	The date and time when the page was hit.

UI Element: (A-Z)	Description
Total time (sec)	The total amount of time, in seconds, from when the page was requested until it finished.
Total traffic (KB)	The total amount of network traffic for the page, in kilobytes.

Component Breakdown Area

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element: (A-Z)	Description
Client Port	The port number on the client machine that requested the component. **Note:** When viewing the component breakdown as a graph, this element is hidden by default.
Component	The URL of the component included in the page.
Server Host	The name of the server that hosted the component. **Note:** When viewing the component breakdown as a graph, this element is hidden by default.
Size (KB)	The total size of the component, in kilobytes.
Status	The HTTP status code of the component.
Total Time (ms)	The total time of the component, in milliseconds. **Note:** When viewing the component breakdown as a graph, this element is hidden by default.

<table>
<tr><th>UI Element: (A-Z)</th><th>Description</th></tr>
<tr><td>Total Time Distribution</td><td>Graph view: Each color coded segment of the bar represents a different category of the page component, as described in the legend. The size of the segment is proportionate to the average category time in relation to the page component's total time. The following categories are displayed:
➤ Connect time (SSL handshake time and TCP handshake time are displayed in the tooltip)
➤ Request time
➤ Server time to first buffer
➤ Response time (server time, network retransmit time, and other network time are displayed in the tooltip)
Table view: The total time is broken down into all the individual page component categories (including those that are only shown as tooltips in the graph view), with a column for each category that shows the page component time for the category.</td></tr>
<tr><td>Type</td><td>The component type (for example: image, text, application, and so forth).
Note: When viewing the component breakdown as a graph, this element is hidden by default.</td></tr>
</table>

Performance Analysis Report

This report displays the high level performance of BPM or RUM applications, broken down by transactions or locations. The report includes transaction time breakdown and error information.

To access	Use one of the following:
	➤ Select **Applications** > **End User Management** > **Analysis Reports** > **Performance Analysis**
	➤ In the **Status Snapshot** report > **Least Avaiable Transactions** component:
	  ➤ **Table view:** Select a row and click the **Drill down to Performance Analysis** button.
	  ➤ **Graph view:** Right-click a bar and select **Drill down to Performance Analysis** from the Shortcut menu.
	➤ In the **Triage** report > **Transaction by Location** table, select a row and click the **Drill down to Performance Analysis** button.
	➤ In the **Location Analysis** report > **Summary** table, select a row and click the **Drill down to Performance Analysis** button.
	➤ In the **Location Analysis** report > **Transaction Threshold Breaches** component:
	  ➤ **Table view:** Select a row and click the **Drill down to Performance Analysis** button.
	  ➤ **Graph view:** Right-click a pie chart slice and select **Drill down to Performance Analysis** from the Shortcut menu.

Important information	When you select a row in the Transaction Performance component of the report, the Threshold Breaches by Transaction and Threshold Breaches by Location components are automatically updated to display data for the selected transaction or location.
Data type	➤ Real user data ➤ Synthetic user data **Note:** You must select either real user data or synthetic data. You cannot view both types of data at the same time.

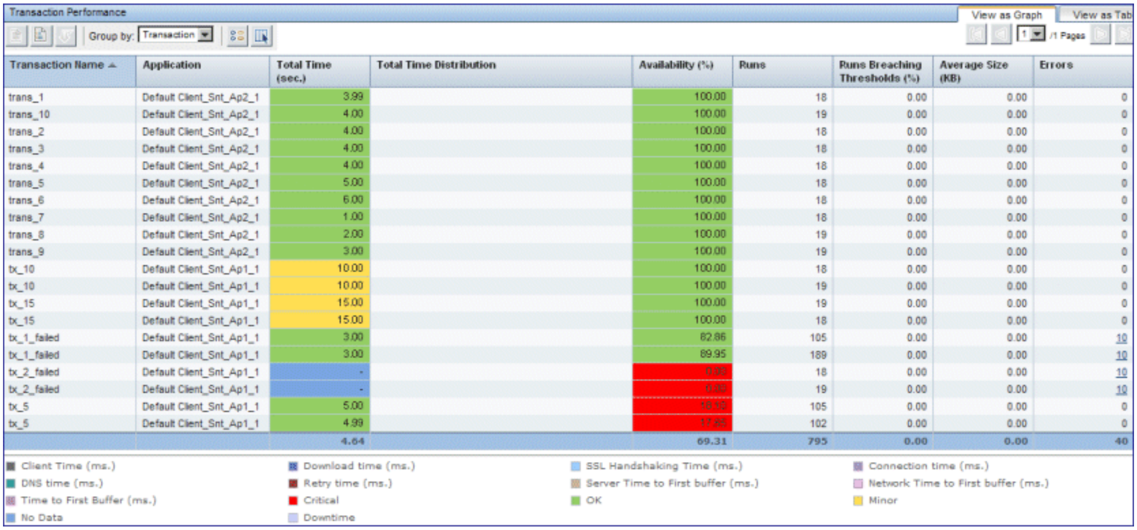
See also	"Analysis Reports Overview" on page 830
Report Settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Transaction Performance

This report displays a color-coded bar that breaks down the selected applications' transaction times into categories, enabling you to determine whether poor transaction response times are being caused by network or server problems, or by client delays. For details on the breakdown categories used in the report, see "Understanding Transaction Breakdown in Reports" on page 686.

The report further displays, for the selected time frame, additional transaction data such as the size (in KB) of all actions in the transaction, availability, number of runs, and number of errors.

You can obtain further insight into the cause of transaction problems by correlating transaction breakdown data with other BSM reports. For concept details, see "Correlating Transaction Breakdown Summary Data with Other HP Business Service Management Reports" on page 704.



Transaction Performance

View as Graph | View as Tab

Group by: Transaction

1 /1 Pages

Transaction Name	Application	Total Time (sec.)	Total Time Distribution	Availability (%)	Runs	Runs Breaching Thresholds (%)	Average Size (KB)	Errors
trans_1	Default Client_Snt_Ap2_1	3.99		100.00	18	0.00	0.00	0
trans_10	Default Client_Snt_Ap2_1	4.00		100.00	19	0.00	0.00	0
trans_2	Default Client_Snt_Ap2_1	4.00		100.00	18	0.00	0.00	0
trans_3	Default Client_Snt_Ap2_1	4.00		100.00	18	0.00	0.00	0
trans_4	Default Client_Snt_Ap2_1	4.00		100.00	18	0.00	0.00	0
trans_5	Default Client_Snt_Ap2_1	5.00		100.00	18	0.00	0.00	0
trans_6	Default Client_Snt_Ap2_1	6.00		100.00	18	0.00	0.00	0
trans_7	Default Client_Snt_Ap2_1	1.00		100.00	18	0.00	0.00	0
trans_8	Default Client_Snt_Ap2_1	2.00		100.00	19	0.00	0.00	0
trans_9	Default Client_Snt_Ap2_1	3.00		100.00	19	0.00	0.00	0
tx_10	Default Client_Snt_Ap1_1	10.00		100.00	18	0.00	0.00	0
tx_10	Default Client_Snt_Ap1_1	10.00		100.00	19	0.00	0.00	0
tx_15	Default Client_Snt_Ap1_1	15.00		100.00	19	0.00	0.00	0
tx_15	Default Client_Snt_Ap1_1	15.00		100.00	18	0.00	0.00	0
tx_1_failed	Default Client_Snt_Ap1_1	3.00		82.86	105	0.00	0.00	10
tx_1_failed	Default Client_Snt_Ap1_1	3.00		89.95	189	0.00	0.00	10
tx_2_failed	Default Client_Snt_Ap1_1	-		0.00	18	0.00	0.00	10
tx_2_failed	Default Client_Snt_Ap1_1	-		0.00	19	0.00	0.00	10
tx_5	Default Client_Snt_Ap1_1	5.00		[illegible]	105	0.00	0.00	0
tx_5	Default Client_Snt_Ap1_1	4.99		[illegible]	102	0.00	0.00	0
		4.64		69.31	795	0.00	0.00	40

Client Time (ms.)
Download time (ms.)
SSL Handshaking Time (ms.)
Connection time (ms.)
DNS time (ms.)
Retry time (ms.)
Server Time to First buffer (ms.)
Network Time to First buffer (ms.)
Time to First Buffer (ms.)
Critical
OK
Minor
No Data
Downtime

Important information	The time displayed in the **Total Time** and the **Total Time Breakdown** columns may differ. This is because the Total Time column includes data for all transaction runs whereas, the Total Time Breakdown column includes data only for runs that include breakdown data.
Report settings	**Group by.** Select whether to display the data by transaction, or grouped by location. Depending on the selected option, each row in the report represents either one transaction over all locations, or all the transactions for one location. **Default value:** Transaction

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	"Performance Raw Data Report" on page 913
	"BPM Performance Status Report" on page 796 (for synthetic user data only)
	"BPM Error Summary Report" on page 876 (for synthetic user data only)
	"RUM Event Summary Report" on page 973
	➤ "BPM Current Transaction Thresholds Window" on page 756 (for synthetic user data only) ➤ "RUM Current Transaction Thresholds Window" on page 758 (for real user data only)
	**Drill down to Transaction Management Transaction Summary.** Opens Transaction Management's Transaction Summary report for the selected transaction. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718. **Note:** This button is disabled for the summary row.
	**Drill down to Transaction Management Aggregated Topology.** Opens Transaction Management's Aggregated Topology report for the selected transaction. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718. **Note:** This button is disabled for the summary row.
	**Drill down to Diagnostics** (for synthetic user data only). Drills down to the HP Diagnostics Synthetic Transactions view. For concept details, see "Viewing HP Diagnostics Data From End User Management Reports" on page 714.

UI Element	Description
Report Columns (A-Z)	
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Application	The name of the application that includes the transaction. **Note:** This column is displayed only when you select multiple applications for the report.
Availability (%)	The average percentage of availability for all the selected applications' transaction runs.
Average Size (KB)	The average size, in kilobytes, of all the components in all the selected applications' transaction runs.
Business Transaction Flow	The name of the business transaction flow that includes the transaction. **Note:** This column is hidden by default.
Errors	The number of transaction errors in all the selected applications' transaction runs. Click the value to drill down to the following reports: ➤ **BPM Error Summary** report for BPM transactions. For user interface details, see "BPM Error Summary Report" on page 876. ➤ **RUM Event Summary** report for RUM transactions. For user interface details, see "RUM Event Summary Report" on page 973.
Location Name	The location name. **Note:** The location name is displayed only when you group the report by location.
Net Time (sec)	The average net time, in seconds, for all the selected application's transaction runs. **Note:** Valid for RUM transactions only.
Runs	The total number of transaction runs.
Runs Breaching Thresholds (%)	The percentage of transaction runs in which the transaction threshold was breached.

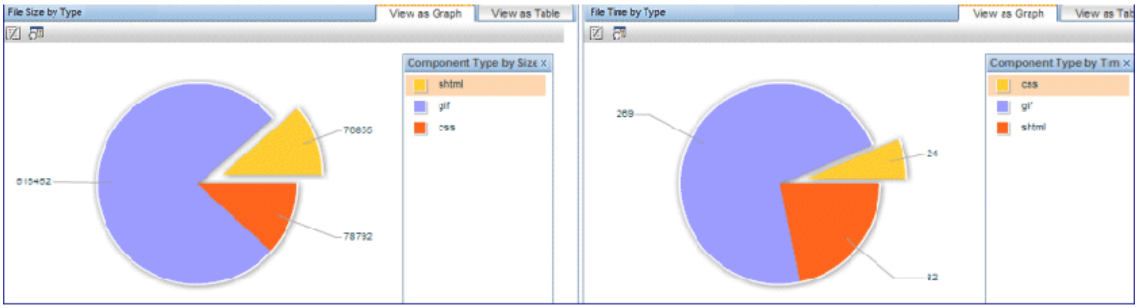
UI Element	Description
Server Time (sec)	The average total server time, in seconds, for all the selected applications' transaction runs. **Note:** Valid for RUM transactions only.
Total Time (sec)	The average total time, in seconds, for all the selected applications' transaction runs. **Note:** Valid for BPM transactions only.
Total Time Distribution	Each color coded segment of the bar represents a different category of the transaction, as described in the legend. The size of the segment is proportionate to the average category time in relation to the average total time of all the selected applications' transaction runs. **Note:** When viewed as a table, the total time is broken down into individual transaction categories, with a column for each category that shows the average transaction time for the category. For details on the BPM breakdown categories used in the report, see "Understanding Transaction Breakdown in Reports" on page 686. For details on the RUM breakdown categories used in the report, see "Overview of HP Real User Monitor Performance Measurements" in the *Real User Monitor Administration* PDF.
Transaction Name	The transaction name. **Note:** The transaction name is displayed only when you group the report by transaction.

Transaction Breakdown

This report displays the average response time for the transaction selected in the Transaction Performance table, broken down into categories, as well as the number of transaction hits, over time. If the summary row in the Transaction Performance table is selected, the report displays data for all the transactions included in Transaction Performance table. For user interface details, see "Transaction Breakdown" on page 1053.

Threshold Breaches by Location/Transaction

These reports display the distribution of performance (total time threshold) breaches by location/transaction, enabling you to gain a better understanding of the location/transaction with the most breaches.



Important information	➤ The reports are dynamically updated according to the row selected in the Performance by Transaction component, so the information displayed is for the selected location/transaction only, unless the summary line is selected. ➤ When you view the reports for a selected transaction, the Threshold Breaches by Transaction pie chart includes one slice (transaction) only. When you view the reports for a selected location, the Threshold Breaches by Location pie chart includes one slice (location) only.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<Pie chart>	When you view the report as a graph, a pie chart is displayed with each slice representing a different location/transaction. **Tooltip:** The transaction or location name and the number of breaches. **Note:** ➤ The color coding is described in the legend. ➤ Up to 10 different slices can be displayed in the chart. If there are more than 10 locations/transactions to be displayed, the ones with the least number of breaches are grouped together in a slice called **others**.

Performance Raw Data Report

This report displays performance and availability raw data (that is, non aggregated data) for a single transaction or location.

To access	Use one of the following: ➤ In the **Performance Analysis** report > **Transaction Performance** component, select a transaction or location and click the **Drill down to Performance Raw Data** button. ➤ In the **BPM Performance Status** report, select a transaction and click the **Drill down to Performance Raw Data** button. ➤ In the **RUM Transaction Summary** report, select a transaction and click the **Drill to Performance Raw Data** button.

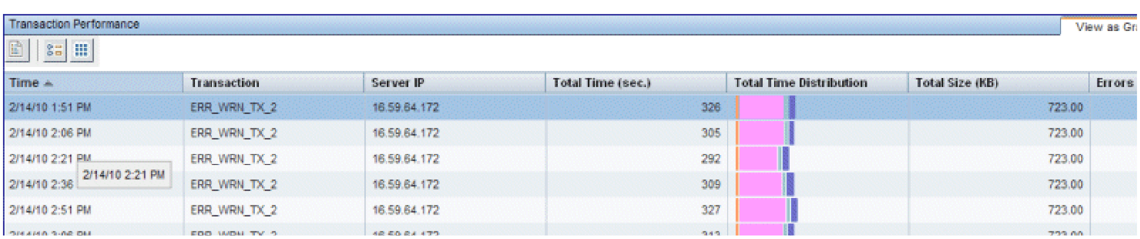
Data type	➤ Real user data ➤ Synthetic user data
Report Settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Transaction Performance

This component displays a color-coded bar that breaks down the selected transaction’s response times into categories, enabling you to determine whether poor transaction response times are being caused by network or server problems, or by client delays. For details on the breakdown categories for BPM, see "Understanding Transaction Breakdown in Reports" on page 686. For details on the breakdown categories for RUM, see "Overview of HP Real User Monitor Performance Measurements" in the *Real User Monitor Administration* PDF.

The report further displays, for the selected time frame, additional transaction data such as the average size (in KB) of all pages or actions in the transaction, number of runs, location, running software and server name (for RUM transactions), and server IP address and number of errors (for BPM transactions).

You can obtain further insight into the cause of transaction problems by correlating transaction breakdown data with other BSM reports. For concept details, see "Correlating Transaction Breakdown Summary Data with Other HP Business Service Management Reports" on page 704.



Important information	Total time and server time (for real user data) are in seconds, whereas distribution times are in milliseconds.

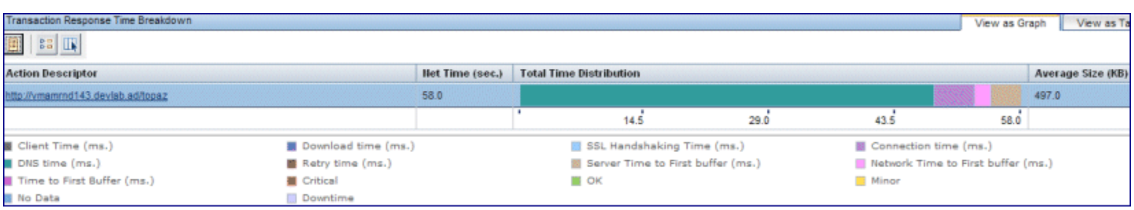
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	"Error Log" on page 886 (for synthetic user data only).
	**Drill down to Diagnostics** (for synthetic user data only). Drills down to the HP Diagnostics Synthetic Transactions view. For concept details, see "Viewing HP Diagnostics Data From End User Management Reports" on page 714.
Report Columns (A-Z)	
Average Size (KB)	The average size, in kilobytes, of all the transaction components.
Errors	The number of errors in the transaction run. Click the value to drill down to the Error Log report. For user interface details, see "Error Log" on page 886. **Note:** Valid for BPM transactions only.
Location	The location of the transaction.
Net Time (sec)	The net time, in seconds, of the transaction (that is, server time + network time + client time of all the actions included in the transaction). **Note:** Valid for RUM transactions only.
Running Software Name	The running software element on the server for the transaction. **Note:** Valid for RUM transactions only.
Server IP	The IP address of the server on which the transaction ran. **Note:** Valid for BPM transactions only.

UI Element	Description
Server Name	The name of the server for the transaction. **Note:** Valid for RUM transactions only.
Server Time	The server time of the transaction, in seconds. **Note:** Valid for RUM transactions only.
Time	The time of the transaction run.
Total Time (sec)	The total time of the transaction run, in seconds. **Note:** Valid for BPM transactions only.
Total Time Distribution	Each color coded segment of the bar represents a different category of the transaction, as described in the legend. The size of the segment is proportionate to the average category time in relation to the transaction's total time. **Note:** When viewed as a table, the total time is broken down into individual transaction categories, with a column for each category that shows the transaction time for the category.
Transaction	The transaction name.

Transaction Response Time Breakdown

This component displays the response time for the pages (synthetic user data) or actions (real user data) of the transaction selected in the Transaction Performance component, broken down into categories, as well as their net time and average size.



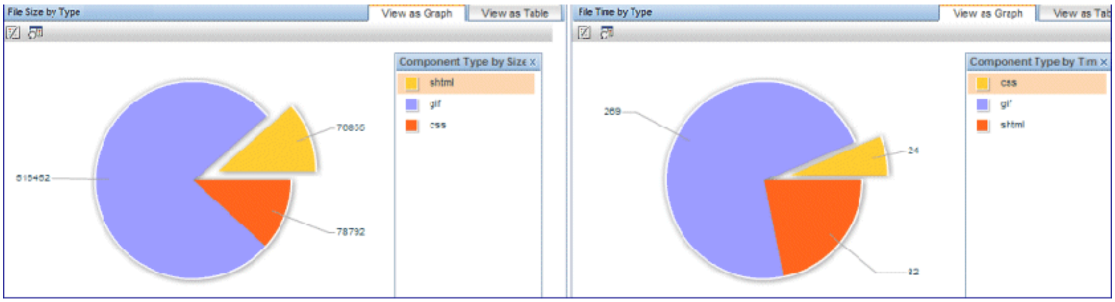
Important information	Net time is in seconds, whereas distribution times are in milliseconds.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	➤ "Page Component Breakdown Report (BPM)" on page 901 (for synthetic user data only). ➤ "Page Component Breakdown Report (RUM)" on page 903 (for real user data only). **Note:** The report opens in a new window.
Report Columns (A-Z)	
Action Description	The action description.
Server Time (sec)	The server time of the action, in seconds. **Note:** Valid for RUM transactions only.
Size (KB)	The average size, in kilobytes, of the action.
Total Time (sec)	The total time of the action, in seconds.
Total Time Distribution	Each color coded segment of the bar represents a different category of the action, as described in the legend. The size of the segment is proportionate to the average category time in relation to the action's total time. **Note:** When viewed as a table, the total time is broken down into individual transaction categories, with a column for each category that shows the action time for the category.

File Size/Time by Type

These components display the size and download time of the pages (synthetic user data) or actions (real user data) of the transaction selected in the Transaction Performance component, broken down by type.



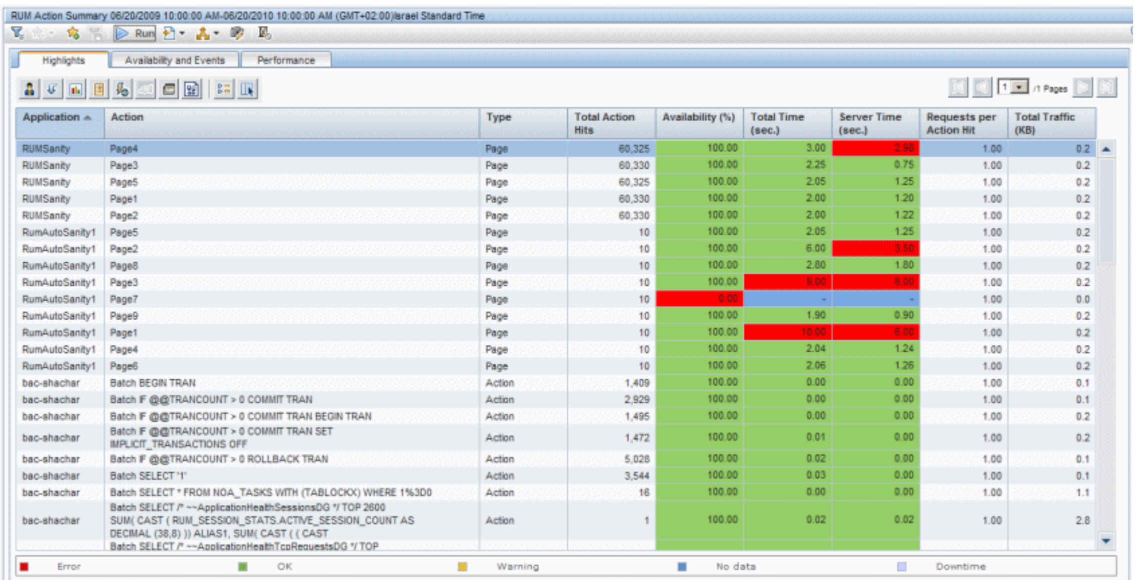
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<Pie chart>	When you view the report as a graph, a pie chart is displayed with each slice representing a different type.

RUM Action Summary Report

This report displays general, availability, and performance data for selected actions (such as Web pages or SOAP operations).

Examining action data helps you determine the status of an application in general, or of a specific monitoring tier. You can identify problematic actions and can drill down to view action behavior over time by different end-user groups or infrastructure elements, or view action raw data.



Application	Action	Type	Total Action Hits	Availability (%)	Total Time (sec.)	Server Time (sec.)	Requests per Action Hit	Total Traffic (KB)
RUMSanity	Page4	Page	60,325	100.00	3.00	2.98	1.00	0.2
RUMSanity	Page3	Page	60,330	100.00	2.25	0.75	1.00	0.2
RUMSanity	Page5	Page	60,325	100.00	2.05	1.25	1.00	0.2
RUMSanity	Page1	Page	60,330	100.00	2.00	1.20	1.00	0.2
RUMSanity	Page2	Page	60,330	100.00	2.00	1.22	1.00	0.2
RumAutoSanity1	Page5	Page	10	100.00	2.05	1.25	1.00	0.2
RumAutoSanity1	Page2	Page	10	100.00	6.00	3.50	1.00	0.2
RumAutoSanity1	Page8	Page	10	100.00	2.80	1.80	1.00	0.2
RumAutoSanity1	Page3	Page	10	100.00	9.00	6.00	1.00	0.2
RumAutoSanity1	Page7	Page	10	0.00	-	-	1.00	0.0
RumAutoSanity1	Page9	Page	10	100.00	1.90	0.90	1.00	0.2
RumAutoSanity1	Page1	Page	10	100.00	10.00	6.00	1.00	0.2
RumAutoSanity1	Page4	Page	10	100.00	2.04	1.24	1.00	0.2
RumAutoSanity1	Page6	Page	10	100.00	2.06	1.26	1.00	0.2
bac-shachar	Batch BEGIN TRAN	Action	1,409	100.00	0.00	0.00	1.00	0.1
bac-shachar	Batch IF @@TRANCOUNT > 0 COMMIT TRAN	Action	2,929	100.00	0.00	0.00	1.00	0.1
bac-shachar	Batch IF @@TRANCOUNT > 0 COMMIT TRAN BEGIN TRAN	Action	1,495	100.00	0.00	0.00	1.00	0.2
bac-shachar	Batch IF @@TRANCOUNT > 0 COMMIT TRAN SET IMPLICIT_TRANSACTIONS OFF	Action	1,472	100.00	0.01	0.00	1.00	0.2
bac-shachar	Batch IF @@TRANCOUNT > 0 ROLLBACK TRAN	Action	5,028	100.00	0.02	0.00	1.00	0.1
bac-shachar	Batch SELECT '1'	Action	3,544	100.00	0.03	0.00	1.00	0.1
bac-shachar	Batch SELECT * FROM NOA_TASKS WITH (TABLOCKX) WHERE 1%3D0	Action	16	100.00	0.00	0.00	1.00	1.1
bac-shachar	Batch SELECT /* ~~ApplicationHealthSessionsDG */ TOP 2600 SUM(CAST (RUM_SESSION_STATS.ACTIVE_SESSION_COUNT AS DECIMAL (38,8))) ALIAS1, SUM(CAST ((CAST	Action	1	100.00	0.02	0.02	1.00	2.8
	Batch SELECT /* ~~ApplicationHealthTcpRequestsDG */ TOP							

To access	Use one of the following: ➤ Select **Applications** > **End User Management** > **Analysis Reports** > **RUM Action Summary** ➤ In the **RUM End User Group Summary** report, select an end-user group or subgroup and click the **Drill down to RUM Action Summary** button. ➤ In the **RUM Tier Summary** report, select an application tier and click the **Drill down to RUM Action Summary** button. ➤ In the **RUM Transaction Summary** report, select a transaction and click the **Drill down to RUM Action Summary** button. ➤ In the **RUM Application Infrstructure Summary** report, select a row and click the **Drill down to RUM Action Summary** button.
Important information	The **Availability**, **Performance**, **Total Time**, and **Server Time** columns are color-coded, based on the action's relevant thresholds configured in EUM Administration. ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime
Data type	Real user data
See also	"Real User Monitor Application <Actions> Page" on page 366
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	"RUM End User Group by Action Report" on page 940
	"Application Infrastructure by Action Report" on page 857
	"Action Over Time Report" on page 843
	"Action Raw Data Report" on page 853
	"RUM Event Summary Report" on page 973
	"RUM Session Analyzer Report" on page 977
	**Drill down to Transaction Tracking.** Opens Transaction Management's Transaction Tracking report, where you can see detailed information of the actions within the session. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718.
	**Drill down to Diagnostics.** Drills down to HP Diagnostics for a specific action. For concept details, see "Viewing HP Diagnostics Data From End User Management Reports" on page 714.
	**Drill down to NNMi.** For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724.

UI Element	Description
Actions	
	**Define Action.** Opens the Real User Monitor Application <Actions> page in a new window, where you can add and define a new action for an application. When you access the **New Action** dialog box from the Real User Monitor Application <Actions> page, the selected action's description or URL is automatically entered in the dialog box. For user interface details, see "<Action> Dialog Box" on page 310. **Note:** The Define Action button is enabled only for selected actions that are not yet defined in EUM Administration.

Highlights Tab

The Highlights tab displays selected data from the other tabs in the report and enables you to view key information at one time, without having to move from tab to tab.

Important information	The **Availability (%)**, **Total Time,** and **Server Time** columns and tooltips are color-coded, based on the relevant thresholds configured for them in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor (not valid for Availability) ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element: (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.

UI Element: (A-Z)	Description
Action	The name you assigned the action in EUM Administration. **Note:** ➤ For unconfigured actions, the action description is displayed. ➤ Action descriptions that are longer than 200 characters are truncated to the first 197 characters of the description followed by three dots (which indicate that the description has been truncated).
Application	The name of the application that includes the action. **Note:** This column is displayed only when you select multiple applications for the report.
Availability	The percentage of hits for which each action was available. **Note:** This column is color-coded based on the availability threshold you configured for the tier in EUM Administration.
Requests per Action Hit	The average number of requests sent for each action hit.
Server Time	The average amount of time, in seconds, that it took the server to process the requests for each action. This column is color-coded, based on the action's server time in relation to the server time threshold you defined in EUM Administration.
Total Actions Hits	The total number of hits each action received.
Total Time	The average total time, in seconds for each action. This column is color-coded, based on the action's total time in relation to the total time threshold you defined in EUM Administration.
Total Traffic	The average amount of network traffic (action traffic and TCP layer overhead traffic), in kilobytes, for each action. That is, the total amount of traffic for the action divided by the total number of hits for the action.

UI Element: (A-Z)	Description
Type	The type of action (for example, page, operation, or query).

Availability and Events Tab

The Availability and Events tab displays the action availability for each monitored action as well as the number of events that occurred on each action.

Important information	The **Availability (%)** column and tooltip are color-coded, based on the availability threshold you configured for the tier in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element: (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Action	The name you assigned the action in EUM Administration. **Note:** ➤ For unconfigured actions, the action description is displayed. ➤ Action descriptions that are longer than 200 characters are truncated to the first 197 characters of the description followed by three dots (which indicate that the description has been truncated).

UI Element: (A-Z)	Description
Application	The name of the application that includes the action. **Note:** This column is displayed only when you select multiple applications for the report.
Availability	The percentage of hits for which each action was available.
Error Events	The number of error events that occurred on the action, based on the error events you defined for the action, or application, in EUM Administration.
Info Events	The number of informational events that occurred on the action, based on the informational events you defined for the action, or application, in EUM Administration.
Stopped Action Hits	The number of hits for which each action was unavailable due to it being stopped. A stopped action is an action which the client stopped downloading abruptly. On Web applications, this usually happens when an end-user clicks the stop button in the browser before the page has completed its download.
Total Action Hits	The total number of hits each action received.

Performance Tab

The Performance tab displays data about the duration of each monitored action.

Important information	The **Performance**, **Total Time,** and **Server Time** columns and tooltips are color-coded, based on the relevant thresholds configured for them in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor (not valid for Availability) ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element: (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Action	The name you assigned the action in EUM Administration. **Note:** ➤ For unconfigured actions, the action description is displayed. ➤ Action descriptions that are longer than 200 characters are truncated to the first 197 characters of the description followed by three dots (which indicate that the description has been truncated).
Application	The name of the application that includes the action. **Note:** This column is displayed only when you select multiple applications for the report.
Client Time (sec)	The average amount of time, in seconds, that each action's requests were delayed on the client machine.
Connect Time (sec)	The average amount of time, in seconds, that it took to establish an initial connection to the server from the first HTTP request sent for the action.
Network Time (sec)	The average amount of time, in seconds, that each action's requests were delayed on the network. Connect, SSL handshake, and retransmit times are also included in the total network time.
Performance (%)	The percentage of hits for which each action's total time was less than or equal to the action's total time threshold defined in EUM Administration. **Note:** If an action is unavailable, its data is not included in the performance calculations.

UI Element: (A-Z)	Description
Retransmit Time (sec)	The overall amount of time that passes from the moment an HTTP request is started for the action, until the moment an error message is returned. **Note:** Retransmit time only relates to errors that execute a retry after the error.
Server Time (sec)	The average amount of time, in seconds, that it took the server to process the requests for each action. This column is color-coded, based on the action's server time in relation to the server time threshold you defined in EUM Administration.
Server Time to First Buffer (sec)	The amount of time that passes from the receipt of ACK of the initial HTTP request (usually GET) until the first buffer is successfully received back from the Web server. **Note:** The server time to first buffer measurement is a good indicator of Web server delay.
SSL Handshake Time (sec)	The average amount of time taken to establish an SSL connection for the action. **Note:** SSL handshake time is applicable only for HTTPS communications.
Total Action Hits	The total number of hits each action received.
Total Time (sec)	The average total time, in seconds for each action. This column is color-coded, based on the action's total time in relation to the total time threshold you defined in EUM Administration.

RUM Application Infrastructure Summary Report

This report enables you to see general information about the servers and running software used by the selected applications. The data is grouped by servers and running software and also by clients (end-user groups or client machines).

To access	Use one of the following: ➤ Select **Applications** > **End User Management** > **Analysis Reports** > **RUM Application Infrastructure Summary** ➤ In the **Application Summary** report, select an application and click the **Drill down to RUM Application Infrastructure Summary** button. ➤ In the **Application Health** report, select a server in the **End User Group, Server, and Location Distribution** component and click the **Drill down to RUM Application Infrastructure Summary** button. ➤ In the **RUM Tier Summary** report, select an application tier and click the **Drill down to RUM Application Infrastructure Summary** button.
Important information	➤ Each tab in this report includes two tables. The first displays data grouped by servers or running software, and the second displays the same data grouped by clients for the server or running software selected in the upper table. Apart from the **Client Name** and **Running Software** columns (in the Client table), all other columns are identical in both tables, and are only described once. ➤ The lower table that displays data grouped by clients is only updated when the upper table contains data. During the initial generation of the report, the lower table may briefly display a No data was found message, until the upper table is populated. ➤ Data of deleted clients (end-user groups) is shown in the upper table, but not in the lower (clients) table.

Data type	Real user data

Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*.
	➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739.
	➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.
	➤ **Group by.** Select how you want the data in the upper table to be grouped. Valid options are:
	  ➤ **Server.** A hierarchical tree of the servers and the software running on them.
	  ➤ **Running Software.** A flat list of all the software running software on the servers.
	Default value: Running Software

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"Application Infrastructure Over Time Report" on page 868
	"RUM Transaction Summary Report" on page 991
	"RUM Action Summary Report" on page 919 **Note:** This drilldown is not available from the **Network** tab.
	"RUM End User Group Summary Report" on page 962
	"TCP Poor Requests Summary Report" on page 1013

Highlights Tab - Running Software and Clients Tables

The Highlights tab displays selected data from the other tabs in the report and enables you to view key information at one time, without having to move from tab to tab.

Important information	The **Availability**, **Connection Availability**, and **Response Time** columns and tooltips are color-coded, based on the relevant thresholds configured in EUM Administration. The valid statutes are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

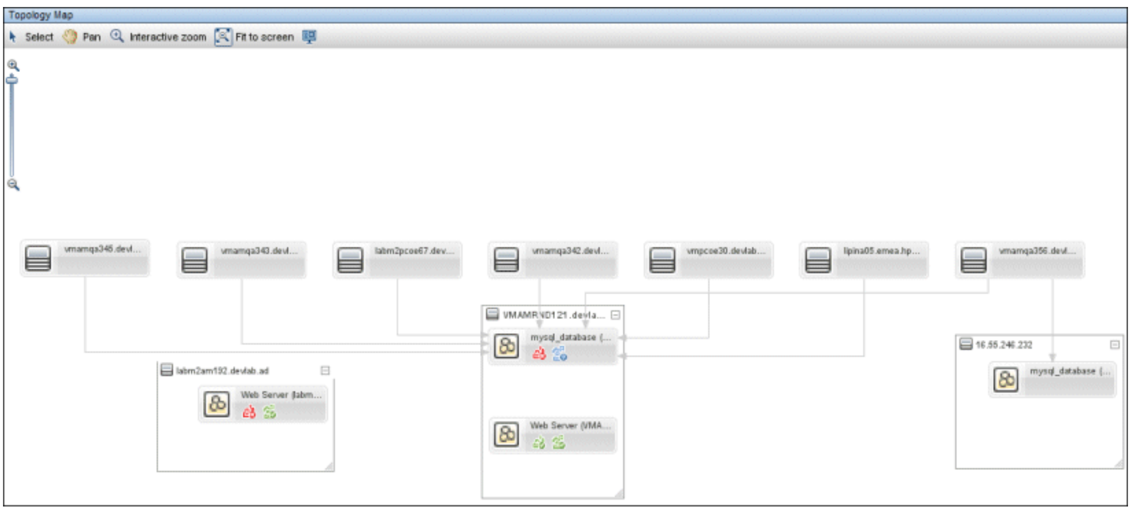
UI Element (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Availability (%)	The percentage of available action hits for each server and running software element.
Client	The name or IP address of the client (end-user group or client machine). **Note:** This column is displayed only in the **Client** (lower) table.
Connection Availability (%)	The percentage of connections that were successful for each server or running software element. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this column is not displayed.
Host	The IP address of the host server on which the running software is running. **Note:** This column is displayed only when you group the report by running software.

UI Element (A-Z)	Description
IP Address	The server IP address.
Name	The name of the server or running software element.
Requests Over Server Threshold	The number of requests that exceeded the server time threshold you configured for the application in EUM Administration.
Response Time (sec)	The average response time for a single request, in seconds, for each server or running software element. **Note:** ➤ This column is not applicable for TCP streaming applications. ➤ If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Running Software	The name of the running software element. **Note:** This column is displayed only in the **Client** (lower) table.
Slow Actions	The number of action hits that exceeded the action total time threshold you configured for the action in EUM Administration.
Slow Requests	The number of requests that exceeded the server time threshold you configured for the application in EUM Administration.
Total Action Hits	The total number of actions hits for each server or running software element.
Total Connections	The total number of connections for each server or running software element.
Total Requests	The total number of requests sent for each server or running software element.
Total Traffic (MB)	The total amount of network traffic (application tier traffic and TCP layer overhead traffic), in megabytes, for each server or running software element.

Highlights Tab - Topology Map

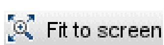
The topology map displays a graphic representation of the connections between the infrastructure elements included in the Running Software (upper) table in the Highlights tab. By default, the infrastructure element selected in the topology map is the infrastructure element selected in the Running Software table. When you click an infrastructure element in the Running Software (upper) table, the corresponding infrastructure element in the topology map is selected.

For each server in the topology map, its running software elements are also displayed, and for each running software element, colored icons show the status of its availability and response time.



User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	**Server.** The server name is displayed next to the icon. **Tooltip:** Hold the cursor over the server name to display a tooltip showing the following server information–full name, IP address, availability, response time, total action hits, connection availability, and total connections.
	**Running software element.** The running software element name is displayed next to the icon. **Tooltip:** Hold the cursor over the running software element name to display a tooltip showing the full running software element name (and server name), as well as the following server information–availability, response time, total action hits, connection availability, and total connections.
	**Availability.** Displays the availability status for a running software element based on the aggregated availability of all the actions that accessed the infrastructure. The icon is color-coded according to the action threshold configured for the server in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application) **Tooltip:** Hold the cursor over the icon to display a tooltip showing the availability status and total number of actions for the server.

UI Element	Description
	**Response time.** Displays the response time status for a running software element based on the average response time for a single request. The icon is color-coded, according to the response time threshold configured for the server in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application) **Tooltip:** Hold the cursor over the icon to display a tooltip showing the server response time and status.
	**Select.** Enables selecting a component in the topology flow map. **Note:** This button is selected by default on entering the topology flow map.
	**Pan.** Pans the topology flow map. You pan by holding down the left click button on your pointer. Drag the pointer in the required direction.
	**Interactive zoom.** Click in the view area and drag the cursor upwards to decrease the zoom level, or downwards to increase the zoom level.
	**Fit to screen.** Fits all the topology map components into the visible area.
	**Display minimap.** Displays a smaller version of the topology map in a new window.

UI Element	Description
	**<Zoom>.** Drag the zoom control upwards to increase the zoom level, or downwards to decrease the zoom level.

Application Tab

The Application tab displays performance and availability data about the selected applications' actions on the servers and running software elements.

Important information	The **Availability**, **Response Time**, and **Server Time** columns and tooltip are color-coded, based on the action availability threshold configured in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<**Tooltip**>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Actions with Slow Server Time	The total number of action hits for each server and running software element, whose server time exceeded their server time threshold configured in EUM Administration.

UI Element (A-Z)	Description
Availability (%)	The percentage of available action hits for each server and running software element. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Available Actions	The number of available action hits for each server and running software element. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Client	The name or IP address of the client (end-user group or client machine). **Note:** This column is displayed only in the **Client** (lower) table.
Client Time (sec)	The average amount of time, in seconds, that the requests for the selected applications were delayed on each client machine. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Error Events	The number of error events that occurred on each server and running software element. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Host	The IP address of the host server on which the running software is running. **Note:** This column is displayed only when you group the report by running software.
Info Events	The number of informational events that occurred on each server and running software element. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
IP Address	The server IP address.
Name	The name of the server or running software element.

UI Element (A-Z)	Description
Network Time (sec)	The average time, in seconds, that the requests for the selected applications were delayed on the network for each server or running software element. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Response Time (sec)	The average response time for a single request, in seconds, for each server or running software element.
Retransmit Time (sec)	The average retransmission time, in seconds, for each request. **Note:** ➤ If all the tiers selected for the report are UDP protocol tiers, this column is not displayed. ➤ The retransmission time is included in the average network time.
Running Software	The name of the running software element. **Note:** This column is displayed only in the **Client** (lower) table.
Server Time (sec)	The average amount of time, in seconds, that the requests for the selected applications were delayed on each server. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Server Time to First Buffer (sec)	The average amount of time, in seconds, from when a server received a request until it started sending the response. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Slow Actions	The number of action hits that exceeded the action total time threshold you configured for the action in EUM Administration.
Total Action Hits	The total number of action hits generated for each server and running software element.

Network Tab

The Network tab displays the server and running software TCP performance and availability data.

Important information	The **Connection Availability**, **Packets with Network Errors**, and **Packets with Client Errors** columns and tooltips are color-coded, based on the relevant thresholds configured for them in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Application Traffic (MB)	The number of megabytes that each server or running software element sent and received for the selected applications.
Client	The name or IP address of the client (end-user group or client machine). **Note:** This column is displayed only in the **Client** (lower) table.
Connect Time (sec)	The average time taken to establish a connection with each server or running software element at each point over the course of the defined time period. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.

UI Element (A-Z)	Description
Connection Availability (%)	The percentage of connections that were successful for each server or running software element. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this column is not displayed.
Host	The IP address of the host server on which the running software is running. **Note:** This column is displayed only when you group the report by running software.
IP Address	The server IP address.
Name	The name of the server or running software element.
Packets with Network Errors (%)	The percentage of packets sent by each server or running software element for which there were network errors.
Packets with Server Errors (%)	The percentage of packets sent by each server or running software element for which there were server errors. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Running Software	The name of the running software element. **Note:** This column is displayed only in the **Client** (lower) table.
SSL Handshake Time (sec)	The average time for SSL handshaking for each server or running software element at each point over the course of the defined time period. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Throughput (bit/sec)	The average throughput (in bits per second) for the selected applications (that is, the total traffic for the applications divided by the number of seconds in the report's time range), for each server or running software element.
Total Connections	The number of connection attempts for each server or running software element.

UI Element (A-Z)	Description
Total Refused Connections	The number of connections that were refused for each server or running software element. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Total Timed-out Connections	The number of connections that timed out for each server or running software element. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this column is not displayed.
Total Traffic (MB)	The total amount of network traffic (application traffic and TCP layer overhead traffic), in megabytes, for each server or running software element.

RUM End User Group by Action Report

This report displays data for a selected action configured for RUM in EUM Administration, broken down by end-user groups and subgroups.

To access	In the **RUM Action Summary** report, select an action and click the **Drill down to RUM End User Group by Action** button.
Important information	➤ The **Availability**, **Performance**, **Total Time**, and **Server Time** columns are color-coded, based on the action's relevant thresholds configured in EUM Administration. ➤ **Green.** OK ➤ **Yellow.** Minor (not valid for Availability) ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application) ➤ Hold the cursor over a cell to display a tooltip with additional information relevant to the data.

Data type	Real user data

Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*.
	➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739.
	➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.
	➤ **Group by.** Select how you want the data to be grouped. Valid options are:
	  ➤ **End User Group.** A hierarchical tree of the end-user groups and their subgroups.
	  ➤ **End User Subgroup.** A flat list of all the end-user subgroups.
	Default value: End User Group
	Note: This setting is available only after you have generated the report.

User interface elements are described below:

UI Element (A-Z)	Description
Availability (%)	The percentage of available action hits for the end-user group or subgroup.
Client Time (sec)	The average amount of time, in seconds, that the action's requests were delayed on the end-user group or subgroup's client machine.
End User Group	The end-user group name. **Note:** ➤ When you group the report by **End User Group**, this column contains a hierarchical tree of the end-user groups and subgroups. ➤ Unconfigured end-user groups are displayed as **Others**.
End User Subgroup	The end-user subgroup name. **Note:** This column is displayed only when you group the report by **End User Subgroup**.

UI Element (A-Z)	Description
Error Events	The number of error events that occurred on the action for the end-user group or subgroup, based on the error events you defined for the application tier in EUM Administration.
Info Events	The number of informational events that occurred on the action for the end-user group or subgroup, based on the informational events you defined for application tier in EUM Administration.
Network Time (sec)	The average amount of time, in seconds, that the action's requests were delayed on the network for the end-user group or subgroup. Connect, SSL handshake, and retransmit times are also included in the total network time.
Performance (%)	The percentage of action hits for the end-user group or subgroup for which the action's total time was less than or equal to the action's total time threshold defined in EUM Administration. **Note:** If an action is unavailable, its data is not included in the performance calculations.
Requests per Action Hit	The average number of requests sent for each action hit for the end-user group or subgroup.
Server Time (sec)	The average amount of time, in seconds, that it took the server to process the requests for the action for the end-user group or subgroup. This column is color-coded, based on the action's server time in relation to the server time threshold you defined in EUM Administration.
Server Time to First Buffer (sec)	The average amount of time, in seconds, from when a server received a request for the action, until it started sending the response for the end-user group or subgroup.
Total Action Hits	The total number of hits the action received for the end-user group or subgroup.

UI Element (A-Z)	Description
Total Time (sec)	The average total time, in seconds, for the action, for the end-user group or subgroup. This column is color-coded, based on the action's total time in relation to the total time threshold you defined in EUM Administration.
Total Traffic (KB)	The average amount of network traffic (action traffic and TCP layer overhead traffic), in kilobytes, for the action, for the end-user group or subgroup. That is, the total amount of traffic divided by the total number of available hits.

RUM End User Group by Transaction Report

This report displays general, availability, and performance data for each end-user group that ran the transaction you selected in the RUM Transaction Summary report. For details on configuring end-user groups in EUM Administration, see "End User Group Page" on page 350.

To access	In the **RUM Transaction Summary** report, select a transaction and click the **Drill down to RUM End User Group by Transaction** button.
Important information	The **Availability**, **Total Time**, **Net Time**, and **Total Server Time** columns are color-coded, based on the relevant transaction thresholds configured in EUM Administration. ➤ **Green.** OK ➤ **Yellow.** Minor (not valid for Availability) ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)

Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **Group by.** Select whether to display the data grouped by subgroup or end-user group. **Default value:** Subgroup **Note:** When grouped by end-user group, click a group to expand a hierarchical tree of its subgroups.

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"RUM End User Group Over Time Report" on page 950
	"RUM Current Transaction Thresholds Window" on page 758 **Note:** This button is displayed only when you filter the report for a single transaction.

Highlights Tab

The Highlights tab displays selected data from the other tabs in the report and enables you to view key information at one time, without having to move from tab to tab.

Important information	The **Availability (%)**, **Total Time, Net Time**, and **Total Server Time** columns and tooltips are color-coded, based on the relevant thresholds configured for them in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor (not valid for Availability) ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<**Tooltip**>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Availability (%)	The percentage of transaction runs for an end-user group or subgroup, for which there were no availability problems. **Note:** If a transaction is unavailable, its data is not included in the transaction performance calculations.
End User Group	The end-user group name. **Note:** This column is displayed when you group the report by subgroup (the default setting).
End User Group/End User Subgroup	The end-user group name or the subgroup, according to the entity in the hierarchical tree. **Note:** This column is displayed when you group the report by end-user group.

UI Element (A-Z)	Description
Net Time (sec)	The net time, in seconds, of the transaction (that is, server time + network time + client time of all the actions included in the transaction), for an end-user group or subgroup.
Runs	The total number of run instances for the transaction, for an end-user group or subgroup.
Total Server Time (sec)	The total server time of all the actions included in the transaction, for an end-user group or subgroup. **Note:** This column is hidden by default.
Total Time (sec)	The average of the overall transaction time (from the start of the first action to the end of the last action), in seconds, for an end-user group or subgroup.
Transaction Size (KB)	The total size, in kilobytes, of all the actions in the transaction, for an end-user group or subgroup.

Availability and Events Tab

The Availability tab displays the transaction availability for each configured transaction that was monitored.

Important information	The **Availability (%)** column and tooltip are color-coded, based on the relevant threshold configured for the transaction in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Availability (%)	The percentage of transaction runs for a server or running software, for which there were no availability problems. **Note:** If a transaction is unavailable, its data is not included in the transaction performance calculations.
End User Group	The end-user group name. **Note:** This column is displayed when you group the report by subgroup (the default setting).
End User Group/End User Subgroup	The end-user group name or the subgroup, according to the entity in the hierarchical tree. **Note:** This column is displayed when you group the report by end-user group.
Runs	The total number of run instances for the transaction, for an end-user group or subgroup.
Unavailable Runs	The total number of transaction run instances for which availability problems occurred, for an end-user group or subgroup.

Performance Tab

This Performance tab displays data about the duration of each configured transaction that was monitored.

Important information	The **Total Time** and **Net Time**, and **Total Server Time** columns and tooltips are color-coded, based on the relevant thresholds configured for the transaction in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Client Time	The total time, in seconds, that each action included in the transaction was delayed on the client machine.
Connect Time (sec)	The average amount of time, in seconds, that it took to establish an initial connection to the server from the first HTTP request sent.
End User Group	The end-user group name. **Note:** This column is displayed when you group the report by subgroup (the default setting).
End User Group/End User Subgroup	The end-user group name or the subgroup, according to the entity in the hierarchical tree. **Note:** This column is displayed when you group the report by end-user group.

UI Element (A-Z)	Description
Net Time (sec)	The net time, in seconds, of the transaction (that is, server time + network time + client time of all the actions included in the transaction).
Retransmit Time (sec)	The overall amount of time that passes from the moment an HTTP request is started until the moment an error message is returned. **Note:** Retransmit time only relates to errors that execute a retry after the error.
Runs	The total number of run instances for the transaction.
Server Time to First Buffer	The amount of time that passes from the receipt of ACK of the initial HTTP request (usually GET) until the first buffer is successfully received back from the Web server. **Note:** ➤ The server time to first buffer measurement is a good indicator of Web server delay. ➤ This column is hidden by default.
Slow Runs	The number of run instances whose total transaction time exceeded the configured total time threshold.
Slow Transaction Net Time (sec)	The average net transaction time, in seconds, of the transaction's runs that exceeded the net time threshold configured for the transaction.
Slow Transaction Server Time (sec)	The average server time, in seconds, of the transaction's runs that exceeded the server time threshold configured for the transaction. **Note:** This column is hidden by default.
Slow Transaction Total Time (sec)	The average total transaction time, in seconds, of the transaction's runs that exceeded the total time threshold configured for the transaction.
SSL Handshake Time (sec)	The average amount of time taken to establish an SSL connection. **Note:** SSL handshake time is applicable only for HTTPS communications.

UI Element (A-Z)	Description
Think Time (sec)	The average think time for the transaction (that is, the time between page downloads which is calculated as transaction time - server time - network time - client time).
Total Network Time (sec)	The total time, in seconds, that each action included in the transaction was delayed on the network. Connection, SSL handshaking, and retransmit times are also included in the total network time.
Total Server Time (sec)	The total server time of all the actions included in the transaction. **Note:** This column is hidden by default.
Total Time (sec)	The average of the overall transaction time (from the start of the first action to the end of the last action), in seconds.

RUM End User Group Over Time Report

This report displays a selected end-user group's hits, latency, events, requests, and traffic over the course of time.

To access	Use one of the following: ➤ In the **RUM End User Group Summary** report, select an end-user group and click the **Drill down to RUM End User Group Over Time** button. ➤ In the **RUM End User Group by Transaction** report, select an end-user group and click the **Drill down to RUM End User Group Over Time** button.
Important information	The available components in the report depend on the tier and application types for which you generate the report and the data available for them.
Data type	Real user data

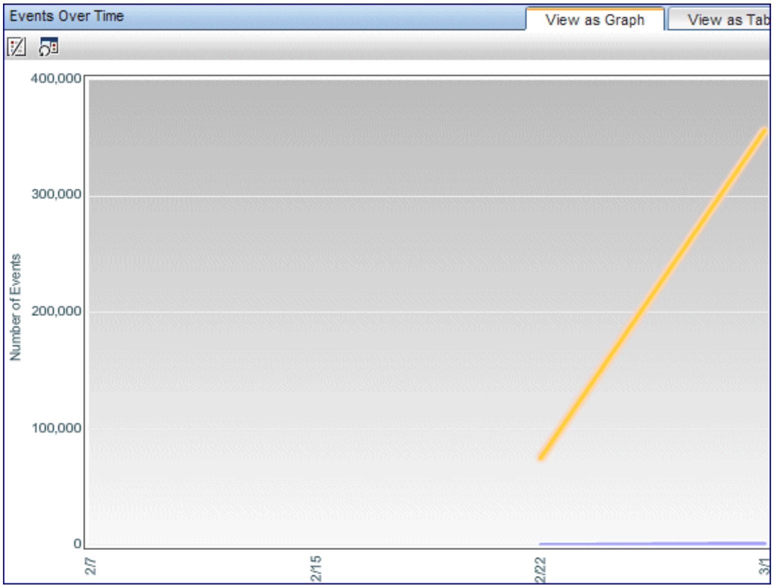
See also	"Viewing Data for Different Application Tier Types in Real User Monitor Reports" on page 705
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"RUM End User Group Over Time Report" on page 950. In any table, select a row and click the **Drill down to RUM End User Group Over Time** button to drill down to a higher time resolution. For example, if you drill down from a report that displays data for a day, the time resolution changes to hours for the specific day. **Graph view:** In any graph, right-click a bar or data point and select **Drill down to RUM End User Group Over Time** from the Shortcut menu. **Note:** You cannot drill down to a resolution higher than five minutes.
	**Drill down to NNMi.** For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724. **Graph view:** Right-click a data point or bar and select **Drill to NNMi** from the Shortcut menu.

Events Over Time

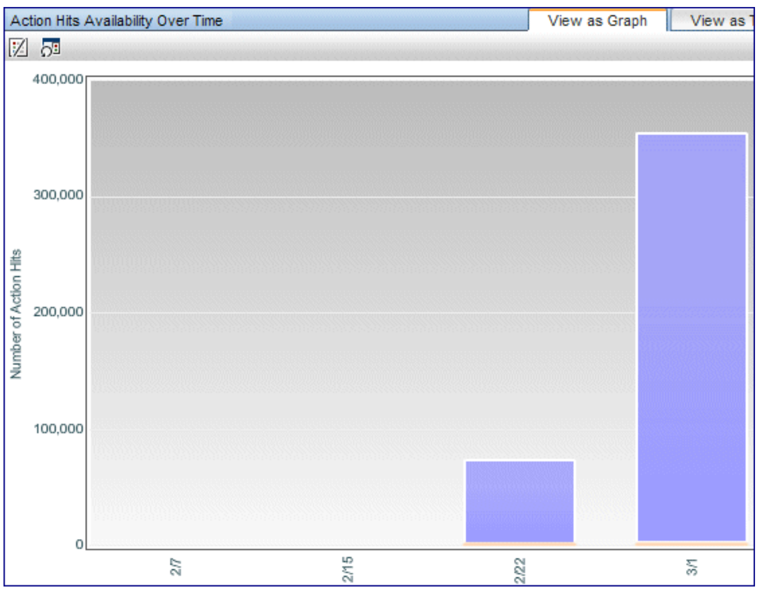


Important information	➤ This component is displayed when there is HTTP data for the end-user group for all the selected tiers/applications. ➤ In the table view, the **Unavailable Action Hits** column is color-coded, based on the availability threshold configured for the tier in EUM Administration. The following are the valid statuses: ➤ **Green.** OK ➤ **Red.** Critical ➤ **Yellow.** Minor ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis>	**Number of Events.** The number of events that occurred for the end-user group in the selected tiers/applications at each point over the course of the defined time period. Data lines indicate the number of events for each event classification. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

Action Hits Availability Over Time

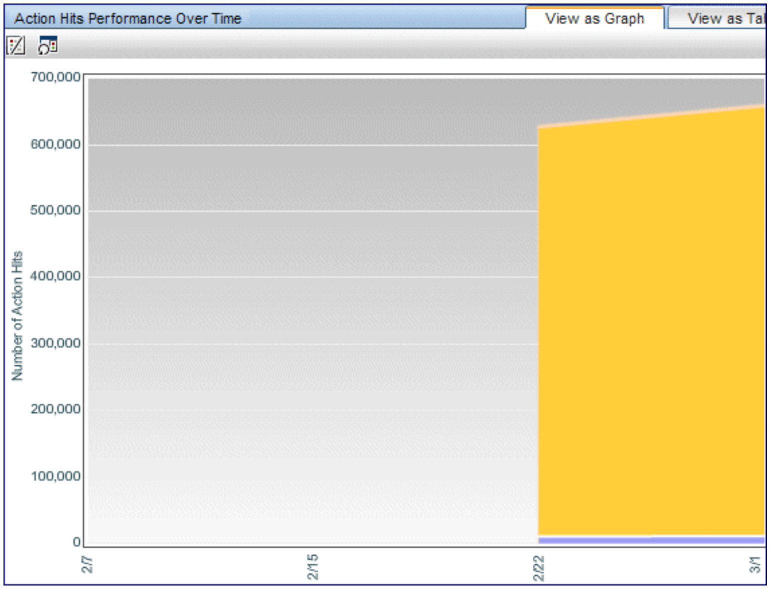


Important information	➤ This component is displayed when there is HTTP data for the end-user group for all the selected tiers/applications. ➤ In the table view, the **Unavailable Action Hits** column is color-coded, based on the availability threshold configured for the tier in EUM Administration. The following are the valid statuses: ➤ **Green.** OK ➤ **Red.** Critical ➤ **Yellow.** Minor ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis>	**Number of Action Hits.** The total number of action hits for the end-user group for the selected tiers/applications at each point over the course of the defined time period. Stacked bars indicate the number of available and unavailable action hits. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Action Hits Performance Over Time



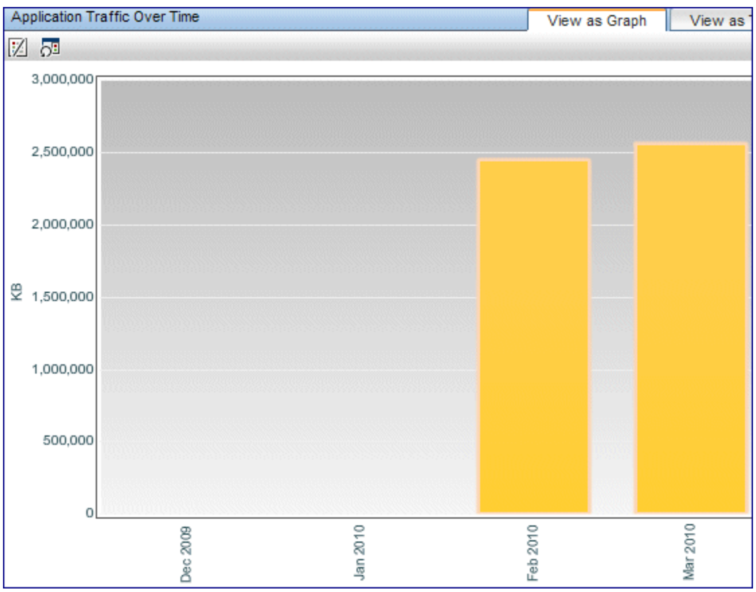
Important information	This component is displayed when there is network data for the end-user group for all the selected tiers/applications.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.

UI Element	Description
<Y-axis>	**Number of Action Hits.** The total number of action hits for the end-user group for the selected tiers/applications at each point over the course of the defined time period. Areas indicate the total number of available action hits and the number of slow action hits. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data. **Note:** If all the tiers selected for the report are UDP protocol tiers, slow requests data is not displayed.

Application Traffic Over Time

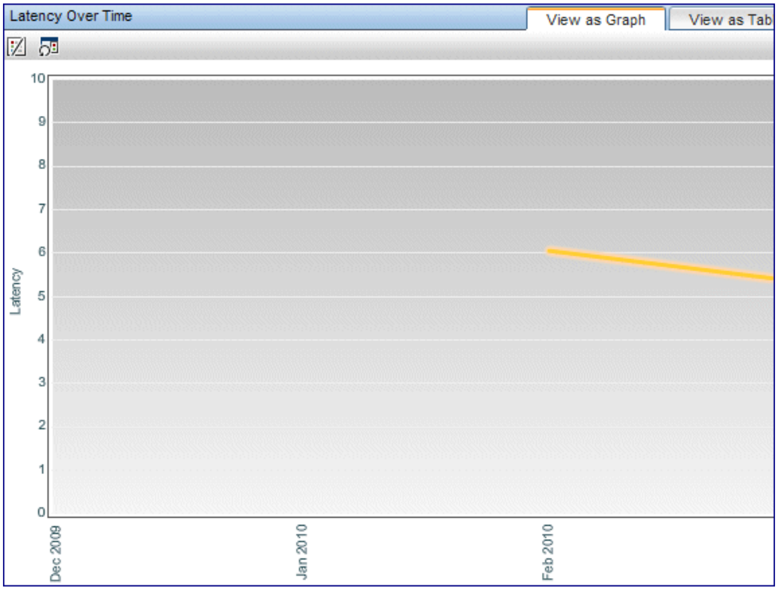


Important information	➤ This component is displayed when there is network data for the end-user group for all the selected tiers/applications. ➤ In the table view, **Latency**, **Packets with Network Errors** and **Packets with Client Errors** are displayed and these columns are color-coded, based on the relevant thresholds configured in EUM Administration. The following are the valid statuses: ➤ **Green.** OK ➤ **Red.** Critical ➤ **Yellow.** Minor ➤ **Blue.** No data ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<**X-axis**>	**Time.** The time units for the selected time period.
<**Y-axis**>	**KB.** The total amount of application traffic, in kilobytes, sent and received by the end-user group for the selected tiers/applications at each point over the course of the defined time period. Stacked bars indicate the amount of encrypted (SSL) and plain traffic. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data. **Note:** If all the tiers selected for the report are UDP protocol tiers, SSL traffic data is not displayed.

Latency Over Time

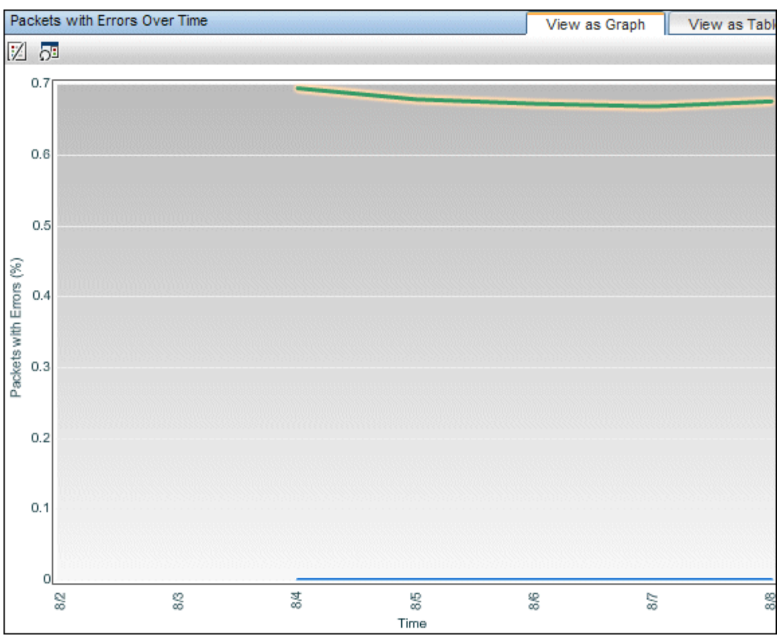


Important information	➤ This component is displayed when there is network data for the end-user group for all the selected tiers/applications.
	➤ If all the tiers selected for the report are UDP protocol tiers, this component is not displayed.
	➤ In the table view, the **Latency**, **Packets with Network Errors** and **Packets with Client Errors** columns are color-coded, based on the relevant thresholds configured in EUM Administration. The following are the valid statuses:
	  ➤ **Green.** OK
	  ➤ **Red.** Critical
	  ➤ **Yellow.** Minor
	  ➤ **Blue.** No data
	  ➤ **Lavender.** Downtime (valid only when the report is generated for a single application)

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis>	**Latency.** The network latency time, in milliseconds, for the end-user group at each point over the course of the defined time period. Data points indicate the network latency time. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.
<Latency threshold line>	Displays the end-user latency threshold you configured for the end-user group in EUM Administration, or the default end-user group latency threshold that is configured. **Note:** The latency threshold is displayed only when you select a single end-user group or subgroup for the report.

Packets with Errors Over Time



<table>
<tr>
<td>Important information</td>
<td>

This component is displayed when there is network data for the end-user group for all the selected tiers/applications.
When viewed as a table, if all the selected tiers are UDP protocol tiers, the following columns are hidden:

SSL Traffic
Latency
Packets with Client Errors

In the table view, Latency, Packets with Network Errors and Packets with Client Errors are displayed and these columns are color-coded, based on the relevant thresholds configured in EUM Administration. The following are the valid statuses:

Green. OK
Red. Critical
Yellow. Minor
Blue. No data
Lavender. Downtime (valid only when the report is generated for a single application)

</td>
</tr>
</table>

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis>	**Packets with Errors (%).** The percetnage of packets with errors for the end-user group at each point over the course of the defined time period. Data lines indicate the percentage of packets with network errors and the percentage of packets with client errors. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data. **Note:** If all the tiers selected for the report are UDP protocol tiers, packets with client errors data is not displayed.

RUM End User Group Summary Report

This report includes two components. The first displays data for specific end-user groups (and subgroups) that were configured for Real User Monitor in EUM Administration. Data for unconfigured end-users is included in a generic group called **Other**. The second component displays the location breakdown for the end-user group or subgroup that is selected in the first component.

To access	Use one of the following: ➤ Select **Applications** > **End User Management** > **Analysis Reports** > **RUM End User Group Summary** ➤ In the **RUM Application Infrastructure Summary** report, select a row and click the **Drill down to RUM End User Group Summary** button. ➤ In the **Application Health** report > **End User Group, Server, and Location Distribution** component, select an end-user group and click the **Drill down to RUM End User Group Summary** button.
Important information	➤ Each tab in this report includes two tables. The first displays data by end-user group and subgroup, and the second displays the same data by location, for the selected end-user group or subgroup. Apart from the **End User** and **Location** columns, all other columns are identical in both tables, and are only described once. ➤ Network connection data is not available for end-user groups defined by session properties or user names. For details on configuring end-user groups, see "Add End User Group with Real User Monitor Configuration Dialog Box" on page 322.
Data type	Real user data

See also	➤ "Displaying End-User Names in Reports" on page 685 ➤ "Viewing Data for Different Application Tier Types in Real User Monitor Reports" on page 705
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **Group by.** Select how you want the data to be grouped. Valid options are: ➤ **End User Group.** A hierarchical tree of the end-user groups and their subgroups. ➤ **End User Subgroup.** A flat list of all the end-user subgroups. **Default value:** End User Group

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"RUM End User Group Over Time Report" on page 950
	"Unconfigured End Users Report" on page 1060
	"RUM Action Summary Report" on page 919
	"RUM Transaction Summary Report" on page 991
	"RUM Event Summary Report" on page 973
	"TCP Poor Requests Summary Report" on page 1013

UI Element	Description
	**Drill down to NNMi.** For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724.

Highlights Tab

The Highlights tab displays selected data from the other tabs in the report and enables you to view key information at one time, without having to move from tab to tab.

Important information	The **Latency, Connection Availability, Packets with Network Errors, Packets with Client Errors**, **Actions Availability**, and **Actions with Performance Events** columns and tooltips are color-coded, based on the relevant thresholds configured in EUM Administration. The valid statutes are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<**Tooltip**>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
End User Subgroup	The end-user subgroup name. **Note:** This column is displayed only in the **End User Status Highlights** table (the upper table) and only when you group the report by **End User Subgroup**.

UI Element	Description
End User Group	The end-user group name. **Note:** ➤ This column is displayed only in the **End User Status Highlights** table (the upper table). ➤ When you group the report by **End User Group**, this column contains a hierarchical tree of the end-user groups and subgroups. ➤ Unconfigured end-user groups are displayed as **Others**.
Location	The geographic locations of the end-users included in the selected end-user group or subgroup. For unknown locations, **UNKNOWN** is displayed. **Note:** This column is displayed only in the **End User by Location Status Highlights** table (the lower table).
Network	
Connection Availability	The percentage of connections that were successful. This column is color-coded, based on the end-user group's connection availability in relation to the server connection availability threshold you configured for the application in EUM Administration. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this column is not displayed.
Latency	Displays the average network latency, in milliseconds, for each end-user group. This column is color-coded, based on the end-user group's latency in relation to the end-user latency threshold you configured for the end-user group in EUM Administration, or the default end-user group latency threshold that is configured. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.

UI Element	Description
Packets with Client Errors	Displays the percentage of packets sent by each end-user group for which there were client errors. This column is color-coded, based on the end-user group's percentage of packets with client errors in relation to the packets with client errors threshold you configured for the application in EUM Administration. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Packets with Network Errors	Displays the percentage of packets sent by each end-user group for which there were network errors. This column is color-coded, based on the end-user group's percentage of packets with network errors in relation to the packets with network errors threshold you configured for the application in EUM Administration.
Applications	
Actions Availability	The percentage of available action hits. This column is color-coded, based on the action availability percentage threshold you configured for the application in EUM Administration.
Actions with Performance Events	The percentage of available actions whose total time exceeded their configured threshold. This column is color-coded, based on the total time threshold you configured for the action in EUM Administration.

Application Tab

The Application tab displays performance and availability data about the selected applications' actions hit by the end users included in the end-user groups.

Important information	The **Actions Availability**, **Actions with Performance Events**, and **Response Time** columns and tooltip are color-coded, based on the relevant thresholds configured in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<**tooltip**>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Actions Availability	The percentage of available action hits. This column is color-coded, based on the action availability percentage threshold configured for the application in EUM Administration. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Actions with Performance Events	The percentage of available actions whose total time exceeded their configured threshold. This column is color-coded, based on the total time threshold you configured for the action in EUM Administration. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.

UI Element (A-Z)	Description
Client Time (sec)	The average amount of time, in seconds, that the requests for the selected applications were delayed on each end-user group's client machines. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
End User Group	The end-user group name. **Note:** ➤ This column is displayed only in the **End User Action Status** table (the upper table). ➤ When you group the report by **End User Group**, this column contains a hierarchical tree of the end-user groups and subgroups. ➤ For unconfigured end-user groups, the country name and IP addresses are displayed, or if the country is unknown, **OTHER** is displayed.
End User Subgroup	The end-user subgroup name. **Note:** This column is displayed only in the **End User Action Status** table (the upper table) and only when you group the report by **End User Subgroup**.
Error Events	The number of error events that occurred on each end-user group's actions. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Location	The geographic locations of the end-users included in the selected end-user group or subgroup. For unknown locations, **UNKNOWN** is displayed. **Note:** This column is displayed only in the **End User by Location Action Status** table (the lower table).
Network Time (sec)	The average time, in seconds, that the requests for the selected applications were delayed on the network for each end-user group. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.

UI Element (A-Z)	Description
Response Time (sec)	The average response time for a single request, in seconds, for each end-user group.
Retransmit Time (sec)	The average retransmission time, in seconds, for each request. **Note:** ➤ If all the tiers selected for the report are UDP protocol tiers, this column is not displayed. ➤ The retransmission time is included in the average network time.
Total Action Hits	The total number of action hits generated by each end-user group.

Network Tab

The Network tab displays the end-user TCP performance and availability data.

Important information	The **Connection Availability**, **Packets with Network Errors**, **Packets with Client Errors**, and **Latency** columns and tooltips are color-coded, based on the relevant thresholds configured for them in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

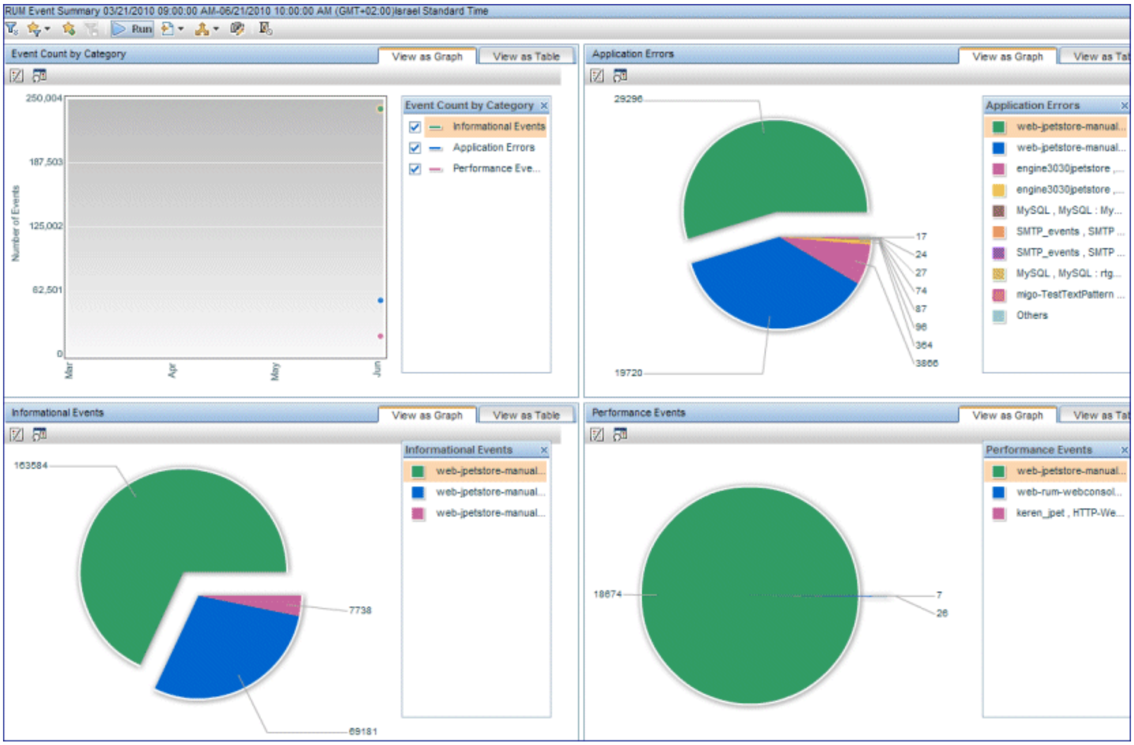
UI Element (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Accepted Connections	The number of connections that were accepted for each end-user group. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this column is not displayed.
Application Traffic	The number of kilobytes that each end-user group sent to, and received from, the application servers for the selected applications.
Bitrate (Kbit/sec)	The average number of kilobits per second, for active VoIP, that are transferred over the network. **Note:** This column is only displayed for UDP streaming protocol tiers.
Connect Time	The average time taken for each end-user group to establish a connection with the application servers for the selected applications. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Connection Availability	The percentage of connections that were successful for each end-user group. This column is color-coded, based on the server connection availability threshold you configured for the application in EUM Administration. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this column is not displayed.

UI Element (A-Z)	Description
End User Group	The end-user group name. **Note:** ➤ This column is displayed only in the **End User Network Status** table (the upper table). ➤ When you group the report by **End User Group**, this column contains a hierarchical tree of the end-user groups and subgroups. ➤ For unconfigured end-user groups, the country name and IP addresses are displayed, or if the country is unknown, **OTHER** is displayed.
End User Subgroup	The end-user subgroup name. **Note:** This column is displayed only in the **End User Network Status** table (the upper table) and only when you group the report by **End User Subgroup**.
Latency	The average network latency, in milliseconds, for each end-user group. This column is color-coded, based on the end-user latency threshold you configured for the end-user group in EUM Administration, or the default end-user group latency threshold that is configured. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Locations	The geographic locations of the end-users included in the selected end-user group or end-user group. For unknown locations, **UNKNOWN** is displayed. **Note:** This column is displayed only in the **End User by Location Network Status** table (the lower table).
Packets with Client Errors	The percentage of packets sent by each end-user group for which there were client errors. This column is color-coded, based on the packets with client errors threshold you configured for the application in EUM Administration. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.

UI Element (A-Z)	Description
Packets with Network Errors	The percentage of packets sent by each end-user group for which there were network errors. This column is color-coded, based on the packets with network errors threshold you configured for the application in EUM Administration.
Refused Connections	The number of connections that were refused for each end-user group. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
SSL Handshake Time	The average time for SSL handshaking for the selected applications, for each end-user group. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
STD Jitter (msec)	The standard deviation, in milliseconds, of packet latency over the network for each tier. **Note:** This column is only displayed for UDP streaming protocol tiers.
Timed-out Connections	The number of connections that timed out for each end-user group. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this column is not displayed.
Total Connection Attempts	The total number of connection attempts for each end-user group.
Total Traffic	The total amount of network traffic (application traffic and TCP layer overhead traffic), in kilobytes, for each end-user group.

RUM Event Summary Report

This report displays the event count and distribution over time for the events you configured in EUM Administration for the selected applications.



To access	Use one of the following:
	➤ Select **Applications** > **End User Management** > **Analysis Reports** > **RUM Event Summary**
	➤ In the **Application Health** report:
	    ➤ In the **Availability and Load Over Time** graph, right-click a bar and select **Drill down to Rum Event Summary** from the Shortcut menu.
	    ➤ In the **Availability and Load Over Time** table, select a row and click the **Drill down to Rum Event Summary** button.
	    ➤ In the **Business Summary** component, select a row and click the **Drill down to Rum Event Summary** button.
	➤ In the **Location Summary** report:
	    ➤ In the **Transaction Threshold Breaches** or **Transactions with Errors** graphs, right-click a pie chart slice and select **Drill down to Rum Event Summary** from the Shortcut menu.
	    ➤ In the **Transaction Threshold Breaches** or **Transactions with Errors** tables, select a row and click the **Drill down to Rum Event Summary** button.
	➤ In the **RUM Action Summary** report, select an action and click the **Drill down to Rum Event Summary** button.
	➤ In the **RUM End User Group Summary** report, select an end-user group or subgroup and click the **Drill down to Rum Event Summary** button.

Important information	If you filter the report by the **Transactions** active filter, you can only select a single transaction. Also, the filter is based on raw transaction data so the report time frame is limited to up to two weeks back.

Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"Event Analysis Report" on page 889 **Graph view:** Right-click a pie chart slice or graph data point and select **Drill down to Event Analysis** from the Shortcut menu.

Event Count by Classification

UI Element	Description
<Drilldowns>	"RUM Event Summary Report" on page 973. Right-click a data point in the graph view and select **Drill down to Rum Event Summary**, or click a cell value in the table view, to regenerate the RUM Event Summary report with a higher time resolution. For example, if you click a data point or cell that displays data for an hour, the time resolution changes to five minute intervals for the specific hour. **Note:** When you drill down to a higher time resolution, all the components in the RUM Event Summary report are updated for the new time resolution.

UI Element	Description
<**X-axis**>	**Time.** The time units for the selected time period.
<**Y-axis**>	**Number of Events.** The number of events for each event classification. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

Application Errors/Informational Events/Performance Events

There is a different component (pie chart or table) for each event classification.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<**Pie chart**>	Each pie chart slice represents a different event or error within the pie chart's classification. **Tooltip:** Hold the cursor over a pie chart slice to display a tooltip with additional information relevant to the data. **Note:** Up to 10 different slices can be displayed in a pie chart. If there are more than 10 event or error names to be displayed, the ones with the least number of occurrences are grouped together in a slice called **Others**.

RUM Session Analyzer Report

This report displays session data for specific applications that were configured for RUM in EUM Administration.

To access	Use one of the following:
	➤ Select **Applications** > **End User Management** > **Analysis Reports** > **RUM Session Analyzer**
	➤ In the **Application Health** report:
	  ➤ In the **Sessions Over Time** graph, right-click an area's border and click **Drill down to RUM Session Analyzer** from the Shortcut menu.
	  ➤ In the **Sessions Over Time** table, select a row and click the **Drill down to RUM Session Analyzer** button.
	➤ In the **RUM Action Summary** report, select an action and click the **Drill down to RUM Session Analyzer** button.
	➤ In the **RUM Session Summary** report, select a row and click the **Drill down to RUM Session Analyzer** button.
	➤ In the **RUM Transaction Summary** report, select a transaction and click the **Drill down to RUM Session Analyzer** button.

Important information	➤ Aggregated totals are used for sessions containing pages and applications that have been configured for frame unification. For details on frame unification, see "Frame Unification" on page 295. ➤ If you do not select a tier for the report in the active filters, the front-end tiers of the applications are selected by default.
Data type	Real user data

See also	➤ "Viewing Session Details in the RUM Session Analyzer Report" on page 835 ➤ "Session Details Report" on page 998
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	"Session Details Report" on page 998
	**Drill down to Transaction Tracking.** Opens Transaction Management's Transaction Tracking report, where you can see detailed information of the actions within the session. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718.
Report Columns (A-Z) Hold the cursor over a cell to display a tooltip with additional information relevant to the data.	
Actions	The total number of action hits generated during the session.
Active	Displays whether the session is still active or not.
Application	The session's application name. **Note:** This column is displayed only when multiple applications are selected for the report.

UI Element	Description
Client	The name or IP address of the client machine from which the session was initiated.
Duration	The length of time that the session was active.
End User Subgroup	The end-user subgroup to which the end-user who initiated the session belongs, as configured in EUM Administration.
Error Events	The number of error events encountered during the session, based on the error events you defined for the application in EUM Administration.
Has Data for VuGen Scripts	This column indicates whether snapshots of all the actions in the session have been recorded. Fully captured sessions can then be used to create VuGen scripts in the Session Details and Business Process Distribution reports. For user interface details, see "Session Details Report" on page 998 and "RUM Business Process Distribution Report" on page 1128. You can only configure applications that use http-based protocols for full capturing. For user interface details, see "Snapshot Collection Area" on page 388.
Informational Events	The number of informational events encountered during the session, based on the informational events you defined for the application in EUM Administration.
Location	The end-user subgroup's location.
Slow Actions	The total number of actions whose action time exceeded its configured threshold.
Start Time	The date and time the session was started.
Tier	The session's application tier name.
User Name	The name of the end user who initiated the session, or an IP address or computer name if the end-user name is not found.

RUM Session Summary Report

This report displays session event data for a single application, segmented by session properties that were configured for the application in EUM Administration. You can drill down to the RUM Session Analyzer report to view session details. For user interface details on creating session properties, see "Session Properties Area" on page 425.

To access	Use one of the following: ➤ Select **Applications** > **End User Management** > **Analysis Reports** > **RUM Session Summary**. ➤ In the **Application Summary** report, select an application and click the **RUM Session Summary** button.
Important information	If you do not select a tier for the report in the active filters, the front-end tier of the application is selected by default.
Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. **Note:** You can generate this report for a single application only.

Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	"RUM Session Analyzer Report" on page 977

UI Element	Description
Additional Settings	
<**Group session by**>	Select the session properties by which to group the application's session data. In the upper table you select the primary session property by which to group the data and in the lower table, you select the session property by which to group the data that is relevant to the specific value selected in the upper table. **Example:** You configure three session properties for an application—**Username**, **Customername**, and **Contact**. You generate the RUM Session Summary report for the application and group the data in the upper table by Username. In the application's sessions for the report time period, three different values are detected for the Username session property—**Susan**, **Richard**, and **John**. The upper table contains three rows of data, one for each of the Username values. You select the row for Susan in the upper table and then select to group the data in the lower table by Customername. In the application's session data for Susan (that is, the application session data in which the Username session property value is Susan), the Customername session property has two different values—**Customer1** and **Cusotmer2**. The lower table contains two rows, one for each of the Customername values for Susan.
Report Columns (A-Z)	
Error Events	The number of error events that occurred for the application in the selected sessions.
Info Events	The number of information events that occurred for the application in the selected sessions.
Latency	The average network latency, in milliseconds, for the application in the selected sessions.
Number of Sessions	The number of sessions in which the specific session property value was detected.

UI Element	Description
Number of Sub Groups/Unique Users	The number of unique values detected for the session property by which you group the lower table. **Note:** This column is displayed only in the upper table.
Performance Events	The number of performance events that occurred for the application in the selected sessions.
Total Actions	The total number of actions for the application in the selected sessions.
Total Traffic (KB)	The total amount of traffic, in kilobytes, for the application in the selected sessions.
Unavailable Actions	The number of unavailable actions for the application in the selected sessions.
Value	The actual session property value.

RUM Tier Summary Report

This report displays data for the configured tiers of selected RUM applications. For details on configuring RUM applications and tiers in EUM Administration, see "Real User Monitor Application Configuration Wizard" on page 372.

The RUM Tier Summary report enables you to monitor application performance by tiers and to pinpoint problems with specific applications or application tiers.

To access	Use one of the following: ➤ Select **Applications** > **End User Management** > **Analysis Reports** > **RUM Tier Summary** ➤ In the **Application Summary** report, click the **Drill down to RUM Tier Summary** button. ➤ In the **Application Health** report (**Availability and Load Over Time** and **Performance and Load Over Time** components), click the **Drill down to RUM Tier Summary** button.
Important information	➤ For tiers that include TCP/UDP streaming data, for which partial data only is available, some columns do not display data. ➤ Tiers that do not have HTTP or TCP data are not included in the Application tab. ➤ Tiers that do not have TCP or UDP data are not included in the Network tab.
Data type	Real user data
See also	"Viewing Data for Different Application Tier Types in Real User Monitor Reports" on page 705
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"RUM End User Group Summary Report" on page 962
	"RUM Application Infrastructure Summary Report" on page 928
	"TCP Poor Requests Summary Report" on page 1013
	"RUM Action Summary Report" on page 919 **Note:** This button is enabled only for tiers that support actions.
	"Tiers Over Time Report" on page 1023
	**Drill down to NNMi.** For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724.

Highlights Tab

The Highlights tab displays selected data from the other tabs in the report and enables you to view key information at one time, without having to move from tab to tab.

Important information	The **Tier Availability**, **Connection Availability**, and **Total Time** columns and tooltips are color-coded, based on the relevant thresholds configured for them in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Warning ➤ **Red.** Error ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Application	The name of the application that includes the tier. **Note:** This column is displayed only when you select multiple applications for the report.
Connection Availability (%)	The percentage of connections that were successful for each tier. **Note:** For UDP connectionless protocol tiers, this data is not available and a minus sign (-) is displayed.
Slow Action Hits	The number of action hits that exceeded the action total time threshold you configured for the action in EUM Administration. **Note:** An action (for example, a page) may include multiple requests (for example, different components included in the page). The number of slow action hits, therefore, may differ from the number of slow requests reported in the TCP Poor Requests Summary report for the same application and time period.
Tier	The tier name you configured in EUM Administration.
Tier Availability (%)	The percentage of action hits that were available for each tier. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
Total Action Hits	The total number of actions hits for each tier.
Total Connection Attempts	The total number of connection attempts for each tier.
Total Time (sec)	The average total time, in seconds for each tier’s actions.
Total Traffic (MB)	The total amount of network traffic (application tier traffic and TCP layer overhead traffic), in megabytes, for each tier.

Application Tab

The Application tab displays performance and availability data of tier actions. Viewing this data enables you to understand the performance and availability of the tiers.

Important information	➤ Selected tiers for which actions are not applicable (for example Citrix, TCP request-response, or TCP streaming) are not displayed in this tab. ➤ The **Tier Availability**, **Total Time**, and **Server Time** columns and tooltips are color-coded, based on the relevant threshold configured for the action in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Warning ➤ **Red.** Error ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<**Tooltip**>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Action Hits with Slow Server Time	The number of action hits that exceeded the action server time threshold you configured for the action in EUM Administration. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
Application	The name of the application that includes the tier. **Note:** This column is displayed only when you select multiple applications for the report.
Available Action Hits	The number of actions hits that were successful for each tier. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.

UI Element (A-Z)	Description
Client Time	The average amount of time, in seconds, that each tier's action's requests were delayed on the client machine. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
Connect Time	The average amount of time, in seconds, that it took to establish an initial connection to the server from the first HTTP request sent for each tier's actions. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
Error Events	The number of error events that occurred on each tier's actions. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
Info Events	The number of information events that occurred on each tier's actions. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
Network Time	The average amount of time, in seconds, that each tier's action requests were delayed on the network. Connect, SSL handshake, and retransmit times are also included in the total network time. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
Retransmit Time	The average amount of time that passes from the moment an HTTP request is started for the action, until the moment an error message is returned, for each tier's actions. **Note:** ➤ Retransmit time only relates to errors that execute a retry after the error. ➤ For UDP tiers, this data is not available and a minus sign (-) is displayed.

UI Element (A-Z)	Description
Server Time	The average server time, in seconds, for each tier's action requests. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
Server Time to First Buffer	The average amount of time for each tier's actions, that passes from the receipt of ACK of the initial HTTP request (usually GET) until the first buffer is successfully received back from the Web server. **Note:** ➤ For UDP tiers, this data is not available and a minus sign (-) is displayed. ➤ The server time to first buffer measurement is a good indicator of Web server delay.
Slow Action Hits	The number of action hits that exceeded the action total time threshold you configured for the action in EUM Administration. **Note:** An action (for example, a page) may include multiple requests (for example, different components included in the page). The number of slow action hits, therefore, may differ from the number of slow requests reported in the TCP Poor Requests Summary report for the same application and time period.
SSL Handshake Time	The average amount of time taken to establish an SSL connection for each tier's actions. **Note:** ➤ SSL handshake time is applicable only for HTTPS communications. ➤ For UDP tiers, this data is not available and a minus sign (-) is displayed.
Tier	The tier name you configured in EUM Administration.
Tier Availability	The percentage of action hits that were available for each tier. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.

UI Element (A-Z)	Description
Total Action Hits	The total number of actions hits for each tier.
Total Time	The average total time, in seconds, of teach tier's actions.

Network Tab

The Network tab displays tier network data.

Important information	The **Connection Availability**, **Packets with Network Errors**, and **Packets with Server Errors** columns and tooltips are color-coded, based on the relevant thresholds configured for them in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Warning ➤ **Red.** Error ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<**Tooltip**>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Application	The name of the application that includes the tier. **Note:** This column is displayed only when you select multiple applications for the report.
Application Traffic	The total amount of application traffic for the tier, in megabytes.
Bitrate (Kbit/sec)	The average number of kilobits per second, for active VoIP, that are transferred over the network. **Note:** This column is only displayed for UDP streaming protocol tiers.

UI Element (A-Z)	Description
Connection Availability	The percentage of connections that were successful for each tier. **Note:** For UDP connectionless protocol tiers, this data is not available and a minus sign (-) is displayed.
Connect Time	The average time taken to establish a connection with the application servers for each tier. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
Packets with Network Errors	The percentage of packets sent for each tier for which there were network errors.
Packets with Server Errors	The percentage of packets sent for each tier for which there were server errors. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
Refused Connections	The number of connections that were refused for each tier. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
SSL Handshake Time	The average time for SSL handshaking for each tier. **Note:** For UDP tiers, this data is not available and a minus sign (-) is displayed.
STD Jitter (msec)	The standard deviation, in milliseconds, of packet latency over the network for each tier. **Note:** This column is only displayed for UDP streaming protocol tiers.
Throughput	The average throughput (in bits per second) for each tier (that is, the total traffic for the tier divided by the number of seconds in the report's time range).
Tier	The tier name you configured in EUM Administration.
Timed-out Connections	The number of connections that timed out for each tier. **Note:** For UDP connectionless protocol tiers, this data is not available and a minus sign (-) is displayed.

UI Element (A-Z)	Description
Total Connection Attempts	The total number of connection attempts for each tier.
Total Traffic	The total amount of network traffic (tier traffic and TCP layer overhead traffic), in megabytes, for each tier.

RUM Transaction Summary Report

This report displays data about performance, availability, and events for specific transactions that were configured for RUM in EUM Administration. You can drill down to view transaction behavior over time, by end-user groups or by infrastructure elements.

To access	Use one of the following: ➤ Select **Applications** > **End User Management** > **Analysis Reports** > **RUM Transaction Summary** ➤ In the **Application Summary** report, select an application and click the **Drill down to RUM Transaction Summary** button. ➤ In the **RUM Application Infrastructure Summary** report, select a row and click the **Drill down to RUM Transaction Summary** button. ➤ In the **RUM End User Group Summary** report, select an end-user group or subgroup and click the **Drill down to RUM Transaction Summary** button. ➤ In the **Triage** report > **Transaction by Location** component, select a transaction and click the **Drill down to RUM Transaction Summary** button. ➤ In the **Application Health** report > **Business Summary** component, select a transaction and click the **Drill down to RUM Transaction Summary** button.
Data type	Real user data

See also	"Business Transaction Real User Monitor Configuration Page" on page 330
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"RUM End User Group by Transaction Report" on page 943
	"Application Infrastructure by Transaction Report" on page 861
	"Transaction Over Time Report" on page 1035
	"RUM Session Analyzer Report" on page 977
	"RUM Action Summary Report" on page 919
	"Performance Raw Data Report" on page 913
	"RUM Event Summary Report" on page 973
	"RUM Current Transaction Thresholds Window" on page 758
	**Drill down to NNMi.** For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724.

UI Element	Description
	**Drill down to Transaction Management Transaction Summary.** Opens Transaction Management's Transaction Summary report for the selected transaction. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718.
	**Drill down to Transaction Management Aggregated Topology.** Opens Transaction Management's Aggregated Topology report for the selected transaction. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718.

Highlights Tab

The Highlights tab displays selected data from the other tabs in the report and enables you to view key information at one time, without having to move from tab to tab.

Important information	The **Availability (%)**, **Total Time**, **Net Time,** and **Total Server Time** columns and tooltips are color-coded, based on the relevant thresholds configured for them in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor (not valid for Availability) ➤ **Red.** Critical ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.

UI Element (A-Z)	Description
Application	The name of the application that includes the transaction. **Note:** This column is displayed only when you select multiple applications for the report.
Availability (%)	The percentage of transaction runs for which there were no availability problems. **Note:** If a transaction is unavailable, its data is not included in the transaction performance calculations.
Business Transaction Flow	The business transaction flow that includes the transaction. **Note:** This column is hidden by default.
Net Time (sec)	The net time, in seconds, of the transaction (that is, server time + network time + client time of all the actions included in the transaction).
Runs	The total number of run instances for each transaction.
Total Time (sec)	The average of the overall transaction time (from the start of the first action to the end of the last action), in seconds, for each transaction.
Total Server Time (sec)	The total server time of all the actions included in the transaction.
Transaction Name	The name you assigned the transaction in EUM Administration.
Transaction Size (KB)	The total size, in kilobytes, of all the actions in each transaction.

Availability and Events Tab

The Availability and Events tab displays the transaction availability for each configured transaction that was monitored.

Important information	The **Availability (%)** column and tooltip are color-coded, based on the relevant threshold configured for the transaction in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Red.** Critical ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Application	The name of the application that includes the transaction. **Note:** This column is displayed only when you select multiple applications for the report.
Availability (%)	The percentage of transaction runs for which there were no availability problems. **Note:** If a transaction is unavailable, its data is not included in the transaction performance calculations.
Business Transaction Flow	The business transaction flow that includes the transaction. **Note:** This column is hidden by default.
Runs	The total number of run instances for each transaction.
Transaction Name	The name you assigned the transaction in EUM Administration.
Unavailable Runs	The total number of transaction run instances for which availability problems occurred.

Performance Tab

This Performance tab displays data about the duration of each configured transaction that was monitored.

Important information	The **Total Time** and **Net Time**, and **Total Server Time** columns and tooltips are color-coded, based on the relevant thresholds configured for the transaction in EUM Administration. The valid statuses are: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Application	The name of the application that includes the transaction. **Note:** This column is displayed only when you select multiple applications for the report.
Business Transaction Flow	The business transaction flow that includes the transaction. **Note:** This column is hidden by default.
Client Time (sec)	The total time, in seconds, that each action included in the transaction was delayed on the client machine.
Connect Time (sec)	The average amount of time, in seconds, that it took to establish an initial connection to the server from the first request sent.
Net Time (sec)	The net time, in seconds, of the transaction (that is, server time + network time + client time of all the actions included in the transaction).

UI Element (A-Z)	Description
Retransmit Time (sec)	The overall amount of time that passes from the moment a request is started until the moment an error message is returned. **Note:** Retransmit time only relates to errors that execute a retry after the error.
Runs	The total number of run instances for each transaction.
Server Time to First Buffer	The amount of time that passes from the receipt of ACK of the initial request until the first buffer is successfully received back from the server. **Note:** The server time to first buffer measurement is a good indicator of Web server delay.
Slow Runs	The number of run instances whose total transaction time exceeded the configured total time threshold.
Slow Transaction Net Time (sec)	The average net transaction time, in seconds, of each transaction's runs that exceeded the net time threshold configured for the transaction.
Slow Transaction Server Time (sec)	The average server time, in seconds, of each transaction's runs that exceeded the server time threshold configured for the transaction.
Slow Transaction Total Time (sec)	The average total transaction time, in seconds, of each transaction's runs that exceeded the total time threshold configured for the transaction.
SSL Handshake Time (sec)	The average amount of time taken to establish an SSL connection. **Note:** SSL handshake time is applicable only for HTTPS communications for Web applications.
Think Time (sec)	The average think time for each transaction (that is, the time between action requests, which is calculated as transaction time - server time - network time - client time).

UI Element (A-Z)	Description
Total Network Time (sec)	The total time, in seconds, that each action included in the transaction was delayed on the network. Connection, SSL handshaking, and retransmit times are also included in the total network time.
Total Server Time (sec)	The total server time of all the actions included in the transaction.
Total Time (sec)	The average of the overall transaction time (from the start of the first action to the end of the last action), in seconds, for each transaction.
Transaction Name	The name you assigned the transaction in EUM Administration.

Session Details Report

This report displays details of a session and includes panes showing data for properties, general events, and actions.

To access	Click the **View Session Details** button in one of the following reports: ➤ **RUM Session Analyzer** ➤ **Event Log** (select an event)

Important information	➤ When you view session details, the report is regenerated and contains the most current data for the selected session. This means that if the session was still open when the RUM Session Analyzer report was generated, the data included in the Session Detail report is more up to date, and may differ from that included in the RUM Session Analyzer report for the same session. ➤ When viewing session details, all the actions that are included in all monitored application sessions that started on the same day as the application session for which you are viewing data, and that are part of the entire application server session, are displayed. For concept details, see "Viewing Session Details in the RUM Session Analyzer Report" on page 835. ➤ Events displayed when viewing session details are the events that occurred on the actions in the session that were configured for the selected application in EUM Administration. ➤ When clicking on the breadcrumb to return to the RUM Session Analyzer report, the report is not regenerated and the original RUM Session Analyzer report is redisplayed. ➤ When you view session details for a TCP Streaming application tier, only the Properties pane is displayed.

Properties

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<Session Property Name>	The names of all the session properties configured for the application are listed.
<Session Property Value>	The value of each of the listed session properties is displayed. **Note:** There are five static place holders for session properties in the profile database, whether you actually define session properties or not. If you change the definition of an existing session property, the values for the previous definition still exist and appear as values for the new definition.
Application	The name of the application to which the selected session belongs.
Arrived from	The page from which the end user reached the session.
Client IP	The IP address of the end user who initiated the session.
Client type	The browser used by the end user to initiate the session.
Duration	The total time that the session was open.
End user subgroup	The end-user subgroup to which the end user who initiated the session belongs, as configured by you in EUM Administration.
Host name	The host name of the machine of the end user who initiated the session.
HTTP version	The HTTP version used by the end user for the session.
Latency	The average latency, in milliseconds, of all the packets in the session.
Location	The name of the location of the end user who initiated the session.

UI Element (A–Z)	Description
Operating system	The operating system of the machine on which the end user initiated the session.
Overall traffic (KB)	The total number of kilobytes sent from and received by the session.
Server IP	The IP address of the server (or load balancer) reached by the end user.
Start time	The date and time the session was started.
Total action hits	The number of action hits for the selected application.
User name	The name of the end user who initiated the session.

General Events

General events are session events (session <actions> events and session unavailable <actions> events) that are configured for the session's application in EUM Administration.

User interface elements are described below:

UI Element (A–Z)	Description
Description	The event description
Name	The event name

Actions

Important information	➤ Measurements for actions that are configured for frame unification use calculated totals of the action's children. For details on frame unification, see "Frame Unification" on page 295. ➤ The data included in the **Action Details** page is available in the Actions area of the Session Details report as columns that are hidden by default. You can select the columns to display them in the report. When you export data from the Session Details report, this data is included in the exported file even if the columns are not displayed. For user interface details, see "Action Details Page" on page 839.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	"Action Details Page" on page 839
	"Page Component Breakdown Report (RUM)" on page 903
	"Session Replay Page" on page 1005. Click the **View Snapshot** button to open the Session Replay page, where you can view a snapshot of the action. **Note:** If no snapshot exists for the selected action, this button is disabled.
	**Drill down to Transaction Tracking.** Opens Transaction Management's Transaction Tracking report, where you can see detailed information of the actions within the session. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718.

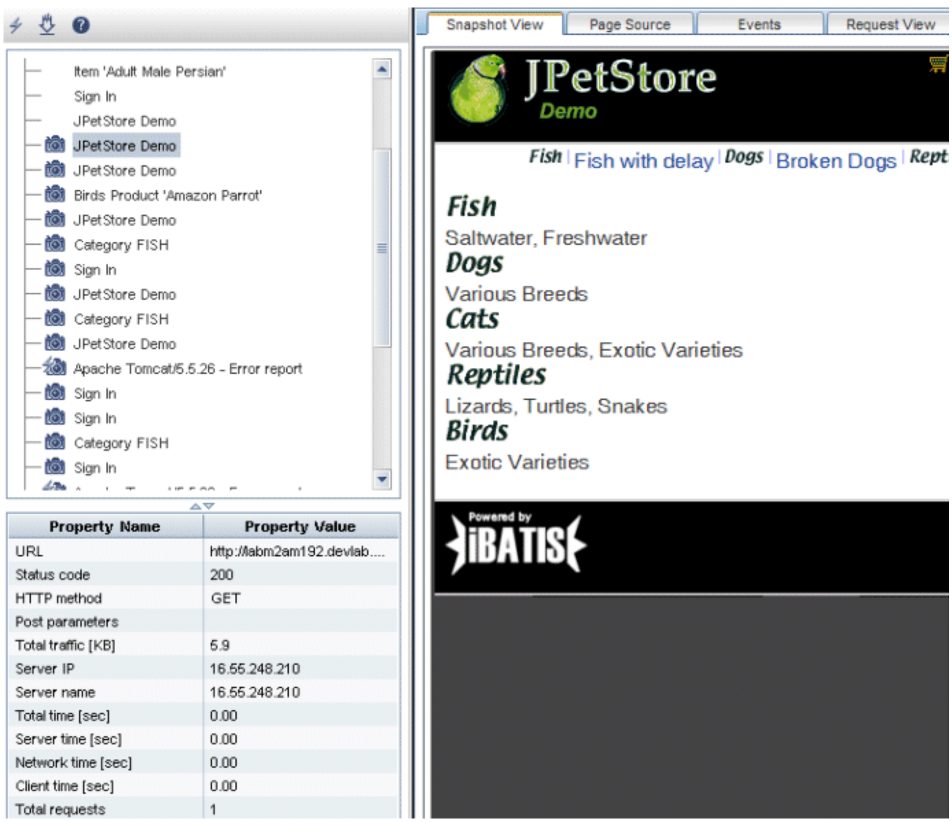
UI Element	Description
	**Drill down to Diagnostics.** Drills down to HP Diagnostics for a specific action. For concept details, see "Viewing HP Diagnostics Data From End User Management Reports" on page 714.
	**Drill down to NNMi.** For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724.
Session Replay	Click the **Session Replay** button to open the Session Replay page, where you can view a session flow page by page. For user interface details, see "Session Replay Page" on page 1005. **Note:** This button is enabled only for HTTP and SOAP protocols (that is, for pages).
Actions	
	**Define Action.** Opens the Real User Monitor Application <Actions> page in a new window, where you can add and define a new action for an application. When you access the **New Action** dialog box from the Real User Monitor Application <Actions> page, the selected action's description or URL, attibutes, and parameters are automatically entered in the dialog box. For user interface details, see "<Action> Dialog Box" on page 310. **Note:** The Define Action button is enabled only for selected actions that are not yet defined in EUM Administration.
Session VuGen Script	Click the Session VuGen Script to create a VuGen script based on the session. A new dialog box opens in which you enter the script name. **Note:** This button is enabled only for sessions for which snapshots have been made of all included actions. You can only configure applications that use http-based protocols for full capturing. For user interface details, see "Snapshot Collection Area" on page 388.

UI Element	Description
Report Columns (A-Z) Hold the cursor over a cell to display a tooltip with additional information relevant to the data.	
Action	The name of the action that was hit, as defined by you in EUM Administration, or its URL if no name is defined. **Note:** For those actions of an application for which frame unification is enabled, click the action name to hide or display its children in the hierarchical tree (displayed by default).
Application	The application session in which the action was hit. This field is colored blue for actions included in the selected application session.
Client Time (sec)	The amount of time, in seconds, that the action was active on the client machine.
Events	Displays an icon and the name of events that occurred on the action, based on the events you defined for the action in EUM Administration. If there are multiple events on an action, the icon of the most severe event is displayed and the string "Multiple events" is displayed instead of the event name. **Note:** The order of severity of event types is errors and informational events. **Tooltip:** For single errors, the event type is displayed and for multiple errors, the event names are displayed.
Has Snapshot	Indicates whether a snapshot exists for the action. If a snapshot exists, you can click the **View Snapshot** button to display it.
Network Time (sec)	The amount of time, in seconds, that the action was active on the network.
Server Time (sec)	The amount of time, in seconds, that it took the server to process the request for the action.
Start Time	The date and time the action was hit.

UI Element	Description
Total Time (sec)	The total amount of time, in seconds, from when the action was requested until it finished.
Total Traffic (KB)	The total amount of network traffic (action traffic and TCP layer overhead traffic), in kilobytes, for the action.

Session Replay Page

This page enables you to view snapshots of a session flow, page by page. It also enables you to view the HTML source code of the pages and details of events that occurred on them.



To access	Use one of the following: ➤ In the **Session Details** report: ➤ Click the **Session Replay** button. ➤ Select a page and click the **View Snapshot** button. ➤ In the **Action Raw Data** report, select an action and click the **View Snapshot** button.
Important information	See Notes and Limitations below.

Notes and Limitations

- When you access Session Replay for a specific page, the hierarchical tree displayed in the upper, left pane includes all the pages included in the session, with the specific page selected.
- You can view snapshots of pages if you have enabled snapshosts for applications and events configured in EUM Administration. For user interface details, see "Real User Monitor Administration User Interface" on page 308.
- You can configure how the Snapshot applet communicates with the RUM engine to retrieve snapshots. For details, see "Determining How the Real User Monitor Snapshot Applet Retrieves Snapshots" on page 836.
- If the source machine from which snapshots are retrieved (either through the BSM Gateway Server or directly from the RUM engine) is configured for SSL, you must configure JRE on the client machine running the Snapshot applet to work with the source machine's certificate. For details on configuring JRE to trust a client/server certificate, see "Setting JRE to Work with Security Certificates" in the *HP Business Service Management Hardening Guide* PDF.
- To view session replay, you must use Internet Explorer version 7 or 8 as your client browser when accessing BSM.
- Ensure that the Internet Explorer folder (which contains the iexplore.exe file) is included in the **Path** environment variable.

- To view user input in a page (that is, in a form), you must configure the application to collect snapshots of requests. For user interface details, see "Snapshot Collection Area" on page 388.
- Rich page components, such as Flash, Java Applets, and SilverLight, are not supported in session replay, but may be displayed.
- The first time you view session replay, ActiveX objects are installed on your client machine and are run each time you view session replay. You must have the necessary permissions to install and run ActiveX objects on your client machine.

Note: During the installation of ActiveX objects on a client machine running Microsoft Java Virtual Machine (MSJVM), a Data Execution Prevention (DEP) error may occur that stops the installation of the ActiveX objects.

- ActiveX requires a root certificate in the client machine's local store of trusted root certification authorities. If such a certificate is not found, ActiveX prompts you to confirm the installation of a certificate called **Rum-Probe CA for signing certificates**. If you do not confirm installation on this certificate, you will be unable to view pages that were originally transferred over SSL.

Upper Left Pane

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
	**Go to Next Event.** Goes to the next item in the tree that includes an event.
	**Download.** Downloads all the snapshots included in a session to a zip file. The **Save** dialog box opens, where you select the path and file name you want and click **Save**. The saved zip file includes a Java applet for viewing the saved information. **Note:** The Download button is located directly above the Upper Left pane.
	**Session Without Events.** When displayed preceding the session name in the hierarchical tree, indicates that the session does not include any events.
	**Session With Events.** When displayed preceding the session name in the hierarchical tree, indicates that the session includes events.
	**Page With Events.** When displayed preceding a page or component name in the hierarchical tree, indicates that the page or component includes events.
	**Page With Snapshot.** When displayed preceding a page or component name in the hierarchical tree, indicates that there is a snapshot of the page or component.

UI Element (A–Z)	Description
	**Page With Events and Snapshot.** When displayed preceding a page or component name in the hierarchical tree, indicates that page or component includes events and that there is a snapshot of the page or component.
<**Hierarchical tree**>	The upper, left pane displays a hierarchical tree of the pages included in the session, and for those pages of an application for which frame unification is enabled, their children. There is also an entry for the session details. Click the item in the tree you want to view. For details on frame unification, see "Frame Unification" on page 295.

Lower Left Pane

This pane displays details of the selected page or component, or details of the session if **Session Details** is selected in the Upper Left pane.

<Page Details>

User interface elements are described below:

UI Element (A–Z)	Description
Client Time	The amount of time, in seconds, that the page was active on the client machine.
HTTP Method	The HTTP method used to access the page.
Network Time	The amount of time, in seconds, that the page was active on the network.
Post Parameters	For HTTP Post requests, the parameters sent with the request.
Server IP	The IP address of the server on which the page was located.
Server Name	The name of the server on which the page was located.
Server Time	The amount of time, in seconds, that it took the server to process the request for the page.

UI Element (A–Z)	Description
Status Code	The HTTP status code returned by the server.
Total Requests	The total number of requests for the page.
Total Time	The total amount of time, in seconds, from when the page was requested until it finished loading.
Total Traffic	The total amount of network traffic (page traffic and TCP layer overhead traffic), in kilobytes, for the page.
URL	The URL of the page.

<Session Details>

User interface elements are described below:

UI Element (A–Z)	Description
Application	The name of the application to which the selected session belongs.
Arrived From	The page from which the end user reached the session.
Client IP	The IP address of the end user who initiated the session.
Client Type	The browser used by the end user to initiate the session.
Duration	The total time that the session was open.
End User Group	The end-user group to which the end user who initiated the session belongs, as configured by you in EUM Administration.
Host Name	The host name of the machine of the end user who initiated the session.
HTTP Version	The HTTP version used by the end user for the session.
Latency	The average latency, in milliseconds, of all the packets in the session.
Location	The name of the location of the end user who initiated the session.

UI Element (A–Z)	Description
Operating System	The operating system of the machine on which the end-user initiated the session.
Overall Traffic	The total number of kilobytes sent from and received by the session.
Server IP	The IP address of the server (or load balancer) reached by the end-user.
Start Time	The date and time the session was started.
Total Action Hits	The number of action hits for the selected application.
User Name	The name of the end-user who initiated the session.

Right Pane

The Right pane includes the following tabs:

➤ "Snapshot View" on page 1012

➤ "Page Source" on page 1012

➤ "Request View" on page 1012

➤ "Events" on page 1012

Note: If Session Details has been selected in the Upper Left pane, only the Events tab is enabled.

Snapshot View

This tab displays a snapshot of the page accessed by the user for Web (HTML) applications, or the XML code of the response for SOAP applications.

Page Source

This tab displays the HTML source code of the snapshot.

Tip: Within a page, press CTRL+F to search for a specific string in the source code.

Request View

This tab displays the HTTP request body for Web and SOAP applications.

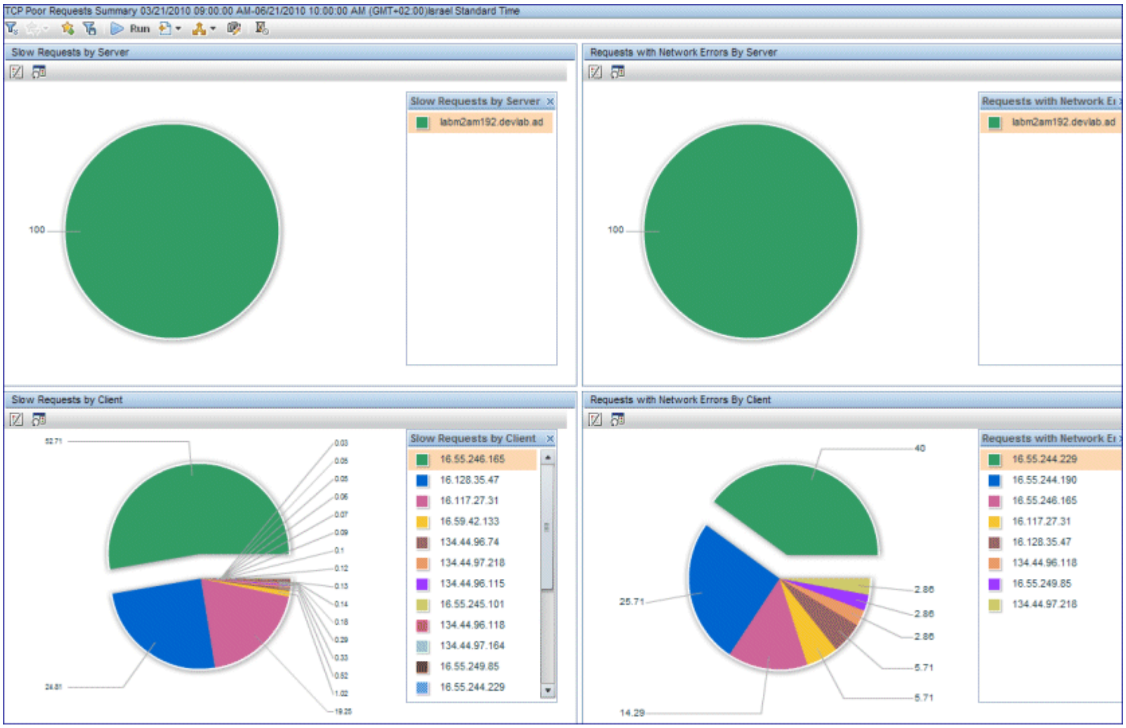
Note: This tab is enabled only for SOAP and Web applications for which request snapshots were collected.

Events

This tab displays the configured events that occurred on the page, or in the session.

TCP Poor Requests Summary Report

This report displays a summary of selected applications' TCP requests that were slow or had errors, broken down by servers and end users.



To access	Click the **Drill down to TCP Poor Requests Summary** button  in one of the following reports: ➤ **RUM Tier Summary** ➤ **RUM End User Group Summary** ➤ **RUM Application Infrastructure Summary**
Important information	➤ Slow requests are requests whose time was less than the component time threshold configured for the application in EUM Administration. ➤ Requests with network errors are requests with a minimum number of network errors and with a minimum percentage of packets with network errors out of the total number of packets for the request, as configured for the application in EUM Administration. ➤ The report displays data for only TCP applications or HTTP (Web and SOAP) applications with TCP settings.
Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<Drill down to TCP Slow Requests Analyzer>	Right-click a slice in the **Slow Requests by Server** or **Slow Requests by Client** pie charts and select **Drill down to TCP Slow Requests Analyzer** from the Shortcut menu, to drill down to the TCP Slow Requests Analyzer for the specific server or client. For user interface details, see "TCP Requests Analyzer Report" on page 1018.

UI Element	Description
<Drill down to TCP Requests with Network Errors Analyzer>	Right-click a slice in the **Requests with Network Errors by Server** or **Requests with Network Errors by Client** pie charts and select **Drill down to TCP Requests with Network Errors Analyzer** from the Shortcut menu, to drill down to the TCP Requests with Network Errors Analyzer for the specific server or client. For user interface details, see "TCP Requests Analyzer Report" on page 1018.

Slow Requests by Server Graph

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<Pie chart>	The complete pie chart represents the total number of slow TCP requests for the selected applications, broken down by servers. Each slice of the pie chart represents the total number of slow TCP requests for the selected applications for a specific server. **Tooltip:** Hold the cursor over a slice to display a tooltip with additional information relevant to the data. **Note:** Up to 10 different slices can be displayed per chart. If there are more than 10 servers to be displayed, the servers with the least number of slow TCP requests are grouped together in a slice called **Other**.

Slow Requests by Client Graph

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<Pie chart>	The complete pie chart represents the total number of slow TCP requests for the selected applications, broken down by clients. Each slice of the pie chart represents the total number of slow TCP requests for the selected applications for a specific client. **Tooltip:** Hold the cursor over a slice to display a tooltip with additional information relevant to the data. **Note:** Up to 10 different slices can be displayed per chart. If there are more than 10 clients to be displayed, the clients with the least number of slow TCP requests are grouped together in a slice called **Other**.

Requests with Network Errors by Server Graph

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<Pie chart>	The complete pie chart represents the total number of TCP requests with network errors for the selected applications, broken down by servers. Each slice of the pie chart represents the total number of TCP requests with network errors for the selected applications for a specific server. **Tooltip:** Hold the cursor over a slice to display a tooltip with additional information relevant to the data. **Note:** Up to 10 different slices can be displayed per chart. If there are more than 10 servers to be displayed, the servers with the least number of TCP requests with network errors are grouped together in a slice called **Other**.

Requests with Network Errors by Client Graph

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<**Pie chart**>	The complete pie chart represents the total number of TCP requests with network errors for the selected applications, broken down by clients. Each slice of the pie chart represents the total number of TCP requests with network errors for the selected applications for a specific client. **Tooltip:** Hold the cursor over a slice to display a tooltip with additional information relevant to the data. **Note:** Up to 10 different slices can be displayed per chart. If there are more than 10 clients to be displayed, the clients with the least number of TCP requests with network errors are grouped together in a slice called **Other**.

TCP Requests Analyzer Report

This report displays detailed data about the slow requests or requests with network errors for selected applications for a specific server or end user.

To access	RIght-click a pie slice for a specific server or client in the **TCP Poor Requests Summary** report and: ➤ In the **Slow Requests by Server** or **Slow Requests by Client** graphs, select **Drill down to TCP Slow Requests Analyzer** from the Shortcut menu. ➤ In the **Requests with Network Errors by Server** or **Requests with Network Errors by Clients** graphs, select **Drill down to TCP Requests with Network Errors Analyzer** from the Shortcut menu.
Important information	➤ You access the report by clicking a pie slice in one of the graphs in the TCP Poor Requests Summary report. If you click a pie slice in the Slow Requests by Server or Slow Requests by Client graphs, the report is called the **TCP Slow Requests Analyzer** report. If you click a pie slice in the Requests with Network Errors by Server or Requests with Network Errors by Client graphs, the report is called the **TCP Requests with Network Errors Analyzer** report. ➤ Slow requests are requests whose time was less than the component time threshold configured for the application in EUM Administration. ➤ Requests with network errors are requests with a minimum number of network errors and with a minimum percentage of packets with network errors out of the total number of packets for the request, as configured for the application in EUM Administration. ➤ The report displays data for only TCP applications or HTTP (Web and SOAP) applications with TCP settings.

Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **Display requests with capture file.** Select this check box to display only those relevant requests for which a capture file exists. Clear the check box to display all relevant requests. **Note:** This field is visible and enabled only when you access the report from one of the **Requests with Network Errors** pie charts in the **TCP Poor Requests Summary** report.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	**Download Capture File.** Downloads a capture file of the selected request in .pcap format. You can save the file, or view it in a new window. **Note:** ➤ The button is visible only when you access the report from one of the **Requests with Network Errors** graphs in the **TCP Poor Requests Summary** report. ➤ The button is enabled only if a capture file exists for the request. ➤ Capture files are created no more than once a minute. ➤ You must configure applications to enable capture files to be created. For details, see "TCP/Network Settings Area" on page 419.

UI Element	Description
	**View Readable Request Snippet.** Displays a snippet of the selected request to the application in text format, in a new window. For protocols for which RUM supports parsing, the snippet contains more detailed request/response data, which is displayed in xml format. For a list of supported protocols, see "Parsing Supported Protocols" in the *Real User Monitor Administration* PDF. **Note:** ➤ The button is enabled only if a snippet exists for the request. ➤ You cannot display a snippet for requests transmitted over an SSL connection.
Report Columns (A-Z) Hold the cursor over a cell to display a tooltip with additional information relevant to the data.	
Application Traffic	The total amount of application traffic, in kilobytes, for the request
Capture File	A check mark denotes that a capture file exists for the request.
Client	The client name.
Client Time (sec)	The amount of time, in seconds, that the request was delayed on the client machine.
Network Time (sec)	The time, in seconds, that the request was delayed on the network.

UI Element	Description
Packets with Network Errors (%)	The percentage of packets sent for the request for which there were network errors. This column is color-coded, based on the request's percentage of packets with network errors in relation to the packets with network errors threshold you configured for the application in EUM Administration. ➤ **Green.** OK ➤ **Yellow.** Warning—the percentage of packets with network errors has exceeded the configured threshold, but the minimum number of packets with network errors is within the configured threshold. ➤ **Red.** Critical **Note:** The number of retransmitted data and Ack packets displayed in the tooltip may differ from the number included in a capture file that is opened in Wireshark, due to a difference in the algorithm used to calculate retransmitted packets. For example, in the following packet sequence, packet 2 was lost (that is, it was not received by the server and was not captured by RUM), packet 5 is counted as a retransmitted packet by both RUM and Wireshark, and packet 6 is counted as a retransmitted packet by RUM (as the repetition of the ACK for DATA1 in packets 4 and 5 signal that packet 2 was sent, but not received and therefore packet 6 is a retransmission of packet 2), but is not considered as a retransmitted packet by Wireshark: ➤ Packet 1 Client –> Server DATA1 ➤ Packet 2 Client –> Server DATA2 ➤ Packet 3 Client –> Server DATA3 ➤ Packet 4 Server –> Client ACK on DATA1 ➤ Packet 5 Server –> Client ACK on DATA1 ➤ Packet 6 Client –> Server DATA2

UI Element	Description
Packets with Server Errors (%)	The percentage of packets sent for the request for which there were server errors. This column is color-coded, based on the request's percentage of packets with server errors in relation to the packets with server errors threshold you configured for the application in EUM Administration. ➤ **Green.** OK ➤ **Red.** Critical
Request Name	The request name, that includes the protocol and a summary of the request showing the type of action. **Note:** This column is displayed only if there is snippet data for the selected application.
Request Snippet	A check mark denotes that a snippet of the selected request to the application in text format exists. The snippet contains more detailed request/response data, which is displayed in xml format. **Note:** This column is displayed only if there is snippet data for the selected application.
Request Time Stamp	The date and time of the request.
Response Time (sec)	The request-response time for the request, in seconds. This column is color-coded, based on the request-response time in relation to the component time threshold you configured for the application in EUM Administration. ➤ **Green.** OK ➤ **Red.** Critical
Retransmit Time (sec)	The retransmit time for the request, in seconds.
Server	The name of the server.

UI Element	Description
Server Time (sec)	The amount of time, in seconds, that the request was delayed on the server. This column is color-coded, based on the server time in relation to the component server time threshold you configured for the application in EUM Administration. ➤ **Green.** OK ➤ **Red.** Critical **Note:** The color coding does not indicate whether the request is a slow request or not.
Server Time to First Buffer (sec)	The amount of time, in seconds, from when the server received the request until the first application data buffer is sent in the response.
SSL	A check mark denotes if the request was sent over an SSL connection.

Tiers Over Time Report

This report enables you to investigate a selected, problematic tier of an application from the RUM Tier Summary report and to see its behavior over the course of time. The report displays the traffic, errors, load, and response times over the course of time for the selected tier.

To access	In the **RUM Tier Summary** report, select an application tier and click the **Drill down to Tiers Over Time** button.
Important information	➤ The report only includes data that is common to the tier types of all selected tiers/applications. To view more data for an application/tier, select tiers of a single type only. ➤ Thresholds are displayed in the graphs only when you select a single application tier for the report.
Data type	Real user data

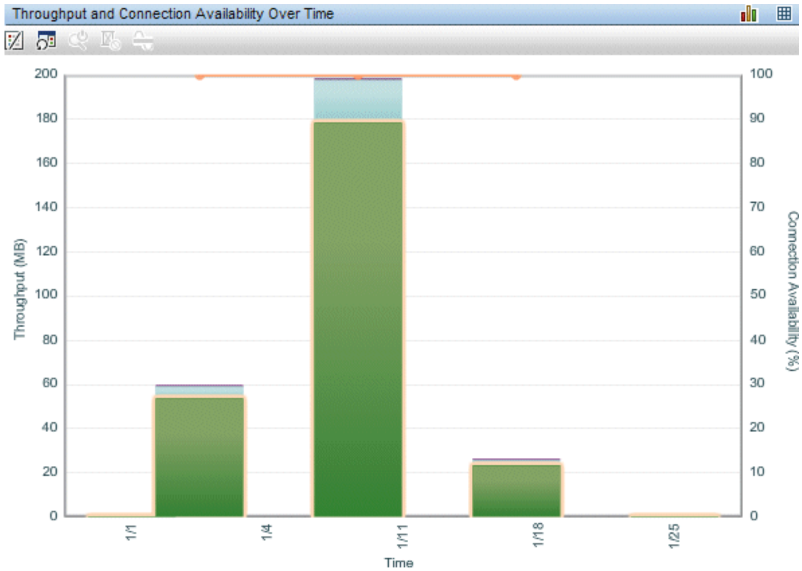
See also	"Viewing Data for Different Application Tier Types in Real User Monitor Reports" on page 705
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"Tiers Over Time Report" on page 1023. In any table, select a row and click the **Drill down to Tiers Over Time** button to drill down to a higher time resolution. For example, if you drill down from the report that displays data for a day, the time resolution changes to hours for the specific day. **Graph view:** In any graph, right-click a bar or data point and select **Drill down to Tiers Over Time** from the Shortcut menu.

Throughput and Connection Availability Over Time



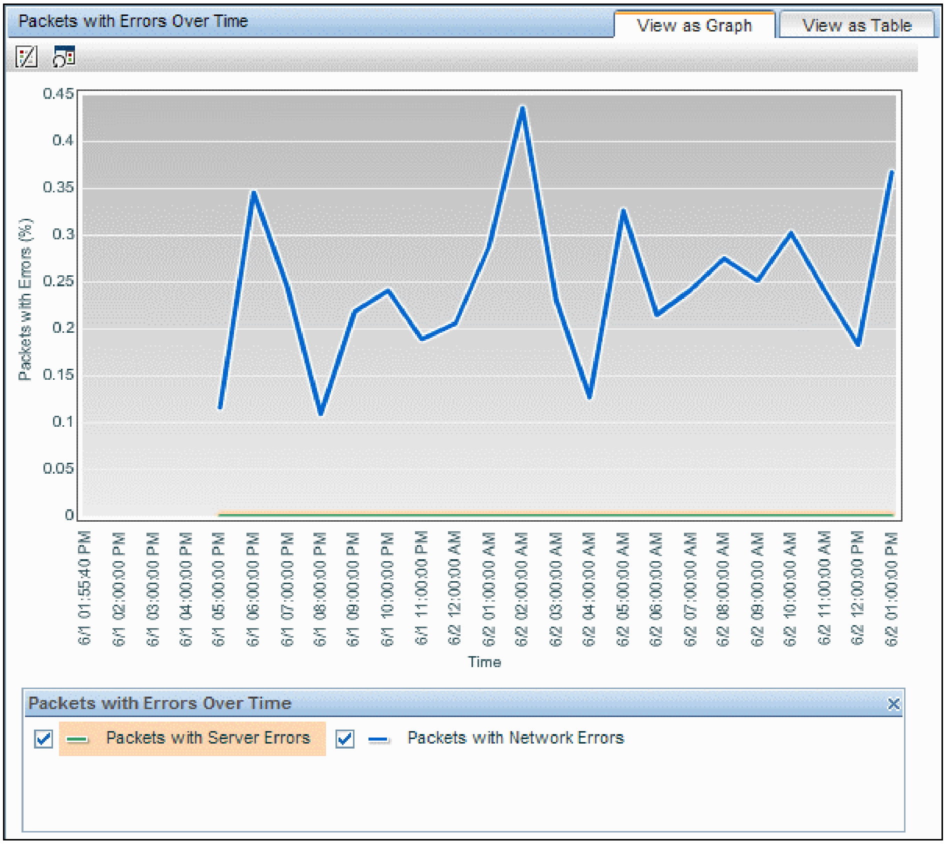
Important information	➤ This component is displayed only if there is network data for all the selected tiers. ➤ If all the tiers selected for the report are UDP connectionless protocol tiers, connection availability data is not displayed.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.

UI Element	Description
<Y-axis> (left)	**Throughput (MB).** The amount of traffic in megabytes. Stacked bars indicate the total amount of application tier traffic at each point over the course of the defined time period, broken down to application traffic, network layer overhead, and retransmissions. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data. **Note:** If all the tiers selected for the report are UDP protocol tiers, retransmissions data is not displayed.
<Y-axis> (right)	**Connection Availability (%).** The connection availability percentage. Data points indicate the percentage of total connections that were successful for the application at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this component is not displayed.
<Connection availability threshold line>	Displays the server connection availability threshold that you configured for the application in EUM Administration. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this component is not displayed.
<Table view>	For user interface details, see "<Network Connections> Table" on page 1033.

Packets with Errors Over Time

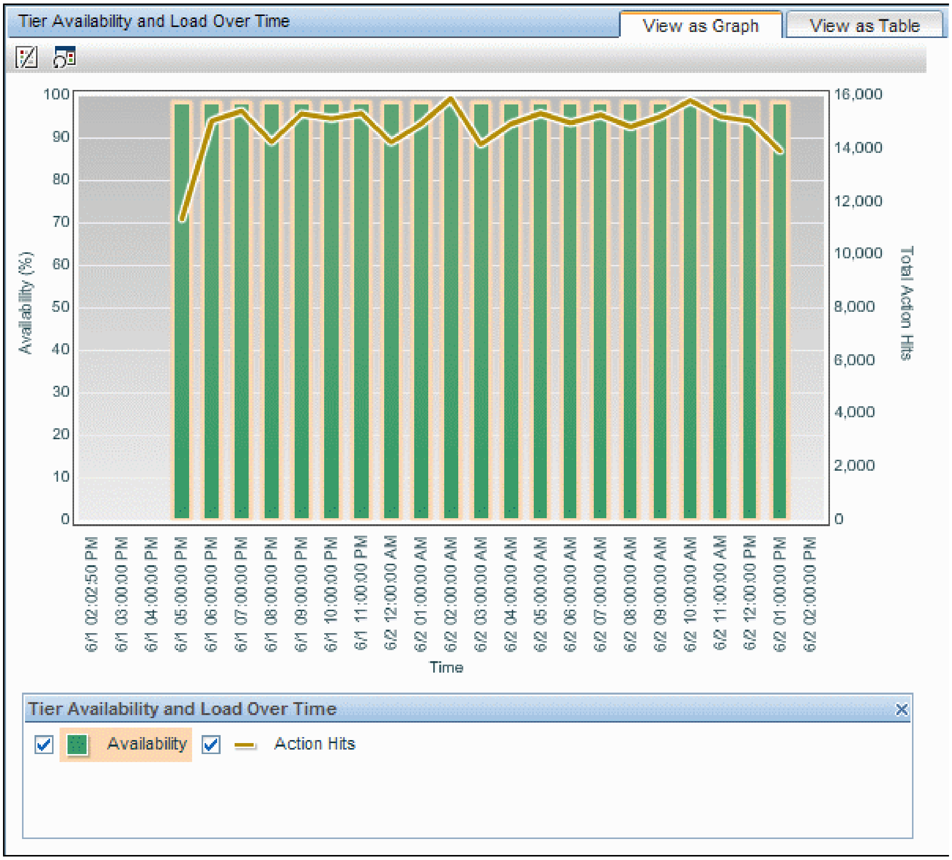


Important information	This component is displayed only if there is network data for all the selected tiers.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns -Table View	
	**Drill down to NNMi.** Drills down to NNMi for a selected row. For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724. **Graph view:** Right-click a **Packet with Network Errors** data point and select **Drill down to NNMi** from the Shortcut menu.
Graph Elements For Table view user interface details, see "<Network Connections> Table" on page 1033.	
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis>	**Packets with Errors (%).** The percentage of errors. Data lines indicate the percentage of packets sent for an application that had network TCP errors and server TCP errors, at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data. **Note:** If all the tiers selected for the report are UDP protocol tiers, packets with server errors data is not displayed.
<Pakcets with Server Errors Threshold line>	Displays the **Packets with server errors** threshold that you configured for the application in EUM Administration. **Note:** If all the tiers selected for the report are UDP protocol tiers, this threshold is not displayed.
<Pakcets with Network Errors Threshold line>	Displays the **Packets with network errors** threshold that you configured for the application in EUM Administration.

Tier Availability and Load Over Time

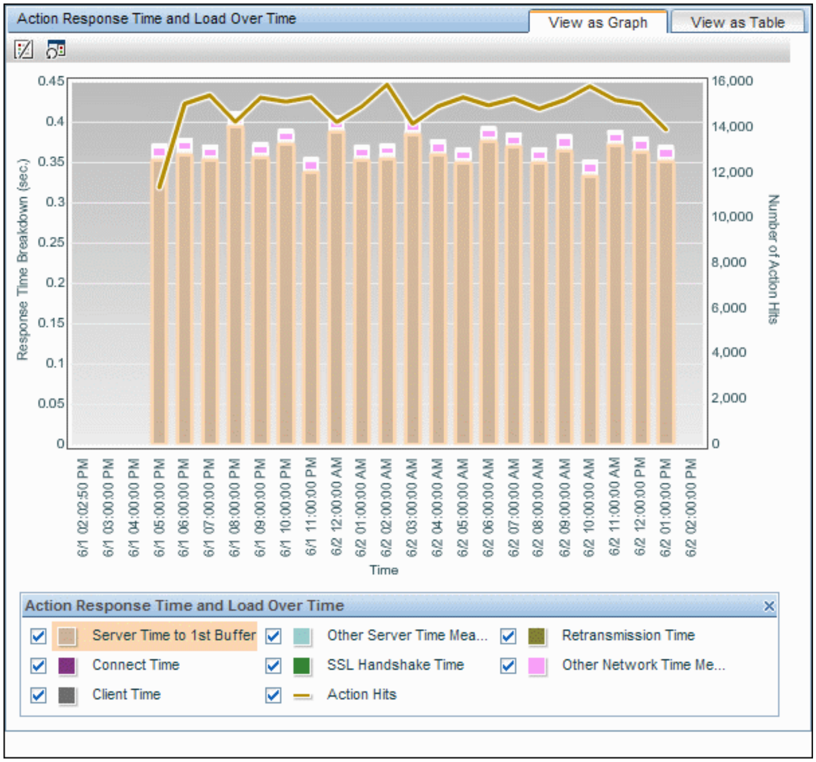


Important information	This component is displayed only if there is action data for all the selected tiers.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis> (left)	**Availability (%).** The percentage of availability. Bars indicate the percentage of availability for the application tier at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.
<Y-axis> (right)	**Total Action Hits.** The total number of action hits. Data lines indicate the total number of action hits for the application tier at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.
<Availability threshold>	A line indicates the action availability threshold configured for the tier in EUM Administration.

Action Response Time and Load Over Time



Important information	This component is displayed only if there is action data for all the selected tiers.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns -Table View	
	**Drill down to NNMi.** Drills down to NNMi for a selected row. For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724. **Graph view:** Right-click a bar and select **Drill down to NNMi** from the Shortcut menu.
Graph Elements	
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis> (left)	**Response Time Breakdown (sec).** The response time breakdown in seconds. Stacked bars indicate the average response time, in seconds, for the application tier's actions, broken down to categories. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data. **Note:** ➤ If all the tiers selected for the report are UDP protocol tiers, response time breakdown is not displayed. ➤ Other Network Time is the network time less SSL time, retransmit time and connect time. ➤ Other Server Time is the server time less the server time to first buffer. ➤ The network time includes the average connect and SSL handshake times, which are the average times per available action hit.

UI Element	Description
<Y-axis> (right)	**Number of Action Hits.** The total number of actions hits. Data lines indicate the total number of action hits for the application tier at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

<Network Connections> Table

Important information	➤ This component is displayed only if there is network data for all the selected tiers. ➤ This table is displayed when you view either the **Throughput and Connection Availability Over Time** or the **Packets with Errors Over Time** components as a table. ➤ The **Connection Availability**, **Server TCP Errors**, and **Network TCP Errors** columns are color-coded, based on the relevant thresholds configured in EUM Administration. The following are the valid statuses: ➤ **Green.** OK ➤ **Yellow.** Warning ➤ **Red.** Error ➤ **Blue.** No data ➤ **Lavender.** Full down time

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Tooltip>	Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Application Traffic (MB)	The total amount of application tier traffic, in megabytes, at a given point of time.

UI Element (A-Z)	Description
Connection Availability (%)	The percentage of total connections that were successful for the application tier at a give point of time. **Note:** If all the tiers selected for the report are UDP connectionless protocol tiers, this column is not displayed.
Network Layer Overhead (MB)	The total amount of TCP layer overhead traffic, in megabytes, at a given point of time.
Packets with Network Errors	The percentage of packets sent for an application tier that had network TCP errors, at a given point of time.
Packets with Server Errors (%)	The percentage of packets sent for an application tier that had server TCP errors, at a given point of time.
Retransmissions (MB)	The total amount of retransmission traffic, in megabytes, at a given point of time. **Note:** If all the tiers selected for the report are UDP protocol tiers, this column is not displayed.
Time	The time units for the selected time period.

Transaction Over Time Report

This report displays details of the availability, transaction times, run availability, and breakdown for the selected transaction, over the course of time.

To access	Use one of the following:
	➤ In the **RUM Transaction Summary** report, select a transaction and click the **Drill down to Transaction Over Time** button.
	➤ In the **Triage** report > **Transation Breakdown** component:
	    ➤ **Table view:** Select a row and click the **Drill down to Transaction Over Time** button.
	    ➤ **Graph view:** Right-click a bar and select **Drill down to Transaction Over Time** in the Shortcut menu.

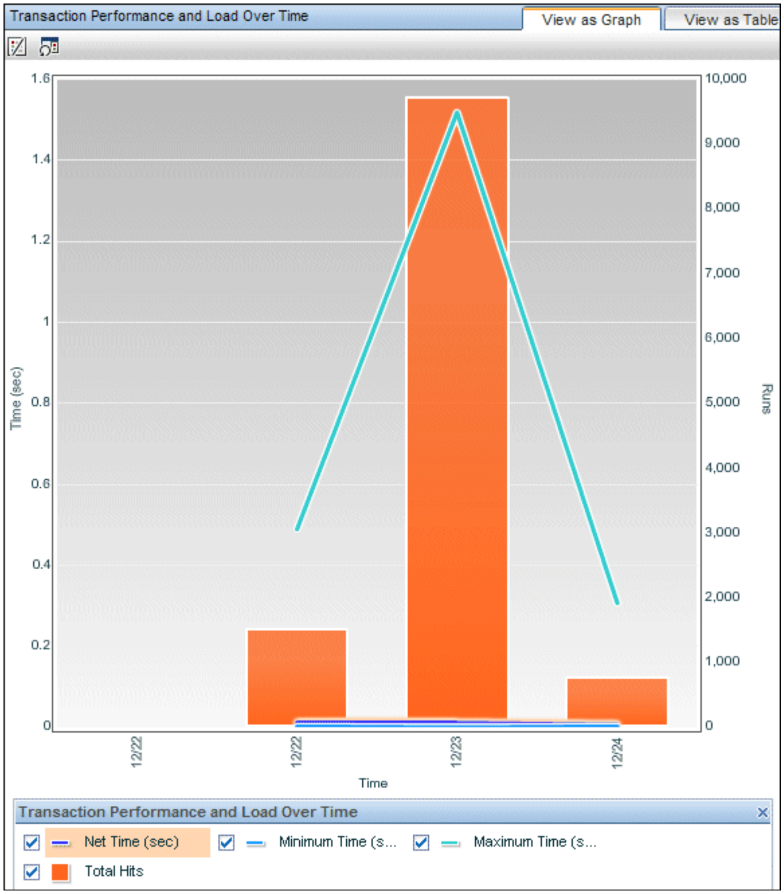
Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

General Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
	"RUM Current Transaction Thresholds Window" on page 758 **Note:** This button is visible in the Table view only.
	"Transaction Over Time Report" on page 1035. In any table, select a row and click the **Drill down to Transaction Over Time** button to drill down to a higher time resolution. For example, if you drill down from a report that displays data for a day, the time resolution changes to hours for the specific day. **Note:** You cannot drill down to a resolution higher than five minutes. **Graph view:** In any graph, right-click a bar or data point to and select **Drill down to Transaction Over Time** from the Shortcut menu.

Transaction Performance and Load Over Time

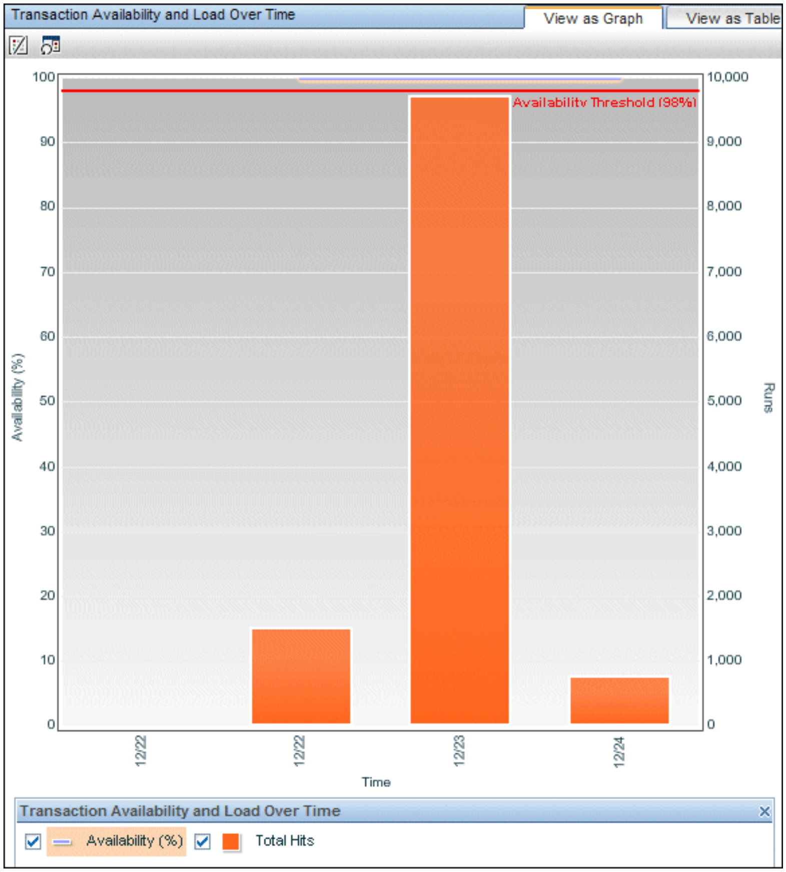


Important information	In the table view, the **Net Time** column is color-coded, based on the relevant threshold configured in EUM Administration. The following are the valid statuses: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Full down time

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis left>	**Time (sec).** Transaction time units in seconds. Three sets of data lines indicate: ➤ The average net transaction time ➤ The maximum net transaction time ➤ The minimum net transaction time over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.
<Y-axis right>	**Runs.** The total number of transaction hits. Bars indicate the total number of transaction hits at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.
<Horizontal Total Net Time Threshold line>	The transaction total net time threshold you configured in EUM Administration. **Note:** The threshold is displayed only if: ➤ You generate the report for a single transaction. ➤ The threshold value is less than, or equal to, four times the value of the highest data point in the graph.

Transaction Availability and Load Over Time

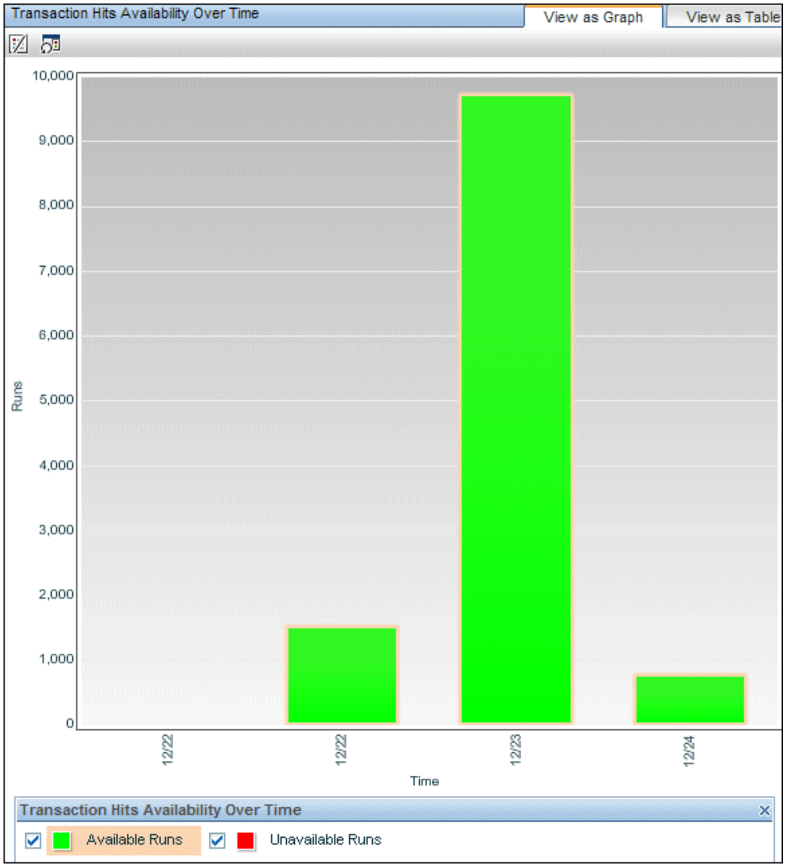


Important information	In the table view, the **Availability** column is color-coded, based on the relevant threshold configured in EUM Administration. The following are the valid statuses: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Full down time

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis left>	**Availability (%).** Transaction availability percentage units. Data points indicate the percentage of available transactions at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.
<Y-axis right>	**Runs.** The total number of transaction hits. Bars indicate the total number of transaction hits at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.
<Horizontal Availability Threshold line>	The transaction availability threshold you configured in EUM Administration. **Note:** The threshold is displayed only if you generate the report for a single transaction.

Transaction Hits Availability Over Time

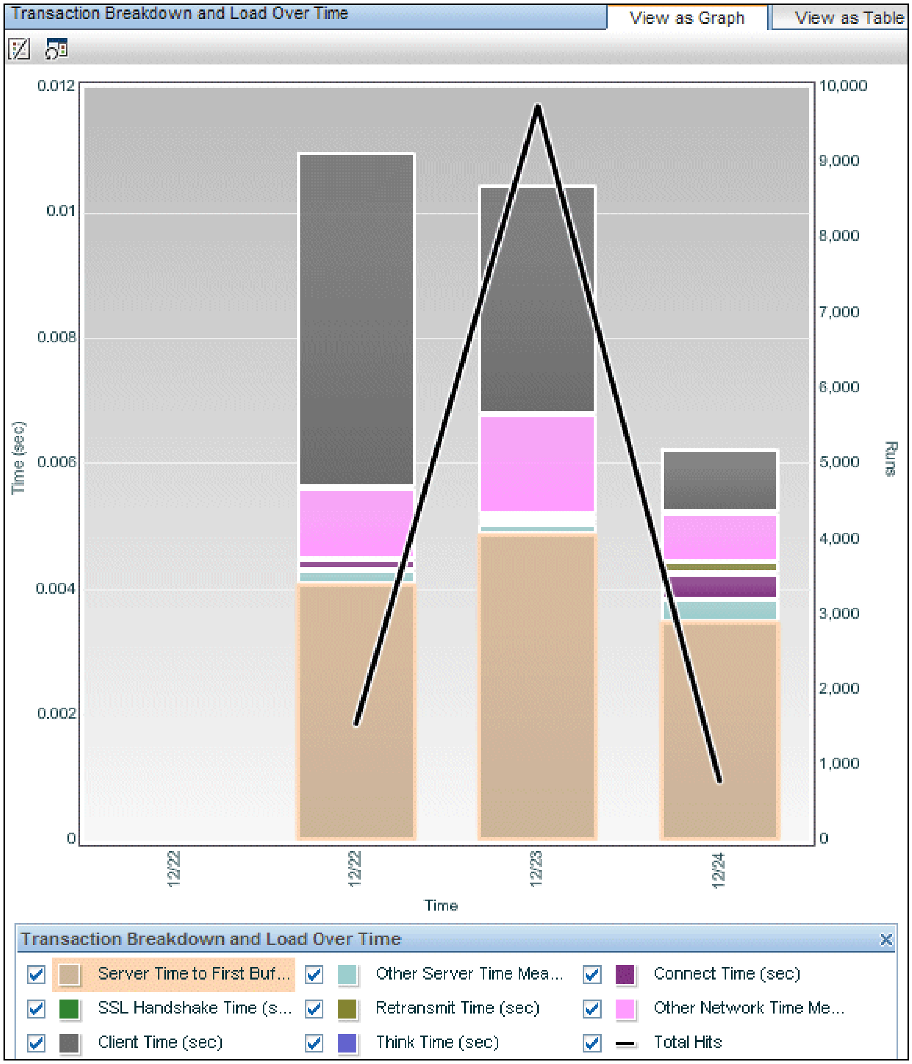


Important information	In the table view, the **Available Hits** and **Unavailable Hits** columns are color-coded, based on the relevant thresholds configured in EUM Administration. The following are the valid statuses: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Full down time

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<**X-axis**>	**Time.** The time units for the selected time period.
<**Y-axis**>	**Runs.** The number of transaction hits Stacked bars represent the number of transaction hits over the course of the defined time period. The bars are divided into the number of available transaction hits (colored green), and the number of unavailable transaction hits (colored red). **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Transaction Breakdown and Load Over Time



Important information	In the table view, the **Total Time** and **Server Time** columns are color-coded, based on the relevant thresholds configured in EUM Administration. The following are the valid statuses: ➤ **Green.** OK ➤ **Yellow.** Minor ➤ **Red.** Critical ➤ **Blue.** No data ➤ **Lavender.** Full down time

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns - Table View	
	**Drill down to NNMi.** For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724. Graph view: Right-click a bar and select **Drill down to NNMi** from the Shortcut menu.
Graph Elements	
<X-axis>	**Time.** The time units for the selected time period.
<Y-axis left>	**Time (sec).** Time units in seconds. Bars indicate the total transaction time over the course of the defined time period, and are divided into segments showing client time, connection time, network time, retransmission time, server time, server time to first buffer, SSL handshake time, and think time for the transaction. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

UI Element	Description
<Y-axis right>	**Runs.** The total number of transaction hits. Data points indicate the total number of transaction hits at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data. **Note:** To drill down to NNMi, click a bar and select **Drilldown to NNMi** from the displayed menu. For concept details, see "Viewing HP Network Node Manager (NNMi) Data From Real User Monitor Reports" on page 724.
<Horizontal Total Time Threshold line>	The total time threshold of the transaction, as configured in EUM Administration. **Note:** The threshold is displayed only if: ➤ You generate the report for a single transaction. ➤ The threshold value is less than, or equal to, four times the value of the highest data point in the graph.
<Horizontal Total Net Time Threshold line>	The total net time threshold of the transaction, as configured in EUM Administration. **Note:** The threshold is displayed only if: ➤ You generate the report for a single transaction. ➤ The threshold value is less than, or equal to, four times the value of the highest data point in the graph.
<Horizontal Total Server Time Threshold line>	The total server time threshold of the transaction, as configured in EUM Administration. **Note:** The threshold is displayed only if: ➤ You generate the report for a single transaction. ➤ The threshold value is less than, or equal to, four times the value of the highest data point in the graph.

Triage Report

This report displays BPM or RUM transaction data, organized by location, for a selected period of up to 72 hours.

Data in the Triage report is organized by transactions and locations and includes a transaction breakdown component, as well as graphs showing error data. The report also includes information about the health of the transaction scripts running at the various locations (Script Health), as well as indicators for the health of BPM data collectors.

To access	Use one of the following: ➤ Select **Applications** > **End User Management** > **Analysis Reports** > **Triage Report**. ➤ In Service Health, right-click a BusinessApplication or BusinessTransaction type CI and select **Go to Report** > **Triage report** from the Shortcut menu. The Triage report displays data for the transaction and location of the specific CI. For details on Service Health menu options, see "Service Health Menu Options" in *Using Service Health*.

Important information	➤ By default, the first 20 transactions or locations are displayed and are sorted worst down from top to bottom and left to right. To change the number of transactions or locations displayed, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Applications**, select **End User/System Availability Management**, and locate the **Max. number of transactions or locations in Triage report** entry in the **End User/System Availability Management – Data** table. Modify the value to the required number. ➤ The Triage report does not display deleted transactions, although EUM does store transaction history. ➤ When the Triage report is requested, BSM checks (for synthetic user data) when the collector ping time (the last time BPM requested configuration data) and data time (the last time BPM sent samples) were last reported. By default, BSM compares these values to 60 minutes. If the last report time is higher than the default, a yellow icon is displayed in the Triage report. To change the last ping time and last data time defaults, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Applications**, select **End User/System Availability Management**, in the **End User/System Availability Management – Data** table, locate the following entries and modify their values to the number of minutes required: ➤ **Max. time since last reported collector ping time** ➤ **Max. time since last reported collector data time**
Data type	➤ Real user data ➤ Synthetic user data

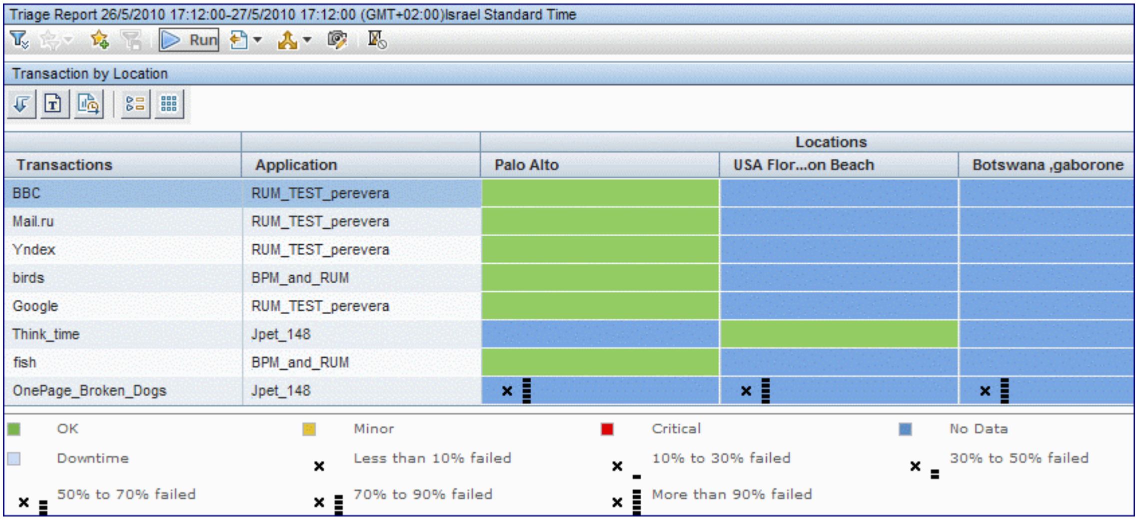
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **Filter by.** Click to open the filter options in a new window and select one of the following filters: ➤ Worst transactions and worst locations. ➤ Worst locations for worst transactions. ➤ Worst transactions for worst locations. **Default value:** Worst transactions and worst locations

Transaction by Location

This component displays average transaction response time and availability status during the report's time period, organized by location.

The Transaction by Location graph helps you pinpoint and characterize specific problem areas related to average transaction response time and transaction availability. Enables you to identify where average transaction response times are too slow and/or when there are too many failed transactions. For example, you may determine that response times of transactions running from a particular location are consistently in the poor range. This could indicate a problem with the network connections in that location.

The Transaction by Location graph's color-coded cells enable you to analyze average transaction response times at a glance and get a quick snapshot of overall transaction health. For example, if most of the cells in the report are green, then average response times are generally OK. If most of the cells are red, then average response times are generally critical.



User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns	
	"Triage Raw Data Report" on page 1057: ➤ Select a row in the table and click the **Drill down to Triage Raw Data** button to drill down to the Triage Raw Data report for the selected transaction. ➤ Click a data cell to drill down to the Triage Raw Data report for a specific transaction and location. **Note:** The Triage Raw Data report opens in a new window.

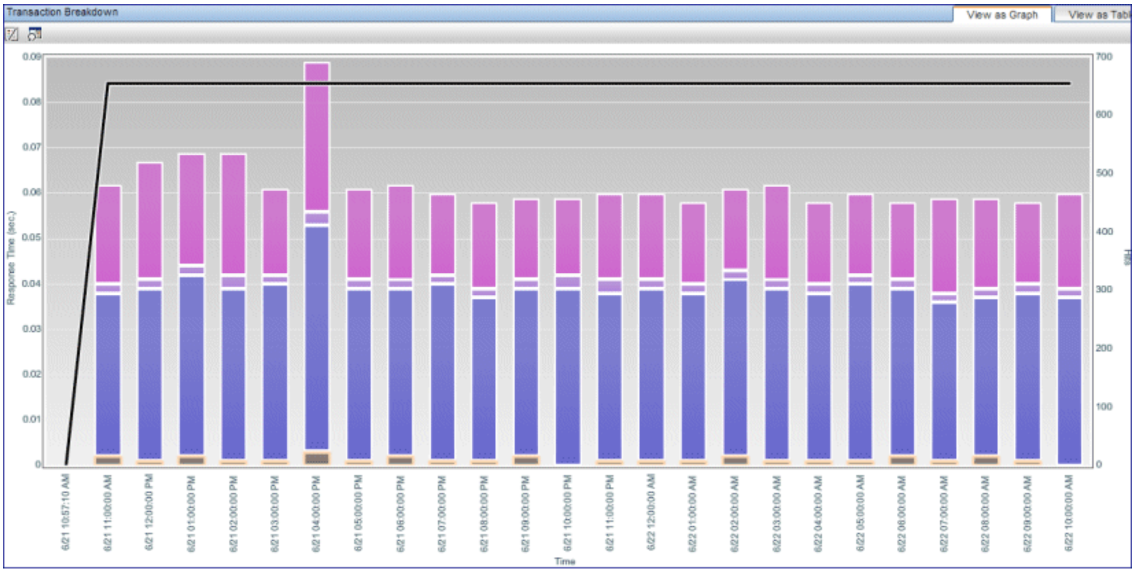
UI Element	Description
	"Performance Analysis Report" on page 906
	"RUM Session Analyzer Report" on page 977 (for real user data only)
	"RUM Transaction Summary Report" on page 991 (for real user data only)
	**Drill down to Transaction Management Transaction Summary.** Opens Transaction Management's Transaction Summary report for the selected transaction. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718.
	**Drill down to Transaction Management Aggregated Topology.** Opens Transaction Management's Aggregated Topology report for the selected transaction. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718.
Report Columns	
Transactions	The transaction name.
Application	The name of the application in which the transaction is configured. **Note:** This column is displayed only when you generate the report for multiple applications.

UI Element	Description
Script Health	An icon that shows whether transactions have finished successfully. When a script in a business transaction flow is run, but for some reason does not finish successfully (that is, it does not end with a status of Finished properly or Finished (errors occurred)), samples for transactions that are part of the script but were not run are sent to BSM for inclusion in the Triage report. A yellow icon signifies that there are problems with the transaction. A green icon signifies that there are no problems. **Note:** This column is displayed only when you generate the report for synthetic user data.
Locations	A column for each location included in the report is displayed.
Report Rows	
<Transactions>	A row for each transaction included in the report is displayed.
Collector Health	An icon that shows the health of each collector sorted by location. A yellow icon signifies that a BPM host has problems. A green icon signifies that there are no problems. **Note:** This row is displayed only when you generate the report for synthetic user data.

UI Element	Description
Data Cells	
<Data cells>	The data cells are colored to display the performance status for a specific transaction at a specific location. The color-coding corresponds to that of the transaction threshold settings—green for OK, yellow for Minor (for BPM transactions only), and red for Critical. In addition, when one or more transaction runs failed or, for BPM transactions, exceed their outlier value within the report's time period, a black X is displayed in the cell. Next to the black X, 1 to 5 horizontal bars are used to signify transaction failure or outlier values. For details on the transaction failure and outlier values used in the report, see "Transaction Failures and Outlier Values" on page 1056. Cells representing transactions that were not scheduled to run at a specific location during the report's time period are colored blue.

Transaction Breakdown

This component displays the average transaction response time broken down by cateogory and the number of transaction hits, during the report's time period, for the transaction selected in the Transaction by Location table.



Important information	➤ When viewed as a table, each time division unit is displayed in a row and the columns display the average response time of each category for all the transactions, as well as the total number of transaction hits. ➤ Total response time is calculated as an average of all the transactions included in the report (with or without breakdown values) whereas breakdown category times are calculated as an average of only those transactions that have breakdown values.
See also	➤ "Understanding Transaction Breakdown in Reports" on page 686. ➤ "Overview of HP Real User Monitor Performance Measurements" in the *Real User Monitor Administration* PDF.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Drilldowns - Table View	
	"BPM WebTrace Report" on page 1082 (for synthetic user data only). **Graph view:** Right-click any of the segments for the transaction, except for the **Retry Time**, **Connection Time**, **Server Time to First Buffer**, or **Download Time** segments, and select **Drill Down to BPM WebTrace Report** from the Shortcut menu.
	"BPM Error Summary Report" on page 876 (for synthetic user data only). **Graph view:** Right-click the **Retry Time** segment and select **Drill Down to BPM Error Summary Report** from the Shortcut menu.

UI Element	Description
	"Transaction Over Time Report" on page 1035 (for real user data only). **Graph view:** Right-click any of the segments for the transaction and select **Drill Down to Transaction Over Time** from the Shortcut menu.
	**Drill down to HP Diagnostics** (for synthetic user data only). Drills down to HP Diagnostics. The drill down is only enabled if HP Diagnostics is installed. For details on working with HP Diagnostics, see the *HP Diagnostics User's Guide*. For concept details, see "Viewing HP Diagnostics Data From End User Management Reports" on page 714. **Graph view:** Right-click the **Server Time to First Buffer** or the **Download Time** segments for the transaction and select **Drill Down to HP Diagnostics** from the Shortcut menu.
	**Drill down to Transaction Tracking Data** (for synthetic user data only). Opens Transaction Management's Transaction Tracking report. The drill down is only enabled if you have deployed Transaction Management in BSM. For details on working with Transaction Management see the Transaction Management documentation. For concept details, see "Viewing TransactionVision Data From End User Management Reports" on page 718. **Graph view:** Right-click the **Server Time to First Buffer** or the **Download Time** segments for the transaction and select **Drill Down to Transaction Management** from the Shortcut menu.
Graph Elements	
<**X-axis**>	**Time.** The time division units for the time range that you defined when generating the report.

UI Element	Description
<Y-axis> (left)	**Total Time (sec).** The average response time of all the transactions displayed in the Transaction by Location component. Stacked bars indicate the average response time, in seconds, broken down to categories. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.
<Y-axis > (right)	**Total Hits.** The average number of hits of all the transactions displayed in the Transaction by Location component.

Error Distribution by Category/Type

Important information	This component is included for synthetic user data only.

For user interface details, see "Error Distribution by Category/Type" on page 878.

Errors vs. Availability Over Time

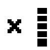
Important information	This component is included for synthetic user data only.

For user interface details, see "Errors Vs. Availability Over Time" on page 878.

Transaction Failures and Outlier Values

The following table lists the icons used to denote transaction failure and outlier values in the Transaction by Location graph.

Icon	Description
	Less than 10% of the transactions failed or exceeded the outlier value.
	Between 10% to 30% of the transactions failed or exceeded the outlier value.

Icon	Description
	Between 30% to 50% of the transactions failed or exceeded the outlier value.
	Between 50% to 70% of the transactions failed or exceeded the outlier value.
	Between 70% to 90% of the transactions failed or exceeded the outlier value.
	Over 90% of the transactions failed or exceeded the outlier value.

You use the black Xs and horizontal bars to analyze the frequency of failed and outlier transactions. For example, cells for one transaction at many locations displaying black Xs signify a problem with the transaction, whereas cells for one location for many different transactions displaying black Xs signify a problem with the location.

Triage Raw Data Report

This report displays performance and availability raw data for a single transaction.

To access	Use one of the following:
	➤ Select **Applications** > **End User Management** > **Analysis Reports** > **Triage Raw Data** report
	➤ In the **Triage** report > **Transaction by Location** component:
	  ➤ Click a location data cell.
	  ➤ Select a row and click the **Drill down to Triage Raw Data** button.

Important information	When accessed from the Triage report, the Triage Raw Data report displays, by default, data for the transaction and location selected in the Triage report.

Data type	➤ Real user data ➤ Synthetic user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. **Note:** In the Active Filters Transaction tab, you can select a single transaction only. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Location Response Time

The Location Response Time component displays the response times of transactions over the course of the defined time period.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<X-axis>	**TIme.** The time division units for the time range that you defined when generating the report.
<Y-axis>	**Response Time (sec).** The response time in milliseconds. Colored squares represent the raw response time, in seconds, of transaction hits at a specific location for each point over the course of the defined time period. Each location is represented by a different color. **Tooltip:** Hold the cursor over a square to display a tooltip with additional information relevant to the data. **Note:** For real user data, each colored square represents the average response time for the defined time range and is a good approximation of the raw data.
Fail	A colored square shows that there were failed transaction hits for a location at a given point of time.
Outlier	A colored square shows that there were outliers for a location at a given point of time. Outliers are transaction hits whose response time exceeds a defined time range. **Note:** This element is visible only for BPM transactions.
Script Error	A colored square shows that there were script errors for a location at a given point of time. **Note:** This element is visible only for BPM transactions.

Transaction Breakdown

Important information	If you generate the Triage Raw Data report for a single application and for real user data, the Transaction Breakdown component in the report also displays the total time, total net time, and total server time thresholds for the application.

For user interface details, see "Transaction Breakdown" on page 1053.

Error Log

Important information	This component is displayed for synthetic user data only.

For user interface details, see "Error Log" on page 886.

Unconfigured End Users Report

This report displays data for the end users included in an unconfigured end-user group selected in the RUM End User Group Summary report.

To access	In the **RUM End User Group Summary** report, select the generic group called **Others** and click the **Drill down to Unconfigured End Users** button.
Important information	This report is the same as the RUM End User Group Summary report with the following exceptions: ➤ You cannot drill down to other reports and no drilldown buttons are displayed. ➤ Location breakdown data is not displayed and there is only one table in each tab. ➤ The report is based on raw data retrieved from the RUM engine. For user interface details, see "RUM End User Group Summary Report" on page 962.
Data type	Real user data
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

11

End User Management Utilities

This chapter includes:

Concepts

Tasks

Reference

Concepts

End User Management Utilities Overview

End User Management (EUM) utilities enable you to gain an in-depth view of the network health of your monitored environment. You can also invoke Business Process Monitor (BPM) transactions to ensure their correctness and to obtain immediate data from them.

You access the utilities from the Utilities tab in the EUM application (**Applications** > **End User Management** > **Utilities**). For user interface details, see "End User Management Utilities User Interface" on page 1067.

Analyzing the BPM WebTrace Report

The BPM WebTrace report helps you identify problems related to network response time for hosts at various host locations. By correlating transaction response time and service availability information with the BPM WebTrace report data, you can determine whether slow response times or failed transactions are being caused by poor network performance from a specific host location.

For example, using the BPM Performance Matrix report, you might determine that average transaction response times from a particular location are in the critical range, as determined by your transaction threshold settings. By analyzing WebTrace data for the same location over the same time period, you could determine whether network performance was also critical. If so, this could lead you to conclude that the Internet was slow from a particular location during that time period. Alternatively, if network performance for the location and time period seems normal, you could conclude that the problem is server-related, for example, excessive load on your Web server.

The report also displays details (such as the average number of hops and the total number of retries) for each host/destination combination, as well as graphs showing the worst locations and worst destinations. You can cross-reference this data with transaction response time and service availability information to determine whether poor or failed application performance was caused by specific network errors or network latency for a particular location or time period.

You can drill down to a higher time resolution of the displayed data and can also drill down to the BPM Hop report for a view of hops information. For details on the BPM Hop report user interface, see "BPM Hop Report" on page 1068.

For details on the BPM WebTrace report, see "BPM WebTrace Report" on page 1082.

Analyzing the Page Component Breakdown Report

The Page Component Breakdown report helps you identify problematic elements of a Web page or TCP request, for example, images that download slowly, or broken links. In addition, by breaking down an element's download time, the report can help you identify where problems are occurring along the network (for example, during DNS Resolution, or during Network Time to First Buffer).

By correlating transaction response time and service availability information with Page Component Breakdown report data, you can determine whether slow response times or failed transactions are being caused by specific problematic elements on a Web page that is accessed during the transaction, or by network errors during Web page download.

For example, using the Metrics over Time report, you might determine that the average response times for a particular transaction are suddenly significantly higher than in the past. By running a page component breakdown on the same Web page that is accessed in the transaction, you may discover that a particular image, recently added to the Web page, is downloading very slowly due to its size. This would account for the sudden increase in transaction response times.

The Page Component Breakdown report's color-coded bars enable you to differentiate between retry time, DNS resolution time, connection time, SSL handshaking time (if relevant), network time to first buffer, server time to first buffer, and download time. By analyzing the structure of the page download—for example, how many elements download simultaneously as compared to sequentially—you can pinpoint download bottlenecks.

You can also cross-reference this data with transaction response time and service availability information to determine whether poor or failed application performance is being caused by specific network errors or network latency. For example, if DNS lookup time is slow or returning errors, there may be a problem with your DNS server, which could explain why transactions are failing.

For details on the Page Component Breakdown report, see "BPM Page Component Breakdown on Demand" on page 1073.

Tasks

How to Configure Settings for the BPM Transaction Invocation Report

This task describes how to configure transaction validation settings for the BPM Transaction Invocation report. For user interface details on the report, see "BPM Transaction Invocation" on page 1077.

1. Select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**.
2. Select **Applications**.
3. Select **End User/System Availability Management**.
4. In the **BPM Transaction Validation** table, locate the following entries and change their values accordingly:

Name	Description	Default Value
Agent poll rate (in seconds)	The refresh interval of the revalidation polling of synthetic user (BPM) agents. Increasing this setting lengthens the revalidation process time.	2
Maximum number of agents	The maximum number of agents on which a single script can be run simultaneously	4
Revalidation time frame (in hours)	The number of past hours (from current time) on which transaction status is calculated.	1
Synthetic user agent call timeout (in minutes)	The number of minutes that a transaction can run on a synthetic user (BPM) agent. After this time, the transaction will be aborted by the agent.	15

Name	Description	Default Value
Table refresh rate (in seconds)	Refresh rate, in seconds, of the revalidation table.	10
Transaction result time out	The length of time that the revalidation process waits for transaction run results from a synthetic user (BPM) agent, before aborting the transaction run.	15

Reference

End User Management Utilities User Interface

This section includes (in alphabetical order):

BPM Hop Report

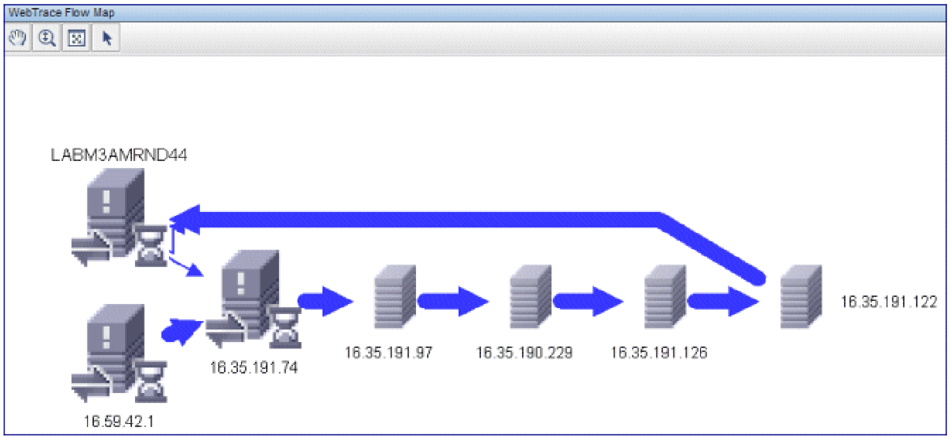
This report displays a flow map and hop details of selected BPM applications' WebTraces. This enables you to pinpoint the problematic hops (for example, the hops for which there were many retries, or hops with a long roundtrip time) which can affect the overall performance of your applications.

To access	Use on of the following:
	➤ Select **Applications** > **End User Management** > **Utilities** > **BPM Hop Report**
	➤ In the **BPM WebTrace** report:
	  ➤ In the **WebTrace Over Time** graph, right-click a data point and select **Drill down to BPM Hop Report** in the Shortcut menu.
	  ➤ In the **WebTrace Over Time** table, select a row and click the **Drill down to BPM Hop Report** button.
	  ➤ In the **WebTrace Details** table, select a row and click the **Drill down to BPM Hop Report** button.
	  ➤ In the **Worst Destinations** graph, right-click a bar and select Drill down to BPM Hop Report in the Shortcut menu.
	  ➤ In the **Worst Destinations** table, select a row and click the **Drill down to BPM Hop Report** button.

Important information	Estimated hop time is calculated by subtracting the previous hop roundtrip time from the current hop roundtrip time. If the result is a negative value, the estimated hop time is calculated by dividing the roundtrip time by the hop number.
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

WebTrace Flow Map

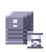
This map uses an applet that visually displays the routes taken and hops reached by the selected applications' WebTraces. It also shows the worst hops (by hop time and retries) and the routes with heavy traffic.



Important information	The WebTrace Flow Map is not displayed if there is only one WebTrace run for the selected applications in the configured time frame

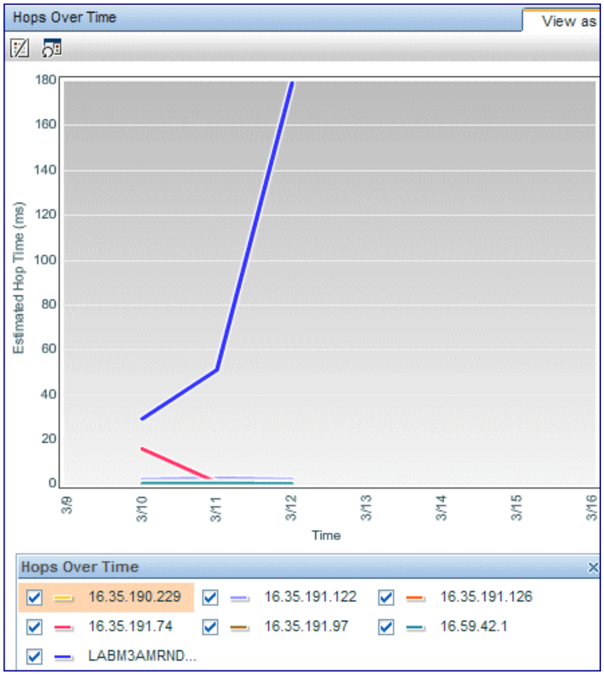
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Pan.** Pans the flow map. You pan by holding down the left click button on your pointer. Drag the pointer in the required direction.
	**Zoom.** Zooms on a specific area of the flow map. You zoom by holding down the left click button on your pointer. Move the pointer down to zoom in; move the pointer up to zoom out.
	**Fit to Canvas.** Fits all the flow map components into the visible area.

UI Element (A-Z)	Description
	**Select.** Enables selecting a component on the flow map. **Note:** This button is selected by default on entering the flow map.
	A standard hop. The machine name or IP address of the hop is displayed next to the icon. **Tooltip:** ➤ The hop's machine name and IP address. ➤ The estimated hop time, in milliseconds. ➤ The relative worst position of the hop out of all the hops, based on estimated hop time. ➤ The minimum and maximum hop times, in milliseconds, and the standard deviation. ➤ The average roundtrip time, in milliseconds. ➤ The average number of retries. ➤ The relative worst position of the hop out of all the hops, based on the average number of retries. ➤ The number of runs. **Note:** By default, all the WebTrace locations are aligned on the left of the flow map and all the WebTrace destinations are aligned on the right on the flow map.
	A hop with one of the three worst estimated hop times. **Tooltip:** The same tooltip as for a standard hop.
	A hop with one of the three worst average number of retries. **Tooltip:** The same tooltip as for a standard hope.
<Flow lines>	The flow lines show the sources and destinations of each hop and the direction of the hop. The thickness of the line indicates the traffic (that is, the number of runs) for the hop, with thicker lines denoting higher traffic. There can be up to five different line thicknesses.

Hops Over Time

This report displays the estimated hop time, for each hop, over the selected time frame.



User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<X-axis>	**Time.** The time division units for the time range for which the report was generated.
<Y-axis>	**Estimated Hop Time (ms).** The estimated hop time, in milliseconds. Data lines indicate the estimated hop time at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

Hops Details

This report displays hop details, for each hop, for the entire time frame.

Important information	➤ If there is only one WebTrace run for the selected applications in the configured time frame, the Hop Details report includes different columns, as specified in the **Hop Details - Single WebTrace Run View** table. ➤ By default, the report is sorted by descending estimated hop time.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
Avg. No. of Retries	The average number of retries.
Avg. Roundtrip Time (ms)	The average roundtrip time, in milliseconds.
Estimated Hop Time (ms)	The estimated hop time, in milliseconds. **Tooltip:** Hold the cursor over the cell value to display the minimum and maximum, estimated hop times, as well all the standard deviation.

UI Element (A-Z)	Description
Hop	The hop name. If the hop name is not available, the hop IP address is displayed. **Tooltip:** Hold the cursor over the cell value to display the full name or IP address of the hop.
No. of Runs	The number of runs.

Hops Details - Single WebTrace Run View

If there is only one WebTrace run for the selected applications in the configured time frame, the following user interface elements are displayed:

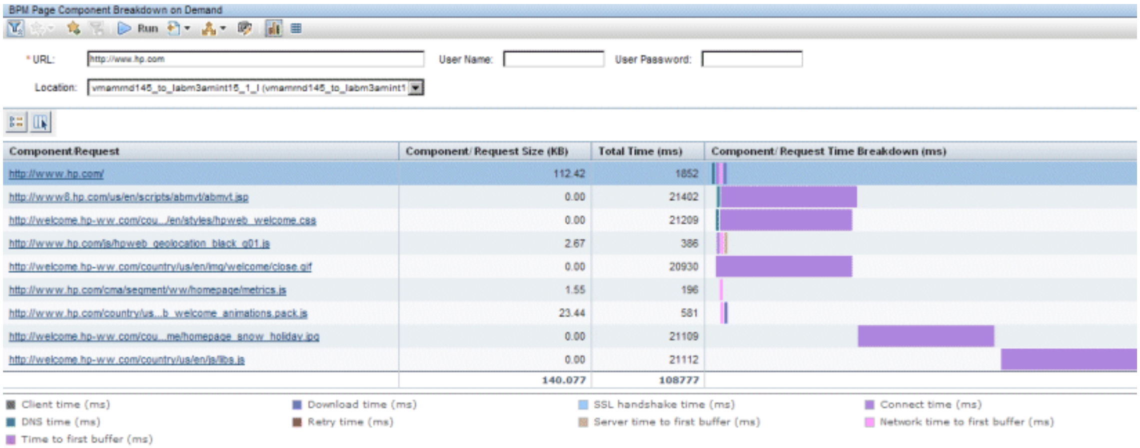
UI Element (A-Z)	Description
Hop IP	The hop IP address.
Hop Name	The hop name.
Hop Number	The sequential number of the hop.
No. of Retries	The number of retries for the hop.
Roundtrip Time	The roundtrip time in milliseconds.

BPM Page Component Breakdown on Demand

This report displays an on-demand component breakdown of any Web page.

You use the BPM Page Component Breakdown on Demand report to analyze network, server, and client health in real time. You correlate this data with transaction performance problems, such as slow transaction response times and failed transactions, to analyze whether they are network-, server-, or client-related.

The BPM Page Component Breakdown on Demand report enables you to assess whether transaction response times and service availability are being affected by page content.



To access	Select **Applications** > **End User Management** > **Utilities** > **BPM Page Component Breakdown on Demand**
Important information	Page Component Breakdown does not function for streaming objects, such as Java applets, sounds, and movies. This is because the engine that runs Page Component Breakdown uses technology that handles only those components that can be parsed directly from the HTML code (for example, images).

<table>
<tr>
<td>Report settings</td>
<td>
➤ URL. Enter an address for the target Web page. This can be:
  ➤ the name of a server on the local network
  ➤ a Web address
  ➤ the full URL for a page
➤ Location. Select the location from which you want the report to be generated. Each listed location represents a specific BPM instance, displayed using the syntax: location_name (host_name).
Note:
  ➤ By default, the Page Component Breakdown report can be generated from all configured BPM locations running BPM version 4.5.2 or later.
  ➤ If the selected BPM’s Web server requires authentication, you must configure the authentication user name and password in the BPM’s properties in EUM Administration. For user interface details, see "Edit Business Process Monitor Properties Dialog Box" on page 510.
➤ User Name. The user name for the target Web server, if authentication is required.
➤ User Password. The password for the target Web server, if authentication is required.
</td>
</tr>
</table>

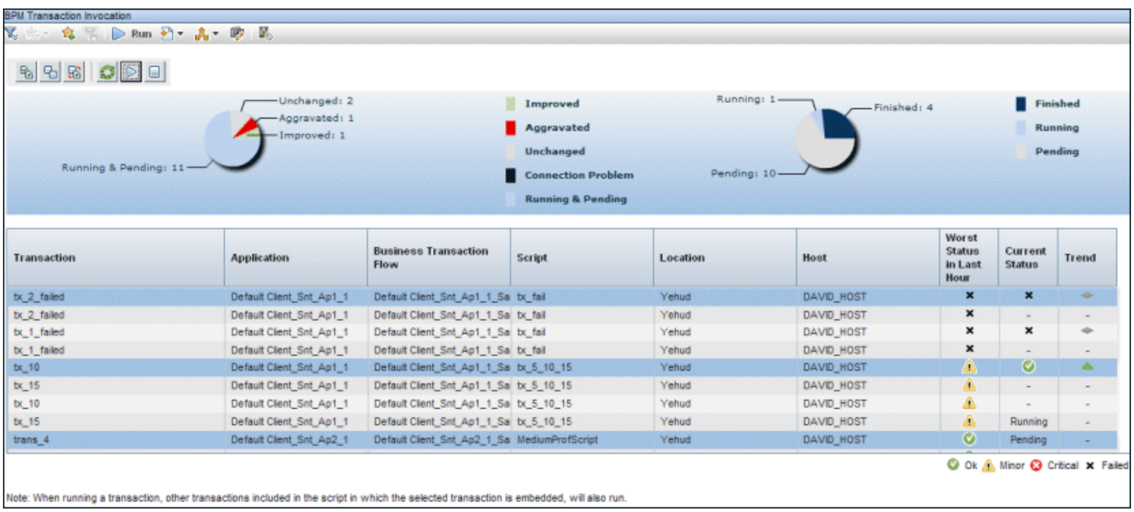
User interface elements are described below:

UI Element (A-Z)	Description
Component/Request	Displays the name of a component (for Web based breakdown data) or TCP request (for TCP based breakdown data). For Web based breakdown data, click a component name to view or open the component. **Tooltip:** For Web based breakdown data, the component's URL is displayed and, if the component is an image, the image is also displayed. **Note:** Click a component/request name to open it in a new browser window.
Component/Request Size (KB)	Displays the total size, in kilobytes, of the component or request.
Component/Request Time Breakdown (ms)	The color coded bar for each component/request is broken down into segments for each time category. For details on the breakdown categories used in the Page Component Breakdown report, see "Understanding Transaction Breakdown in Reports" on page 686. **Tooltip:** Hold the cursor over a color-coded portion of any bar in the graph to view the relevant category name and time. **Note:** ➤ Gaps in time between elements represent processing time—client-side delays caused by browser think time, CPU think time, HTML page processing time, time needed to open sockets or threads, and so on. ➤ In certain circumstances, for example, when the BPM is using a proxy server, the transaction breakdown mechanism cannot differentiate between server time to first buffer and network time to first buffer. In these cases, the report displays the time between initial HTTP request and receipt of first buffer as Time to First Buffer. ➤ When you view the breakdown as a table, there is a column for each breakdown category.

UI Element (A-Z)	Description
Error Message	Displays error information, if relevant. **Note:** This element is displayed only when you view the breakdown as a table.
Total Time (ms)	Displays the total time, in milliseconds, for the component (for Web based breakdown data–the time it takes for each component of a specified Web page to download) or request (for TCP breakdown data).

BPM Transaction Invocation

This report enables you to run selected BPM transactions immediately, as needed, without saving generated data to the profile database. This provides you with the possibility of checking changes made to transactions to ensure they run correctly, as well as obtaining transaction data on the spot.



To access	Select **Applications** > **End User Management** > **Utilities** > **BPM Transaction Invocation**
Important information	➤ When the report is generated, transactions are not run automatically. You must select transactions from the table and click the Run Selected Transactions button. ➤ The table of transactions is sorted in descending order, according to the **Worst Status in Last Hour** column. ➤ Transaction data generated by the BPM Transaction Invocation utility is not saved to the HP Business Service Management (BSM) profile database. ➤ When a transaction is run, all the other transactions included in the same script of which the selected transaction is a part are also run. ➤ Each host runs one transaction at a time. ➤ If the Web server of the host running a selected transaction requires authentication, you must configure the authentication user name and password in the host's properties in EUM Administration. For user interface details, see "Edit Business Process Monitor Properties Dialog Box" on page 510. ➤ You cannot format the report data as CSV, Excel, or XML.
Relevant tasks	"How to Configure Settings for the BPM Transaction Invocation Report" on page 1065
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
	**Refresh.** Refreshes the data displayed.
	**Run Selected Transactions.** Starts running the selected transactions. **Note:** Click a row in the table to select a transaction. Use the Shift or CTRL key to select multiple transactions.
	**Stop All Pending Transactions.** Stops all pending transactions from running. **Note:** Currently running transactions are not stopped.
<Pie chart–detailed>	The left pie chart displays trend details (that is, the change between the current status and the worst status in the last hour) for those transactions already run. Each slice represents a different trend. There is also a slice that shows the number of pending transactions. A legend next to the pie chart describes the color coding used. **Note:** The pie chart is dynamically updated during the transaction runs.
<Pie chart–summary>	The right pie chart displays details of the number of completed and running transactions. A legend next to the pie chart describes the color coding used. **Note:** The pie chart is dynamically updated during the transaction runs.
Application	The name of the application in which the transaction is included.
Business Transaction Flow	The name of the business transaction flow in which the transaction is included.

UI Element (A-Z)	Description
Current Status	The current status of the transaction, based on the thresholds configured for the transaction in EUM Administration. The valid statuses are: ➤ **Pending.** Selected and waiting to run. ➤ **Running.** Currently running. ➤ **OK.** The transaction ran successfully, with the measurement calculated for the KPI falling within the value range for the OK objective. ➤ **Minor.** The transaction ran successfully, with the measurement calculated for the KPI falling within the value range for the Minor objective. ➤ **Critical.** The transaction ran successfully, with the measurement calculated for the KPI falling within the value range for the Critical objective. ➤ **Failed.** The transaction did not run successfully.
Host	The name of the BPM host machine on which the transaction is run.
Location	The location from which the transaction is run.
Script	The name of the script in which the transaction is included.
Transaction	The name of the transaction.

UI Element (A-Z)	Description
Trend	Displays the trend of the change between the current status and the worst status in the last hour. The valid trend options are: ➤ **No available data.** ➤ **No Change.** The current status is the same as the worst status in the last hour. ➤ **Improved.** The current status is better than the worst status in the last hour. ➤ **Worse.** The current status is worse than the worst status in the last hour.
Worst Status in Last Hour	Displays the most severe status of the transaction during the last hour, based on the thresholds configured for the transaction in EUM Administration. The valid statuses are: ➤ **OK.** The transaction ran successfully, with the measurement calculated for the KPI falling within the value range for the OK objective. ➤ **Minor.** The transaction ran successfully, with the measurement calculated for the KPI falling within the value range for the Minor objective. ➤ **Critical.** The transaction ran successfully, with the measurement calculated for the KPI falling within the value range for the Critical objective. ➤ **Failed.** The transaction did not run successfully.

BPM WebTrace Report

This report displays typical traceroute information from selected BPMs to selected destinations, enabling you to view network performance that helps you analyze application performance issues. It also displays detected deviations, WebTrace details for each host/destination combination, worst locations, and worst destinations. You can drill down to view hop (routing) details.

For each server destination defined in a selected application, the BPM WebTrace report displays a traceroute analysis, grouped by host name, for the specified time frame. When you configure a WebTrace monitor, you select the host machines to run WebTrace. BSM runs WebTrace according to the schedule set in the application for running transaction monitors. When you generate the BPM WebTrace report, it displays an average of all the WebTrace runs that took place during the specified time period.

You can correlate WebTrace data with transaction performance problems, such as slow transaction response times and failed transactions, to analyze whether the problems are network related.

To access	Use one of the following: ➤ Select **Applications** > **End User Management** > **Utilities** > **BPM WebTrace Report** ➤ In the **Triage** report > **Transaction Breakdown** table, click the **Drill down to BPM WebTrace report** button.
Important information	BPM uses WebTrace data. WebTrace records the route through the Internet from your host machines to the destination Web servers specified in the BPM configuration for an application, or in business transaction flows. Unlike standard traceroute programs, WebTrace uses a unique technology that enables it to cross firewalls.

See also	"Analyzing the BPM WebTrace Report" on page 1062
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Detected Deviations Table

Displays the main WebTrace deviations detected during the report's selected time period and displays the destination or host location considered the most probable cause of the deviation.

Deviations are calculated by comparing the average route time and availability for each time division unit in the report with the total average route time or availability for the entire report time period. If a specific time division's average route time or availability is over 50% higher than the total report average, it is considered a deviation.

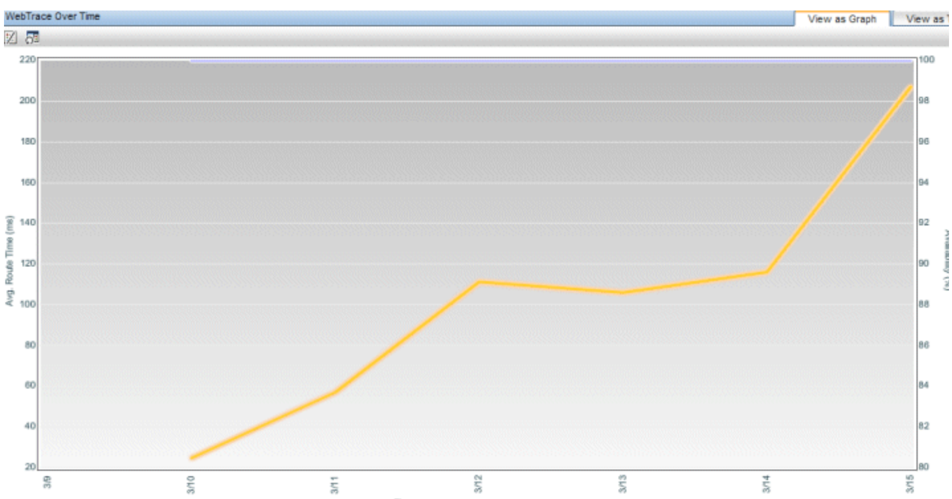
For any individual WebTrace included in a deviation's specific time division unit, whose route time or availability is over 50% higher than the total report average route time or availability, the location and destination are compared to the Worst Locations and Worst Destinations graphs. If the destination or location is included in the corresponding graph, it is considered to be the probable cause of the deviation. If there is more than one probable cause for the same deviation, the worst is used. Only those deviations for which there is a probable cause are displayed in the Detected Deviations table.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
Deviation	The type of deviation (performance or availability) and the destination or location considered to be the probable cause. **Tooltip:** Displays the full string, which may be truncated in the actual column.
Time	The deviation time period.

WebTrace Over Time Report

This report displays average route time and availability of WebTrace runs over a period of time.



User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
Drilldowns - Table View	
	"BPM Hop Report" on page 1068. Drills down to the BPM Hop report using a higher time resolution. For example, if you click a data point that displays data for an hour, the time resolution changes to five minute intervals for the specific hour. **Graph view:** Right-click a data point and select **Drill down to BPM Hop Report** from the Shortcut menu.
	"BPM WebTrace Report" on page 1082. Drills down to the BPM WebTrace report using a higher time resolution. For example, if you click a data point that displays data for an hour, the time resolution changes to five minute intervals for the specific hour. **Graph view:** Right-click a data point and select **Drill down to BPM WebTrace Report** from the Shortcut menu.
Graph Elements	
<X-axis>	**Time.** The time division units for the time range for which the report was generated.
<Y-axis> (left)	**Avg Route Time (ms).** The average route time, in milliseconds. A data line indicates the average route time, in milliseconds, of all the WebTraces run in the time division unit. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.
<Y-axis> (right)	**Availability (%).** The average availability percentage. A data line indicates the average availability percentage (successful WebTraces out of all WebTraces) of all the WebTraces run in the time division unit. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

WebTrace Details Table

This table displays details of each WebTrace included in the report.

Important information	By default, the table is sorted in descending order according to the worst (highest) average route time.

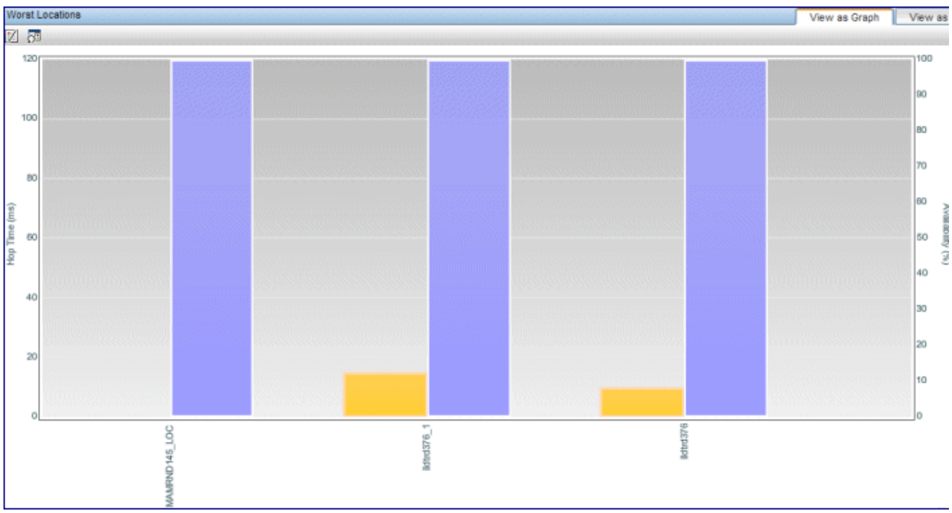
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
Drilldowns	
	"BPM Hop Report" on page 1068. Drills down to the BPM Hop report using a higher time resolution. For example, if you click a data point that displays data for an hour, the time resolution changes to five minute intervals for the specific hour.
	"BPM WebTrace Report" on page 1082. Drills down to the BPM WebTrace report using a higher time resolution. For example, if you click a data point that displays data for an hour, the time resolution changes to five minute intervals for the specific hour.
Report Columns	
Availability (%)	The availability percentage for the WebTrace. That is, the number of successful runs out of the total number of runs of the WebTrace, in the report's time range.
Avg. No. of Hops	The average number of hops of all the runs of the WebTrace in the report's time range.
Avg. No. of Retries	The average number of retries of all the runs of the WebTrace in the report's time range.
Avg. Route Time (ms)	The average route time, in milliseconds, of all the runs of the WebTrace in the report's time range. **Tooltip:** Hold the cursor over a cell to display a tooltip with additional information relevant to the data.
Destination	The WebTrace's destination.

UI Element (A-Z)	Description
Location	The host location from which the WebTrace ran.
No. of Runs	The total number of runs on the WebTrace in the report's time range.

Worst Destinations and Worst Locations Reports

These reports display the average hop time and availability percentage for the five destinations/locations with the worst average hop time (between the WebTrace location and destination) of all the WebTrace runs to/from that destination/location in the report's time range.



Important information	➤ If there is only one destination/location for all the WebTraces included in the BPM WebTrace report, the relevant report is not displayed. ➤ When viewed as a table, the reports are not limited to the five worst destinations/locations and include all destinations/locations. By default, the tables are sorted by average hop time, in descending order.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
Drilldowns - Table View	
	"BPM Hop Report" on page 1068. Drills down to the BPM Hop report for a selected destination/location. **Graph view:** Right-click a bar and select **Drill down to worst destination/location in BPM Hop Report** from the Shortcut menu.
	"BPM WebTrace Report" on page 1082. Drills down to the BPM WebTrace report for a selected destination/location. **Graph view:** Right-click a bar and select **Drill down to worst destination/location in BPM WebTrace Report** from the Shortcut menu.
Graph Elements	
<X-axis>	**<Destination/Location name>.** The name of the WebTrace destination/location.
<Y-axis> (left)	**Hop Time (ms).** The average hop time in milliseconds. Data bars indicate the average hop time in milliseconds. The average hop time is calculated by subtracting the previous hop round-trip time from the current hop round-trip time. (If the result is a negative value, the estimated hop time is calculated by dividing the hop round-trip time by the number of hops.) **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.
<Y-axis> (right)	**Availability %.** The average availability percentage. Data bars indicate the average availability percentage of all the Webtrace runs to/from the destination/location during the report's time period. That is, the number of successful WebTrace runs out of all the WebTrace runs. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

BPM WebTrace on Demand Report

WebTrace is a network diagnostics tool that provides traceroute information to a specified destination. WebTrace records the route through the Internet from a host machine to the destination Web server.

This report enables you to view network performance, which helps you analyze application performance issues. For each destination, the BPM WebTrace report breaks down route time from the host machine to the destination machine.

To access	Select **Applications** > **End User Management** > **Utilities** > **BPM WebTrace on Demand**
Important information	➤ BPM supports WebTrace over TCP, UDP, and ICMP. By default, it is set to use TCP. For details on changing the protocol, see "Changing the Communication Protocol Used by WebTrace" in the *Business Process Monitor Administration* PDF. ➤ BPM is set to access a maximum of 30 hops when using WebTrace to reach a site. If 30 hops are not enough to reach the site, it is reported as unreachable. For details on changing the maximum number of hops, see "Changing the Maximum Number of Hops for WebTrace" in the *Business Process Monitor Administration* PDF. ➤ The data collected by the WebTrace is not saved in BSM.
Report settings	➤ **Destination Host.** The destination Web or IPv4 address. ➤ **Location.** The BPM from which to run the WebTrace. Select a BPM from the list of BPMs registered in BSM. **Note:** If the selected BPM's Web server requires authentication, you must configure the authentication user name and password in the BPM's properties in EUM Administration. For user interface details, see "Edit Business Process Monitor Properties Dialog Box" on page 510.

User interface elements are described below:

UI Element (A-Z)	Description
Hop IP	The IP address of the intermediate server.
Hop Name	The name of the intermediate server.
Hop Number	The sequential number of the intermediate server in the route from the source to the destination.
No. of Retries	The number of times a data packet tries, but fails, to reach an intermediate server due to timeout, network difficulty, an so forth.
Round Trip Time (ms)	The time, in milliseconds, from the source to the specific hop.

12

EUM Alert Reports

This chapter includes:

Concepts

Tasks

Reference

Concepts

EUM Alert Reports Overview

The EUM alerts are triggered by the occurrence of predefined conditions. The alerts can be sent to recipients using a notification template. It can also execute files, open URLs, or open events.

In the Alerts application, reports provide information about the triggered EUM alerts. The reports are:

- **Alerts Log.** To track all alert details for alerts sent by HP Business Service Management (BSM), during the specified time range, for the selected Configuration Item (CI). For details, see "Alerts Log Report" on page 1103.
- **Alerts Count Over Time.** To view, for the selected CI, the number of alerts that occurred over the specified time range, organized by time and severity. For details, see "Alerts Count Over Time Report" on page 1098.
- **Alerts Count Summary.** To view, for the selected CI, the total number of alerts that occurred over the specified time range, organized by severity. For details, see "Alerts Count Summary Report" on page 1101.

In the End User Management alert administration, you can create and manage one or more alert schemes for a CI, using the Alert Wizard. In each alert scheme, you define a unique set of alert properties. For user interface details, see "Alert Wizard" on page 565.

Tasks

How to View and Understand EUM Alert Reports

BSM sends alerts according to the alert trigger criteria you specify when creating alert schemes. Every alert that BSM sends is logged to the database. You view information about the alerts that have been sent in Alert reports. For details on the alert reports, see "EUM Alert Reports User Interface" on page 1094.

For details on working with reports (choosing the time range, selecting the CI, saving and sharing reports, and so on), see "Working in Reports" in *Reports*.

For details on creating BSM alerts, see "EUM Alert Reports" on page 1091.

Reference

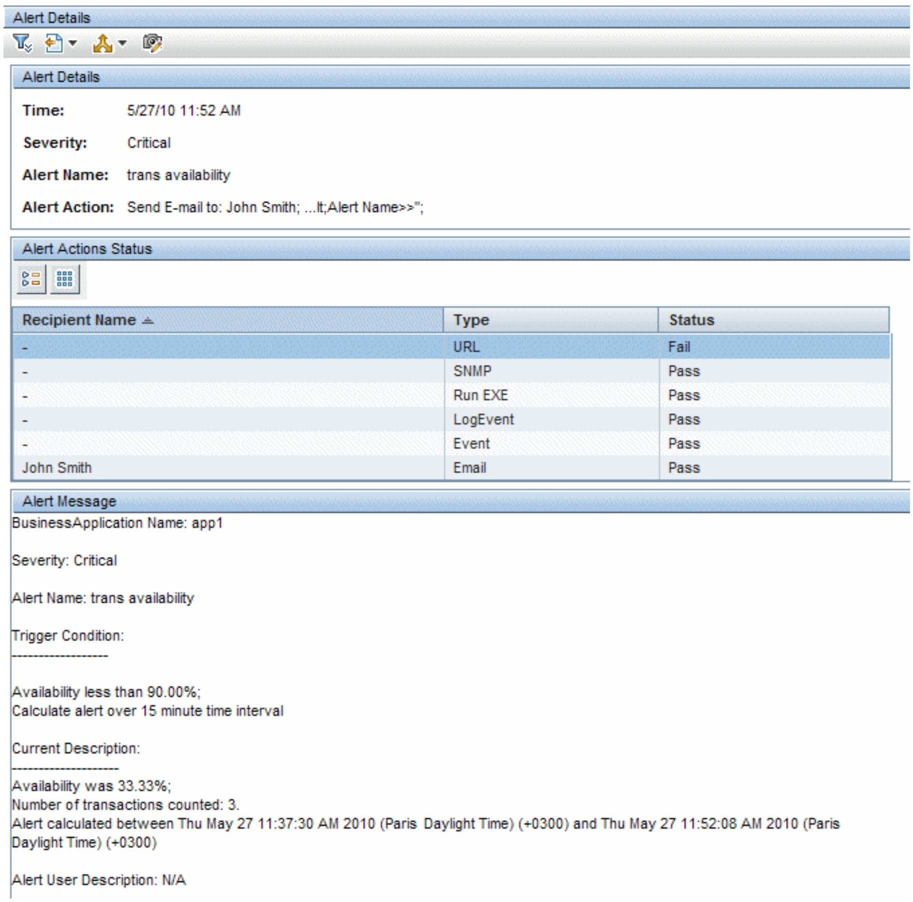
EUM Alert Reports User Interface

This section describes:

Alert Details

This page displays the triggering information that is available for the alert, including the actual conditions at the time of the alert.

The following is an example of the Alert Details report.



To access	Click in the Alerts Log report.
Important information	Displays details about the alert, such as the time it occurred, the severity, the action that was performed, the recipients of the alert notification, and the contents of the alert.

Report Settings

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element	Description
<Common report elements>	For user interface details, see "Common Report and Page Elements" in *Reports*.

Alert Details Area

User interface elements are described below:

UI Element	Description
Time	The time when the alert was triggered.
Severity	The severity of the alert.
Alert Name	The name of the alert.
Alert Action	The action triggered by the alert.

Alert Actions Status Area

User interface elements are described below:

UI Element (A-Z)	Description
<**Common report elements**>	For user interface details, see "Common Report and Page Elements" in *Reports*.
Recipients	The names of the recipients who receive the notification that the alert has been triggered and that the alert scheme has been executed.
Status	The status of the message: ➤ **Pass.** When the message has been sent. ➤ **Fail.** When the message was not sent.
Type	The type of message notification: URL, SNMP, Run EXE, LogEvent, Event. Email, SMS message, or Pager message.

Alert Messages Area

Important	➤ This area displays details about the notification message and the email message sent to the recipients when the alert was triggered. ➤ Depending on the definition of the alert, the report may display only a subset of the fields described in this section. For detailed examples of the message syntax and examples of the message for different message formats, see "Message Syntax" on page 359.

User interface elements are described below (unlabeled elements are shown in angle brackets):

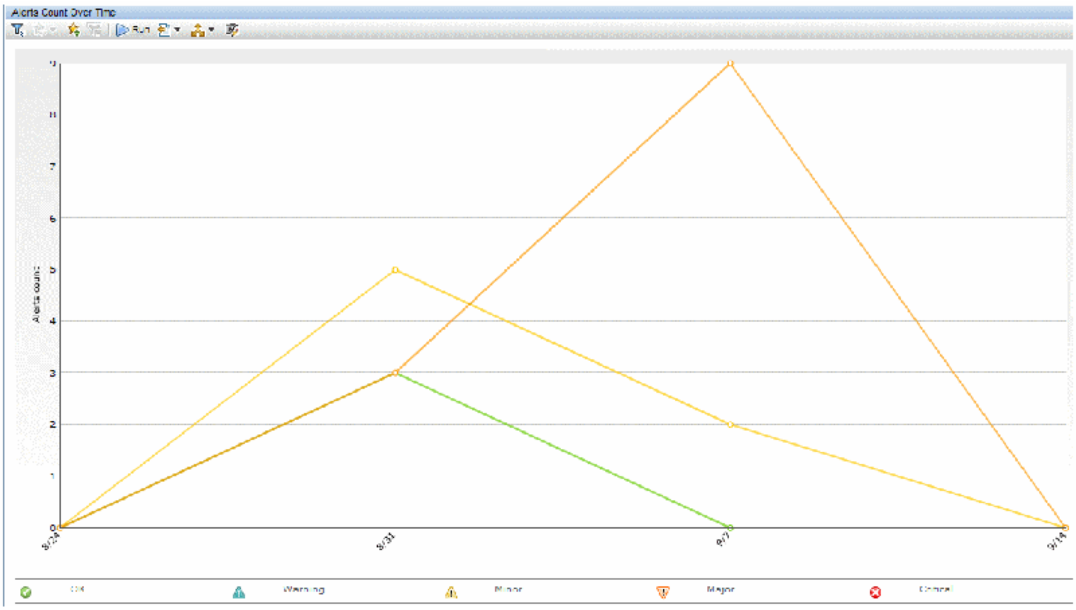
UI Element (A-Z)	Description
<BSM Web Site URL>	The URL of the server on which the alert was triggered.
<CIT> Name <CI>	The name of the CI Type (CIT) followed by the CI name. It corresponds to the CI to which the alert was assigned. **Example:** CI Type name: BusinessApplication and CI name: app1
Alert Name	The name of the alert.
Current Description	Details about the actual condition that triggered the alert.
Severity	The severity that triggered the alert.
Trigger Condition	Details about the triggering condition of the alert.

Alerts Count Over Time Report

This report enables you to display, for the selected CI, the severity, the alerts, or the recipients, the number of alerts that occurred over the specified time range, organized by time and severity.

For example, you can use this report to determine how often critical alerts are being sent.

The following is an example of the Alerts Count Over Time report.



To access	Select **Applications** > **End User Management** > **Alerts** > **Alert Count Over Time**
Relevant tasks	"How to View and Understand EUM Alert Reports" on page 1093

Report Settings

UI Element (A-Z)	Description
<Common report elements>	For user interface details, see "Common Report and Page Elements" in *Reports*.
<Filters>	Use the filters to restrict the display of alerts in the report. For details, see "Filters" on page 1105.

Graph Area

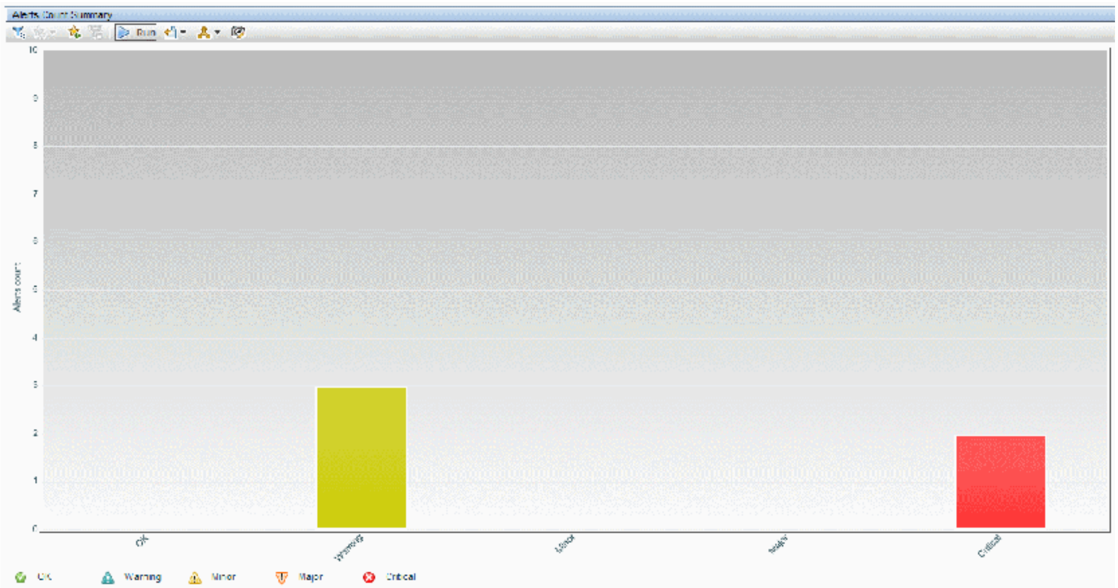
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Any point in graph>	Click any point in the graph to increase the time resolution for the selected Application CI, severity, alert, or recipient.
<Drilldown>	Click a point in the report to drill down to the time period for that point. You can continue drilling down until the **Every** field indicates 1 minute.
<Tooltip>	Move the mouse over any point in the report to view a tooltip containing details on the number of alerts corresponding to that point in time.

Alerts Count Summary Report

This report enables you to display, for the selected Application CI, the total number of alerts that occurred over the specified time range, organized by severity. For example, you can determine how often critical alerts are being sent.

The following is an example of the Alerts Count Summary report.



To access	Select **Applications** > **End User Management** > **Alerts** > **Alert Count Summary.**
Relevant tasks	"How to View and Understand EUM Alert Reports" on page 1093

Report Settings

UI Element (A-Z)	Description
<Common report elements>	For user interface details, see "Common Report and Page Elements" in *Reports*.
<Filters>	Use the filters to restrict the display of alerts in the report. For details, see "Filters" on page 1105.

Graph Area

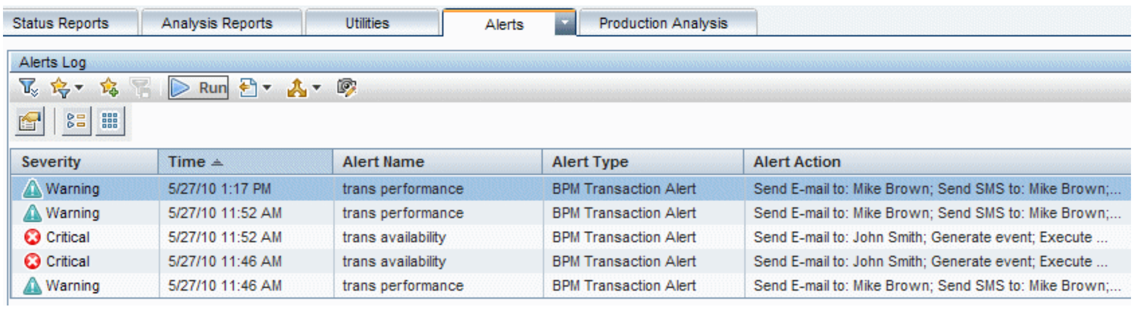
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A-Z)	Description
<Bar in graph>	Displays the total number of alerts that were triggered for the selected application and the selected time period, and for the severity represented by the bar.
<Drilldown>	Click a bar to drill down to the Alert Count Over Time report for the selected application, time period, and severity. For details, see "Alerts Count Over Time Report" on page 1098.
<Tooltip>	Move the pointer over a bar to view a tooltip containing details on the number of alerts with the severity corresponding to the bar.

Alerts Log Report

This report enables you to list the EUM alerts sent by BSM during the specified time range, for the selected application monitored by Business Process Monitors, or Real User Monitors, regardless of the action specified for the alert in the alert scheme and filter the alerts by CI, alert, severity, and recipient.

The following is an example of the Alerts Log report.



To access	Select **Applications** > **End User Management** > **Alerts** > **Alerts Log**.
Important information	The Alerts Log displays up to 200 entries per page.
Relevant tasks	"How to View and Understand EUM Alert Reports" on page 1093

Report Settings

UI Element (A-Z)	Description
<Common report elements>	For user interface details, see "Common Report and Page Elements" in *Reports*.
<Filters>	Use the filters to restrict the display of alerts in the report. For details, see "Filters" on page 1105.

Report Table Area

User interface elements are described below:

UI Element (A-Z)	Description
	Drills down to the Alert Details dialog box for the alert you selected in the report. For details, see "Alert Details" on page 1095.
<Common report elements>	For user interface details, see "Common Report and Page Elements" in *Reports*.
Alert Action	Displays alert notification information, for example, the recipients who received the alert. You specify alert recipients in your alert schemes.
Alert Name	Displays the alert name that you specified in your alert scheme.
Alert Type	The type of alert. It can be: ➤ **BPM Transaction** ➤ **RUM Application** ➤ **RUM Transaction** ➤ **RUM Event**
Severity	Displays an icon that represents the alert severity label you selected for the alert in the alert scheme. The severity is selected in "Filters" on page 1105.
Time	Displays the date and time that BSM logged the alert.

Filters

This section describes the filters used in:

- The Alerts Log Report. For details, see "Alerts Log Report" on page 1103.
- The Alerts Count over Time report. For details, see "Alerts Count Over Time Report" on page 1098.
- The Alerts Count Summary report. For details, see "Alerts Count Summary Report" on page 1101.

The filters are as follows:

Configuration Item Filter

This dialog box enables you to limit the display of the alerts to the selected CI.

User interface elements are described below (unlabeled elements are shown in angle brackets):

Alerts Filter

This dialog box enables you to limit the display of the alerts to the selected alerts.

Severity Filter

This dialog box enables you to limit the display of the alerts to alerts with the selected severities.

Recipients Filter

This dialog box enables you to limit the display of the alerts to alerts with the selected recipients.

13

Production Analysis Reports

This chapter includes:

Concepts

Tasks

Reference

Concepts

Production Analysis Reports Overview

Production Analysis reports enable quality assurance engineers to design load testing based on data leveraged from a production environment, rather than a testing environment. Using Production Analysis reports, the QA engineer can construct load testing that is based on real-user transaction data and which is therefore a more accurate simulation of load than standard Performance Center performance tests or LoadRunner load test scenarios. The Production Analysis reports thus increase the effectiveness of load testing and provide the QA team with more accurate test results.

To achieve this goal, the Production Analysis reports provide the following:

➤ Reports from which the QA engineer can extract real-user transaction data to be used in Performance Center performance tests

➤ The ability to create HP Virtual User Generator (VuGen) script templates, based on real-user activity. The VuGen scripts can also be used in Business Process Monitor (BPM).

Analyzing Production Analysis Reports

Use Production Analysis reports to pinpoint data that you want to use in your load testing.

This section includes the following topics:

➤ "Business Process Distribution Report" on page 1109

➤ "Typical Transaction Load Report" on page 1110

➤ "Location Load Analysis Report" on page 1111

Business Process Distribution Report

You use the Business Process Distribution report to pinpoint the Real User Monitor (RUM) transactions with the greatest number of runs and the highest session popularity, or those that were problematic in terms of response time and availability. You then use these transactions as the basis for creating VuGen scripts.

You can create VuGen scripts automatically for selected transactions directly from the Business Process Distribution report. In such instances, Business Service Management (BSM) selects, for each of the selected transactions, one session from all the sessions in which the transaction was included, according to the following criteria:

- The session must be fully captured (that is, snapshots of all the actions in the session were recorded).
- The session with the least number of errors.
- The session with the least number of actions.

You can also create VuGen scripts manually by selecting a transaction in the Business Process Distribution report and drilling down to the RUM Session Analyzer report to view the sessions in which the transaction was included. In the RUM Session Analyzer report, you select a session and, providing that the session was fully captured, create a VuGen script based on this session. For user interface details on the RUM Session Analyzer report, see "RUM Session Analyzer Report" on page 977.

Note: You can use the Business Process Distribution report in conjunction with the Typical Transaction Load report to ensure that the transactions you select reflect typical transaction behavior during the selected time period. For details of a use-case scenario describing the use of the Business Process Distribution report in conjunction with the Typical Transaction Load report, see "Use Production Analysis Reports – Use-Case Scenario" on page 1116.

For details on the Business Process Distribution report user interface, see "RUM Business Process Distribution Report" on page 1128.

Typical Transaction Load Report

You use the Typical Transaction Load report to view the average transaction load during a typical week, day, or hour. In general, you use the Typical Transaction Load report, and the ability to drill down within this report, to pinpoint the time frame you want to use for your load testing.

For example, you can view a typical week during the past month to determine the day with the greatest number of transaction runs, and then choose to run your load testing on that day. By drilling down to the specific day, you can see the typical load for each hour during the day to find the time range with the greatest load. You then use this time range for your load testing. You can also drill down to view the minutes during which transaction load was typically at its peak, however this data is less relevant for the construction of load testing than the typical daily and hourly data.

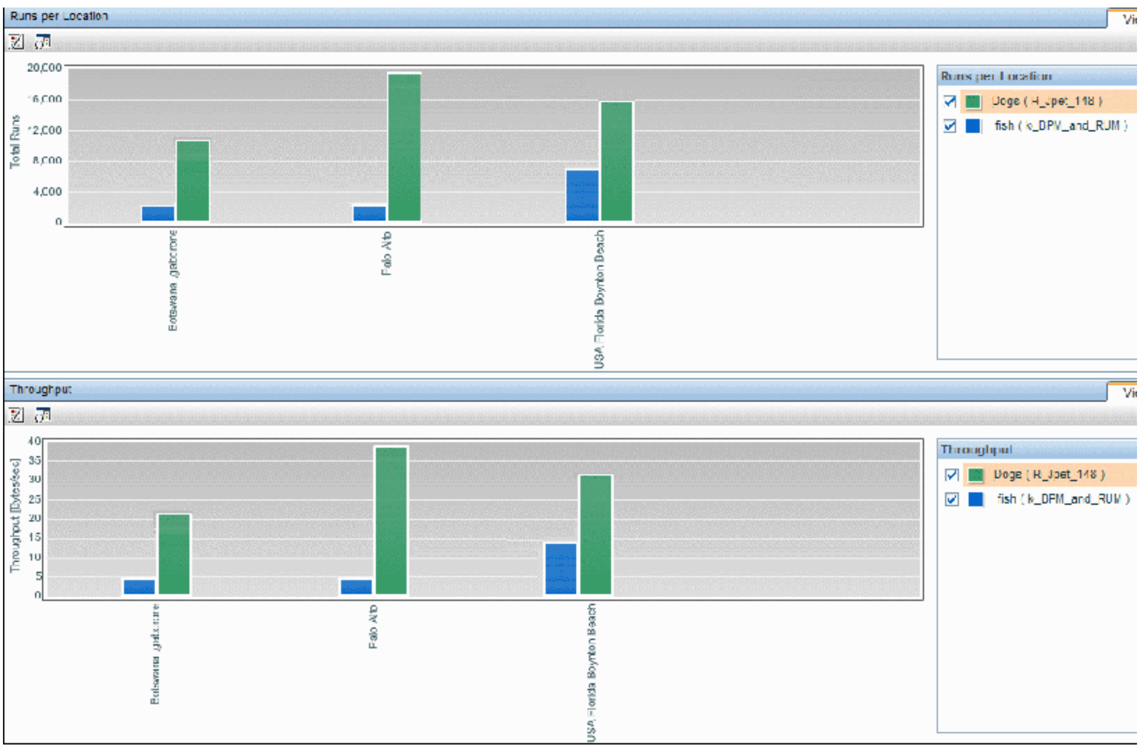
Note: You can also use this report in conjunction with the Business Process Distribution report to determine whether a large number of runs displayed for a transaction in the Business Process Distribution report is typical of the transaction's behavior during the selected time period. If the Typical Transaction Load report indicates that the transaction load displayed in the Business Process Distribution report is typical of the transaction's load during the selected time period, it is recommended that you use the transaction for your VuGen script. For details of a use-case scenario describing the use of the Business Process Distribution report in conjunction with the Typical Transaction Load report, see "Use Production Analysis Reports – Use-Case Scenario" on page 1116.

For details on the Typical Transaction Load report user interface, see "RUM Typical Transaction Load Report" on page 1136.

Location Load Analysis Report

You use the Location Load Analysis report to view the distribution of RUM transaction runs among end-user locations, as well as the throughput (bytes per second) of each transaction at each location, for a selected time frame. You then use the location data in selecting load generators, the transaction run data in distributing Vusers among load generators, and the throughput data in configuring each script's network speed simulation settings.

For example, if you selected to view location data for two transactions—**Dogs**, and **Fish**—during the past month, the Location Load Analysis report may display the following data:



Based on this report, you may choose to select load generators from one or more of the above locations when configuring your load testing. Your distribution of Vusers among the load generators would most likely be based on the distribution of transaction load (that is, the number of transaction runs being run) among the above locations.

In addition, you would use the throughput data in this report in configuring the Network: Speed Simulation VuGen run-time settings of the scripts that you are using for your load testing. For example, if you use a script based on the **Dogs** transaction and planned to run this script from two load generators—one located in Palo Alto and the other in Boynton Beach—you would do the following:

➤ Create two copies of the script.

➤ Set the custom bandwidth for the script being run from Palo Alto at 304 bits per second (throughput of 38 bytes per second multiplied by 8).

➤ Set the custom bandwidth for the script being run from Boynton Beach at 264 bits per second (throughput of 33 bytes per second multiplied by 8).

For details on configuring Production Analysis reports-generated scripts based on data from the Location Load Analysis report, see the **Set the Speed Simulation** step in "How to Refine A Script in VuGen" on page 1119. For details on the Location Load Analysis report user interface, see "RUM Location Load Analysis Report" on page 1133.

Tasks

How to Work with Production Analysis Reports

Working with Production Analysis reports involves performing the following procedures:

➤ "Configure Real User Monitor transactions and schedule the snapshot collection" on page 1113

➤ "Analyze Production Analysis reports" on page 1113

➤ "Refine scripts" on page 1114

➤ "Setup and run a performance test or load test scenario that includes the scripts" on page 1114

Tip: For a use-case scenario related to this task, see "Use Production Analysis Reports – Use-Case Scenario" on page 1116.

---

1 Configure Real User Monitor transactions and schedule the snapshot collection

Ensure that RUM transactions are defined and that transaction snapshots for the production analysis reports are configured.

For details on configuring RUM transactions, see "Business Transaction Real User Monitor Configuration Dialog Box" on page 329. For details on enabling transaction snapshots for the production analysis reports, see "Snapshot Collection Area" on page 388.

2 Analyze Production Analysis reports

In the Production Analysis reports, analyze production performance data, export the data you want to use when building load testing, select the real-user transactions and sessions you want to use in your VuGen scripts, and generate the scripts.

For concept details, see "Analyzing Production Analysis Reports" on page 1108.

For details on the user interface, see "Production Analysis Reports User Interface" on page 1128.

3 Refine scripts

In VuGen, adjust the scripts generated by Production Analysis reports for use in load testing.

For details on how to perform this task, see "How to Refine A Script in VuGen" on page 1119.

4 Setup and run a performance test or load test scenario that includes the scripts

In Performance Center or LoadRunner, set up and run a performance test or load test scenario that incorporates the scripts you created and refined, and that emulates the real-user behavior displayed in the Production Analysis reports.

For detailed instructions on working in Performance Center or LoadRunner, see the relevant Performance Center or LoadRunner documentation.

How to Generate a Script

You can generate scripts automatically from the RUM Business Process Distribution report, or manually from the Session Details report.

Tip: Save all your script templates in the same directory so that they are all easily accessible when constructing a Performance Center performance test.

To create a script automatically from the RUM Business Process Distribution report:

1. Generate the RUM Business Process Distribution report.
2. In the Summary table, select one or more transactions for which you want to create scripts.
3. Click the **Generate VuGen script templates** button and select whether to open or save the .zip file.
4. If you are saving the file, the Save As dialog box opens. Specify the path and file name to use and click **Save**.

Note:

- For each transaction, out of all the sessions in which the transaction was included, Business Service Management selects the session with the least number of errors, the least number of actions, and that was fully captured (that is, snapshots of all the actions in the session were recorded).
- For each transaction, a separate zip file is created which contains the session's actions.

For user interface details of the RUM Business Process Distribution report, see "RUM Business Process Distribution Report" on page 1128.

To create a script manually from the Session Details report:

1. Generate the Session Details report.
2. In the Actions table, click the **Session VuGen Script** button.

Note: The Session VuGen Script button is enabled only if snapshots have been made of all included actions in the relevant session (that is, the session in which the selected action is included).

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3. Select whether to open or save the .zip file. If you are saving the file, the Save As dialog box opens. Specify the path and file name to use and click **Save**.

For user interface details of the Session Details report, see "Session Details Report" on page 998.

Use Production Analysis Reports – Use-Case Scenario

This use-case scenario describes how Dan, the End User Management (EUM) administrator, uses all three Production Analysis reports to identify a popular transaction and create a meaningful Performance Center performance test based on it.

Note:

- This use-case scenario describes the generation of one script, based on one transaction, however a true use case typically includes several scripts, based on several different transactions.
- For a task related to this scenario, see "How to Work with Production Analysis Reports" on page 1113.

This scenario includes the following steps:

- "Analyze the Business Process Distribution report to identify a transaction" on page 1117
- "Analyze the transaction’s typical load" on page 1117

- "View the sessions in which the transaction occurred" on page 1118
- "Select a session and generate a VuGen script" on page 1118
- "Refine the script and create a performance test" on page 1119

1 Analyze the Business Process Distribution report to identify a transaction

Initially, Dan accesses the Business Process Distribution report to view data for the five transactions with the greatest number of run instances during the period of a week, from January 26, 2010 to February 2, 2010. The Business Process Distribution report shows that PAL_SearchTx was the transaction with the greatest number of runs—a total of 4,114 transaction runs—as well the most popular transaction (run in 18% of the sessions).

Application	Transaction	Total Runs	Net Time [sec]	Popularity[%]	Availability[%]
jpet	PAL_SearchTx	4,114	0.03	18%	100.00

2 Analyze the transaction's typical load

To verify that this data reflects the typical transaction load for the PAL_SearchTx transaction during this time period, Dan accesses the Typical Transaction Load report and views data for a typical week during the monthly period of January 2, 2010 to February 2, 2010. The Typical Transaction Load report shows that the average transaction load for the PAL_SearchTx transaction was indeed significant during this period of time.

Application ▲	Transaction	Sunday	Monday	Tuesday	Wednesday	Average
jpet	PAL_SearchTx	0	0	1,270	2,713	1,327

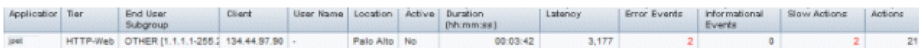
Dan then drills down further in the Typical Transaction Load report to discover the specific hours on Wednesday (the day with the greatest number of transaction runs) during which transaction load was typically at its peak.

Application ▲	Transaction	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	Average
jpet	PAL_SearchT:	0	544	440	266	131	1,300	450

The drilldown shows that the load was typically greatest at 9:00 AM, so Dan decides that he will later run his performance test at this hour. To be able to use this data as well as the average transaction run data later on, when configuring a performance test, Dan saves the report in .PDF format.

3 View the sessions in which the transaction occurred

Having received confirmation of the significance of the PAL_SearchTx transaction, Dan returns to the Business Process Distribution report to find the sessions in the which the transaction was run. To view the sessions in which PAL_SearchTx was run and a transaction snapshot was collected, Dan clicks the **View Sessions** button to drill down to the RUM Session Analyzer report.



Application	Tier	End User Subgroup	Client	User Name	Location	Active	Duration (hh:mm:ss)	Latency	Error Events	Informational Events	Slow Actions	Actions
jpet	HTTP-Web	OTHER [1.1.1.1-255.2	134.44.97.90	-	Palo Alto	No	00:03:42	3,177	2	0	2	21

4 Select a session and generate a VuGen script

After viewing error and action hit data for each displayed session, Dan selects to view details of a session with 2 error events, 2 slow actions, and 21 action hits. Dan clicks the **Drill down to Session Details** button to view details of the actions that were accessed as part of the session (with those included in the transaction highlighted).

Actions

There are 21 actions in the session with 21 frame units, of which 21 units are for the selected application.

Action	Start Time	Application	Events	Total Time (sec)	Server Time (sec)	Network Time (sec)	Client Time (sec)	Total Traffic (KB)	Has Snapsh
http://vmanmd121.devlab.ad:8180/rumwebconsole/	2/6/11 08:02:43 AM	jpet	-	0.00	0.00	0.00	0.00	1.1	No
http://vmanmd121.devlab.ad:...console/Login.do?method=view	2/6/11 08:02:44 AM	jpet	-	0.28	0.03	0.19	0.06	43.5	No
http://vmanmd121.devlab.ad:...sole/appframework/blank.html	2/6/11 08:02:49 AM	jpet	Request not found	0.01	0.01	0.00	0.00	2.0	Yes
http://vmanmd121.devlab.ad:...ppframework/PingToServer.jsp	2/6/11 08:02:49 AM	jpet	-	0.00	0.00	0.00	0.00	1.7	No

After viewing all of this data, Dan decides to use this session as the basis for a VuGen script and clicks the **Session VuGen Script** button on the Session Details page to create a script from the session.

5 Refine the script and create a performance test

To prepare additional data for the configuration of his performance test, Dan accesses the Location Load Analysis report and selects to view location data for the PAL_SearchTx transaction. The Location Load Analysis report shows that end users at three locations—Los Angeles, San Diego, and San Francisco—ran the PAL_SearchTx transaction.

	PAL_SearchTx	
Location	Throughput [Bytes/sec]	Total Runs
Los Angeles, California, USA	139	5,014
San Diego, California, USA	22	1,613
San Francisco, California, USA	670	614

To be able to use this data for his Performance Center performance test, Dan saves the Location Load Analysis report in .PDF format.

Based on this report, Dan decides to run the script he generates from three different load generators, each located at one of the above locations. To do so, the user creates three different copies of the script and sets the Network: Speed Simulation VuGen run-time settings for each script according to the throughput for the location from which the script is going to be run, multiplied by eight (for details, see "Set the Speed Simulation" on page 1122). Dan also bases his distribution of Vusers among the load generators on the distribution of total runs among the above locations. (For details on configuring performance tests, see "How to Configure and Run Load Testing" on page 1122.)

How to Refine A Script in VuGen

To use Production Analysis-generated scripts in a Performance Center performance test, you must first customize them using VuGen. For detailed instructions on working in VuGen, see *HP Virtual User Generator User's Guide*.

This task includes the following steps:

➤ "Parameterize Recorded Values" on page 1120

➤ "Correlate Recorded Values" on page 1121

➤ "Set the Speed Simulation" on page 1122

1 Parameterize Recorded Values

When you generate a script using Production Analysis, the script contains the actual end-user values that RUM recorded. To perform the script's actions (query, submit, and so on) using different values from those recorded by RUM, you must replace the values with parameters.

Example

Suppose you generated a script containing the following statement that searches a library's database for the title **UNIX**:

```
web_submit_form("db2net.exe",
        ITEMDATA,
        "name=library.TITLE",
        "value=UNIX",
        ENDITEM,
        "name=library.AUTHOR",
        "value=",
        ENDITEM,
        "name=library.SUBJECT",
        "value=",
        ENDITEM,
        LAST);
;
```

When you run this script in a Performance Center performance test, you do not want to repeatedly use the same value, **UNIX**. You therefore replace the constant value with a parameter:

```
web_submit_form("db2net.exe",
        ITEMDATA,
        "name=library.TITLE",
        "value={Book_Title}",
        ENDITEM,
        "name=library.AUTHOR",
        "value=",
        ENDITEM,
        "name=library.SUBJECT",
        "value=",
        ENDITEM,
        LAST);
```

When you run a performance test using a parameterized script, Vusers substitute the parameter with different values from a data source that you specify. The data source can be either a file or internally generated variables.

Note:

- ➤ You can parameterize complete strings or parts of strings.
- ➤ You can define more than one parameter for functions with multiple arguments (such as URLs, server names, and IP addresses).

2 Correlate Recorded Values

In addition to parameterizing the script you generated using Production Analysis, you may need to correlate certain statements within the script. Correlation allows you to link statements by using the results of one statement as input for another.

You correlate statements for one or both of the following reasons:

- ➤ To generate dynamic data – For example, if the RUM session from which you generated your script was identified by the date and time, when you try to replay a script of this session, it fails because the current time is different from the original recorded time. Only if you correlate the date and time can you save it as dynamic data and use it throughout the performance test or session step run.
- ➤ To accommodate unique data records – For example, if RUM recorded a session requiring the use of unique values, such as the process of opening a new bank account, replaying a script of the session fails because the recorded value already exists and cannot be recreated. Correlating the value enables you to create additional unique values—based on the recorded value—to be used throughout the performance test or session step run.

3 Set the Speed Simulation

You set the speed simulation for your Production Analysis-generated script based on data contained in the Location Load Analysis report.

a In VuGen, select **Vuser** > **Run-Time Settings** or click the **Run-Time Settings** button on the toolbar to open the Run-Time Settings dialog box.

b In the Run-Time Settings tree, select the **Network: Speed Simulation** node.

c Select **Use custom bandwidth** and specify the bit rate of the location from which you want to run the script, according to the throughput displayed for this location (for the transaction upon which the script is based) in the Location Load Analysis report multiplied by eight. For example, if the transaction upon which your script is based was run by a significant number of users in Los Angeles, California, you would specify the bit rate as the throughput displayed for Los Angeles in the Location Load Analysis report's Throughput graph, multiplied by eight.

Note: To run the same script from several different locations, you can save several copies of the script and assign each copy a custom bandwidth reflecting the throughput of a specific location, multiplied by eight. For details on assigning load generators to each copy of the script, see "How to Configure and Run Load Testing" on page 1122.

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d Click **OK** to apply the updated speed simulation settings.

How to Configure and Run Load Testing

This section describes how to configure and run Performance Center performance tests and LoadRunner load test scenarios that incorporate the scripts you created using Production Analysis and emulate the real-user behavior displayed in the Production Analysis reports.

This task includes the following steps:

➤ "Configure and Run a Performance Test in Performance Center That Incorporates Production Analysis-Generated Scripts" on page 1123

➤ "Configure and Run a Load Test Scenario in LoadRunner" on page 1125

1 Configure and Run a Performance Test in Performance Center That Incorporates Production Analysis-Generated Scripts

After you have refined your Production Analysis-generated scripts using VuGen, you can create a performance test in Performance Center that incorporates these scripts and emulates the real-user behavior displayed in the Production Analysis reports.

This section describes how to incorporate the Production Analysis-generated scripts and Production Analysis report data in designing a performance test. For detailed instructions on creating a performance test, see the *HP ALM Performance Center Guide*.

To incorporate Production Analysis-generated scripts in a performance test:

Refer to the task on how to upload VuGen scripts in the *HP ALM Performance Center Guide*.

To incorporate the Production Analysis report data in a performance test:

a Access the Business Process Distribution, Typical Transaction Load, and Location Load Analysis reports that you printed, emailed, or saved while working with the Production Analysis reports.

b In Performance Center, design and create a performance test. For details, refer to the task on how to design a performance test in the *HP ALM Performance Center Guide*.

c Distribute load generators among the Vuser groups in the performance test. Select one or more load generators to run each script, based on the location data in the Location Load Analysis report. For example, if the transaction upon which one of your scripts is based was run from Los Angeles, California, you would select one or more load generators located in Los Angeles to run this particular script. For details, refer to the task on how to distribute Vusers among Vuser groups in the *HP ALM Performance Center Guide*.

Note: Ensure that the Network: Speed Simulation run-time settings of each script are set to match the throughput specified in the Location Load Analysis report for the location from which the script is being run, multiplied by eight. For details on configuring Network: Speed Simulation run-time settings, see "Set the Speed Simulation" on page 1122.

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d Distribute the Vusers among the Vuser groups based on the distribution of transaction load among the locations displayed in the Location Load Analysis report, represented by the load generators you selected for each group. For example, if the transactions upon which your scripts are based were run from three locations and each location ran approximately one third of the transactions, you would distribute the Vusers evenly among the Vuser groups. For details, refer to the task on how to distribute Vusers among Vuser groups in the *HP ALM Performance Center Guide*.

e The overall number of Vusers for your performance test should be based on the average transaction run data in the Typical Transaction Load report. In specifying the number of Vusers to run, however, ensure that you take into account the difference in scaling between performance test and production environments.

f Design a set of Scheduler actions based on data in the Typical Transaction Load report. For example, if the Typical Transaction Load report showed that an average of 100 transactions were run at the beginning of the time period you selected to use for your performance test and 80 transactions were run at the end of this time period, you might configure your performance test to start 100 Vusers every hour and stop 80 Vusers every hour. Note, however, that you must take into account the difference in scaling between performance test and production environments. For details, refer to the task on how to define a schedule for a performance test in the *HP ALM Performance Center Guide*.

g Complete your performance test configuration and run the performance test. For details, refer to the task on how to manage a performance test run in the *HP ALM Performance Center Guide*.

2 Configure and Run a Load Test Scenario in LoadRunner

After you have refined your Production Analysis-generated scripts using VuGen, you can create a manual scenario in the LoadRunner Controller that incorporates these scripts and emulates the real-user behavior displayed in the Production Analysis reports.

This section describes how to incorporate the Production Analysis-generated scripts and Production Analysis report data in designing a manual scenario. For detailed instructions on creating a manual scenario, see the *HP LoadRunner Controller User's Guide*.

To incorporate Production Analysis-generated scripts in a load test scenario:

a In the New Scenario dialog box, choose **Manual Scenario**. Do not select the **Use the Percentage Mode** check box.

b Click the **Browse** button, navigate to the directory in which you saved the Production Analysis-generated scripts that you modified using VuGen, and select the scripts.

c Click the **Add** button to add the scripts to your scenario.

To incorporate the Production Analysis report data in a load test scenario:

a Access the Business Process Distribution, Typical Transaction Load, and Location Load Analysis reports that you printed, emailed, or saved while working with the Production Analysis reports.

b In LoadRunner, to the right of the Scenario Groups pane, click the **Add Group** button. Select a script you generated using Production Analysis and customized in VuGen. Select one or more load generators to run the script, based on the Location Load Analysis report's location data for the transaction upon which the script is based. For example, if the transaction upon which a script is based was run from Los Angeles, California, you would select one or more load generators located in Los Angeles to run this script.

Note: Ensure that the Network: Speed Simulation run-time settings of the script are set to match the throughput specified in the Location Load Analysis report for the location from which the script is being run, multiplied by eight. For details on configuring Network: Speed Simulation run-time settings, see "Set the Speed Simulation" on page 1122.

Select a quantity of Vusers for the group. Vusers should be distributed among Vuser groups based on the distribution of transaction load among the locations displayed in the Location Load Analysis report, represented by the load generators you selected for each group. For example, if the transactions upon which your scripts are based were run from three locations and each location ran approximately one third of the transactions, you would distribute the Vusers evenly among the Vuser groups.

The overall number of Vusers for your scenario should be based on the average transaction run data in the Typical Transaction Load report. In specifying the number of Vusers, however, ensure that you take into account the difference in scaling between load test scenario and production environments.

Note: You use the Add Group dialog box to add each Production Analysis-generated script you want to include in your scenario. Since each location requires specific script network run-time settings, each location requires its own unique script. For details on preparing a script to be run from each location, see "Set the Speed Simulation" on page 1122.

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c In the Schedule Builder, configure the Ramp Up and Ramp Down of Vusers based on data in the Typical Transaction Load report. For example, if the Typical Transaction Load report showed that an average of 100 transactions were run at the beginning of the time period you selected to use for your load test scenario and 80 transactions were run at the end of this time period, you might configure your load test scenario to start 100 Vusers every hour and stop 80 Vusers every hour. Note, however, that you must take into account the difference in scaling between load test scenario and production environments.

d Complete your scenario configuration and run the scenario from the Run tab of the Controller. For details on configuring and running a scenario, see the *HP LoadRunner Controller User's Guide*.

Reference

Production Analysis Reports User Interface

This section includes (in alphabetical order):

RUM Business Process Distribution Report

This report enables you to view transaction run and transaction response time data over time for configured transactions monitored by RUM. It also enables you to create VuGen script templates that can be used in a Performance Center performance test.

To access	Select **Applications** > **End User Management** > **Production Analysis** > **Business Process Distribution**
Important information	You can create VuGen script templates that can be used in a Performance Center performance test. You can create a VuGen script template in one of two ways: ➤ By instructing BSM to automatically generate a script template based on a session it selects. ➤ By manually selecting the specific session you want to include in your script template.
Relevant tasks	"Use Production Analysis Reports – Use-Case Scenario" on page 1116

See also	"Analyzing Production Analysis Reports" on page 1108
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **Show <nn> transactions <condition>.** Select and specify: ➤ **<nn>.** The number of real-user transactions you want the report to display. ➤ **<condition>.** Select one of the following: **with the greatest number of runs.** To display the real-user transactions that experienced the highest total number of run instances. **with the worst net times.** To display the real-user transactions that experienced the greatest overall transaction time. **with the highest session popularity.** To display the real-user transactions that were most popular among the sessions. Popularity is determined by dividing the number of unique sessions running a transaction by the total number of sessions. **with the lowest availability.** To display the real-user transactions that experienced the lowest transaction availability.

Summary Table

User interface elements are described below:

UI Element (A–Z)	Description
Drilldowns	
	**View Sessions.** Opens the RUM Session Analyzer report for a selected transaction, based on the total number of runs for the transaction as well as the transaction's session popularity (or net time/availability data). The RUM Session Analyzer report displays data for each session in which the selected transaction was run and for which full session snapshots were collected, as well as certain key statistic averages of all the displayed sessions. For user interface details, see "RUM Session Analyzer Report" on page 977.
Actions	
	**Generate VuGen script templates.** Automatically selects a session for each selected transaction and generates a VuGen script template based on this session. (Use the Shift or CTRL keys to select multiple transactions.) For each transaction, BSM selects the session with a combination of the greatest number of runs, the shortest duration, and the least number of errors. BSM then generates a VuGen script template based on each session. For each transaction, a separate zip file is created which contains the session's actions. If a session is not fully captured (that is, snapshots of all the actions in the session have not been recorded), the zip file contains only a log file with a message to that effect.

UI Element (A–Z)	Description
Report Columns (A-Z) Hold the cursor over a cell to display a tooltip with additional information relevant to the data.	
Application	The application with which the transaction is associated.
Availability (%)	The transaction's availability. **Note:** The color-coding of the column is based on the transaction's availability in relation to the transaction availability threshold you defined in EUM Administration.
BTF	The business transaction flow in which the transaction is included. **Note:** This column is hidden by default.
Net Time (sec)	The net time, in seconds, of the transaction (that is, server time + network time + client time of all the actions included in the transaction). **Note:** The color-coding of the column is based on the transaction's net time in relation to the transaction time threshold you defined in EUM Administration.
Popularity (%)	The percentage of unique sessions in which the transaction was run over the last day. **Note:** The popularity percentage is only shown if you generate the report for a time period that is not greater than 24 hours and that is in the last 2 weeks.
Total Runs	The total number of run instances for the transaction.
Transaction	The transaction name.

Transaction Runs Over Time Graph

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<X-axis>	**Time.** The time division units for the time range that you defined when generating the report.
<Y-axis>	**Runs.** The number of transaction runs. Data points indicate the number of transaction runs for each period of time. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

Transaction Net Time Over Time Graph

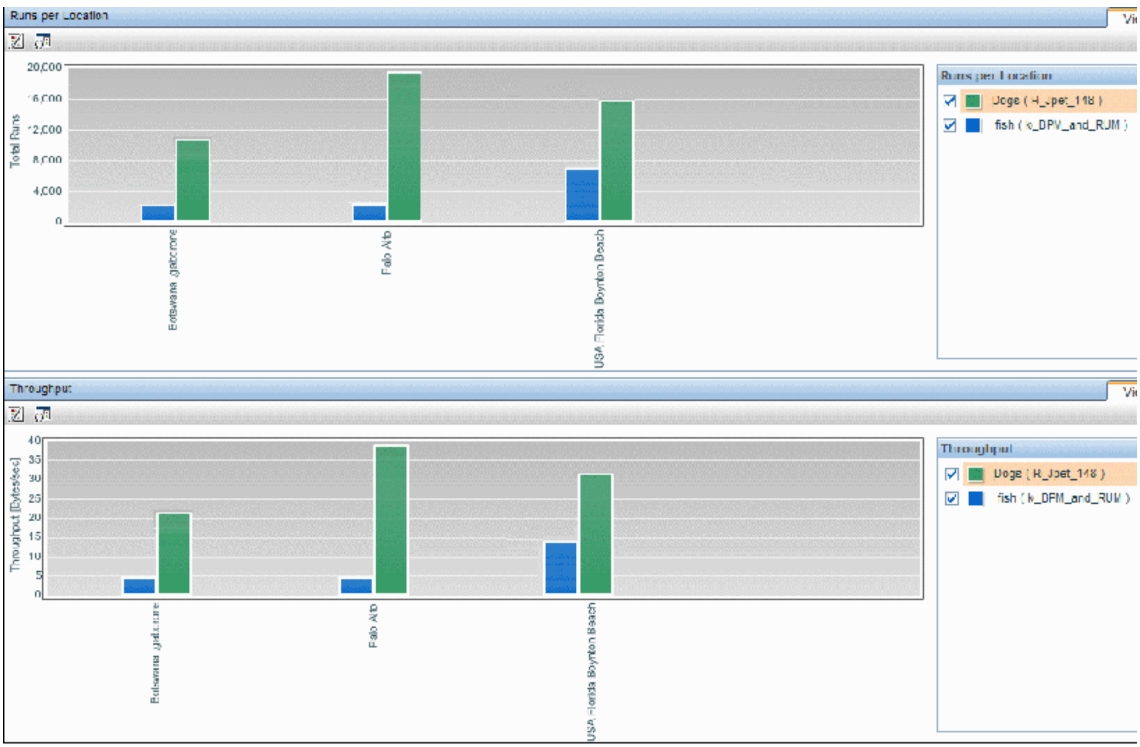
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<X-axis>	**Time.** The time division units for the time range that you defined when generating the report.
<Y-axis>	**Net Time (sec).** The transaction net time in seconds. Data points indicate the average transaction net time for each period of time. **Tooltip:** Hold the cursor over a data point to display a tooltip with additional information relevant to the data.

RUM Location Load Analysis Report

This report includes two components that enable you to view the transaction load (the number of RUM transaction runs) and throughput (bytes per second) per end-user location.

Use the data in this report in configuring Vusers and load generators for your Performance Center performance test, as well as the run-time settings for your Production Analysis reports-generated VuGen script.



To access	Select **Applications** > **End User Management** > **Production Analysis** > **RUM Location Load Analysis**
Important information	➤ When viewed as a table, each component includes both the total number of runs and the throughput for each location. ➤ When viewed as a table, the report is sorted in descending order by the total number of runs.
See also	"Analyzing Production Analysis Reports" on page 1108
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753.

Runs per Location

This report displays the total number of transaction runs for each location from which the selected transactions were run.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<**X-axis**>	**Location.** The locations at which the selected transactions were run.
<**Y-axis**>	**Total Runs.** The total number of runs of the selected transactions. Bars indicate the total number of runs for each location. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

Throughput

This report displays the throughput (bytes per second) for each location at which the selected transactions were run.

User interface elements are described below (unlabeled elements are shown in angle brackets):

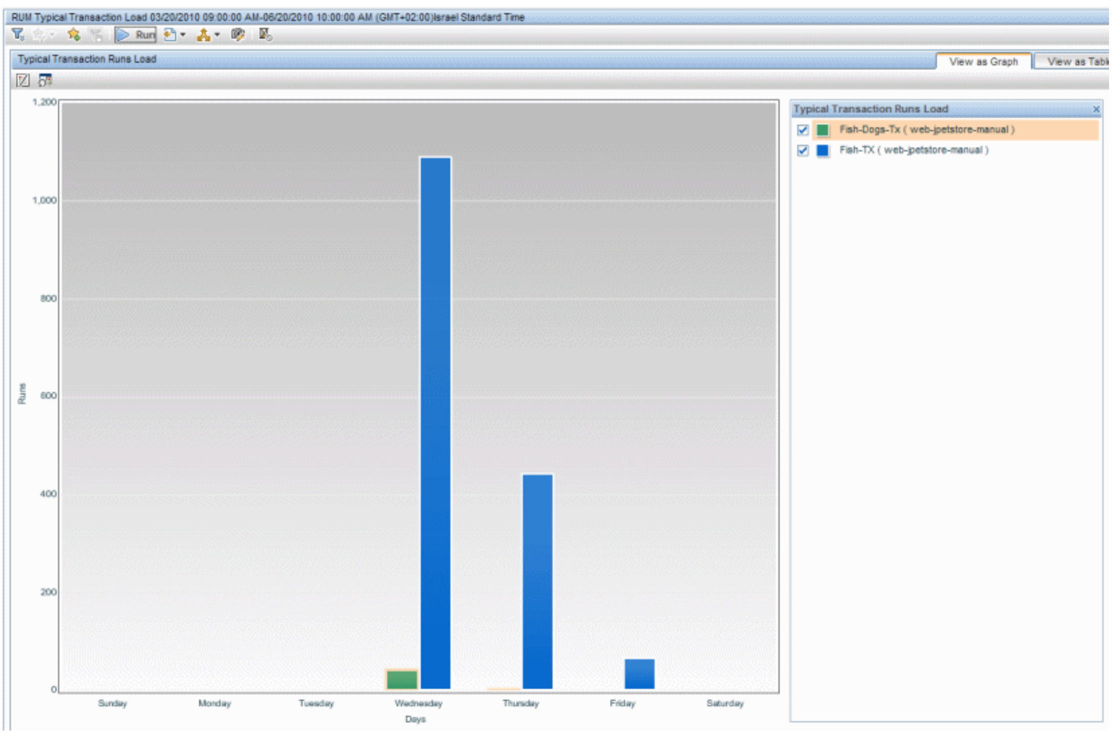
UI Element (A–Z)	Description
<X-axis>	**Location.** The locations at which the selected transactions were run.
<Y-axis>	**Throughput.** The transaction throughput (bytes per second). Bars indicate the total throughput for each location. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

RUM Typical Transaction Load Report

This report enables you to view the average transaction load (the number of RUM transaction runs) during a typical hour, day, or week within a larger time frame that you select. Use the data in this report to:

➤ View the typical load on your system during specific time frames, which can assist you in determining the time frame you want to use for your Performance Center performance test.

➤ Assist you, together with the data in the Business Process Distribution report, in selecting the transactions to include in your VuGen script templates.



To access	Select **Applications** > **End User Management** > **Production Analysis** > **RUM Typical Transaction Load**
Important information	The transaction runs for each subunit of time are an average of the transaction runs for all the occurrences of that subunit of time during the specified time frame. For example, if you choose to view a typical week during the period of a month, the average number of each of the selected transactions for each day in the week are displayed. The transaction runs listed for a specific transaction on Tuesday are an average of all that transaction's runs on Tuesdays over the course of the specified month.
See also	"Analyzing Production Analysis Reports" on page 1108
Report settings	➤ **Common report elements.** For user interface details, see "Common Report and Page Elements" in *Reports*. ➤ **Active filters.** For user interface details, see "Active Filters Dialog Box" on page 739. ➤ **Applications.** For user interface details, see "Applications Dialog Box" on page 753. ➤ **View a typical.** Select **Hour**, **Day**, or **Week**. ➤ **Working Days.** Click the **Working Days** link to open the Working Days dialog box, where you select the days of the week for which data is included in the report. **Note:** This link is only available when viewing a typical day or hour. ➤ **Working Hours.** Click the **Working Hours** link to open the Working Hours dialog box, where you select the hours of the day for which data is included in the report. **Note:** This link is only available when viewing a typical hour.

Report Content

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<Drilldown>	**Typical Transaction Load.** Right-click a bar to display a Shortcut menu and click **View a typical <time period>** to drill down to a component of the time period you selected in the **View a typical** field in report settings. For example, if you selected a typical week, click a day in the week to display the data for a typical day.
<X-axis>	**<Time period>.** The subunits of time for the unit selected in the **View a typical** field in report settings. For example, if you choose to view a typical week, the individual days of the week are displayed on the X-axis.
<Y-axis>	**Runs.** The number of transaction runs. Bars represent the number of transactions runs for each time period. **Tooltip:** Hold the cursor over a bar to display a tooltip with additional information relevant to the data.

14

Business Process Recognition

This chapter includes:

Concepts

Tasks

Reference

Concepts

Business Process Recognition Application Overview

Use the Business Process Recognition (BPR) application to extend the abilities of the Real User Monitor (RUM) solution by discovering business processes that can help you monitor what really matters.

The application uses a Web mining algorithm to discover frequently occurring process/transaction patterns in Web application tiers. Such patterns could indicate business processes. You can create actions and transactions for future monitoring by RUM directly from the BPR report.

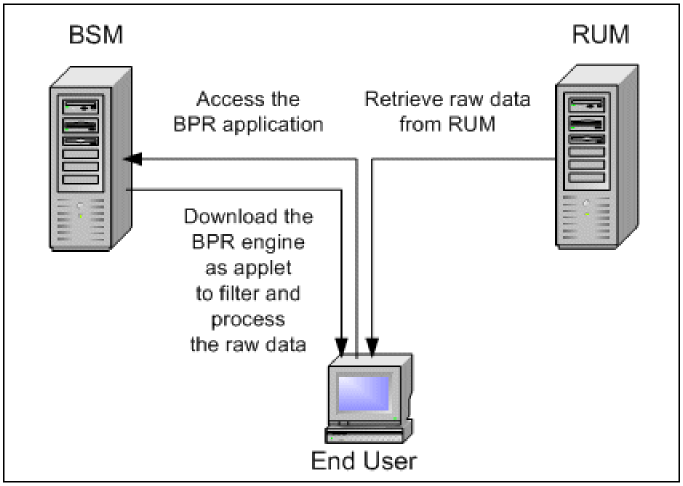
BPR works on RUM raw data (session click streams kept in the RUM MySQL database). This data is first processed into BPR format and then can be used as an input to the BPR reports applet that discovers business processes and other useful information.

Both the administration and the reports applets work in the context of the application Web tiers monitored by specific RUM engines.

For concept details on BPR architecture, see "Business Process Recognition Architecture" on page 1141.

For task details on working with BPR, see "How to Work with Business Process Recognition" on page 1142.

Business Process Recognition Architecture



The BPR process retrieves data from the RUM database at night. The data is then converted to reduce the data size.

After RUM sessions are exported into small size format, you can start to filter and manipulate the data. From this point, you can run the algorithm over and over again without affecting the RUM engine and database.

You can filter the data by the number of actions in the session. You can remove duplicate consecutive actions, ignore actions, include sessions that include specific actions, and so forth.

Tasks

How to Work with Business Process Recognition

This task describes the working order for configuring and running BPR.

This task includes the following steps:

- "Configure BPR task settings" on page 1142
- "Run the BPR task to convert Real User Monitor data to BPR data" on page 1143
- "Customize BPR - optional" on page 1144
- "Configure the BPR tool" on page 1144
- "Generate the BPR report" on page 1144
- "Results" on page 1145

1 Configure BPR task settings

You configure BPR task settings to manage the BPR processing task that converts RUM sessions data into the BPR format. The converted data can then be analyzed by the BPR tool.

To access the BPR Settings page, select **Applications** > **End User Management** > **Business Process Recognition** > **RUM Business Process Recognition Settings**. On the Business Process Recognition Settings page, you can configure the following:

- The RUM application whose data you want to process.
- The dates on which you want to process data. By default, you can process data for a maximum of 40 days.
- The processing method and URL ID settings. You can process data for the actions you have configured in End User Management (EUM) Administration, for all actions (by giving them a unique ID), or on both types of actions.

For user interface details, see "RUM Business Process Recognition Settings Page" on page 1153.

2 Run the BPR task to convert Real User Monitor data to BPR data

On the Business Process Recognition Settings page, you can select whether to run the BPR task as a scheduled process, or immediately.

When run as a scheduled process, data is accumulated at around midnight on the current day (for the current and past dates) or on the scheduled day (for future dates).

If you run the process immediately, data is gathered from the Real User Monitor engine files and the discovery is run on all the files that include data. The process may take a while and can also lower Real User Monitor performance during business hours. When run for the current day, the data used is valid only up to the time the process is run and not for the entire day.

Note: BPR tasks automatically stop after two hours of processing, whether or not they have completed, to avoid placing a heavy load on RUM resources. Tasks stopped before completion are marked as successful and are available for analysis, but only contain the RUM traffic up to the time they stopped and not for the entire date as configured.

For user interface details, see "RUM Business Process Recognition Settings Page" on page 1153.

3 Customize BPR - optional

In the Infrastructure Settings page (**Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**), you can customize a number of BPR settings, which apply to all users and all instances of BPR. Typically, you need only modify these settings once, if at all. You can modify:

- ➤ The default threshold settings for brownouts.
- ➤ The maximum number of exported days for each application.
- ➤ The maximum size of the results.

For task details, see "How to Customize Business Process Recognition" on page 1147.

4 Configure the BPR tool

Before generating the BPR report, you can configure the report settings to filter the data included in the report. You configure report settings in the Business Process Recognition Tool page (**Applications** > **End User Management** > **Business Process Recognition** > **RUM Business Process Recognition Tool**).

For task details, see "How to Configure the Business Process Recognition Tool" on page 1145.

5 Generate the BPR report

After you have set the report filters, click the **Generate** button on the Business Process Recognition Tool page. The applet downloads the Business Process Recognition data for the requested date range, filters the data according to the filters you set, and runs the data mining algorithm to find the business processes.

For user interface details, see "RUM Business Process Recognition Tool Page" on page 1156.

6 Results

A report is displayed showing the discovered business processes. You can display different aspects of the data by filtering the business processes according to selected actions and by grouping the actions in various ways. You can also configure the report display using the buttons in the report.

For user interface details, see "RUM Business Process Recognition Tool Page" on page 1156.

How to Configure the Business Process Recognition Tool

This task describes how to configure the BPR report settings to filter the data included in the report. You configure the report settings in the Business Process Recognition Tool page. To access the Business Process Recognition Tool page, select **Applications** > **End User Management** > **Business Process Recognition** > **RUM Business Process Recognition Tool** and then click the **Select Report Data** link.

For user interface details, see "Select Report Data Dialog Box" on page 1167.

Note: This task is part of a higher-level task. For details, see "How to Work with Business Process Recognition" on page 1142.

You can configure the following settings:

- "Select the application" on page 1146
- "Configure the minimum and maximum session length" on page 1146
- "Remove duplicate actions" on page 1146
- "Ignore selected actions" on page 1146
- "Include selected actions" on page 1146
- "Select the report date range" on page 1146
- "Configure popularity settings" on page 1147

Select the application

Select the RUM application whose data you want to analyze.

For user interface details, see "RUM Business Process Recognition Tool Page" on page 1156.

Configure the minimum and maximum session length

In the Sessions Filter area of the Select Report Data dialog box, configure the minimum and maximum session length to include in the report. That is, only sessions that include a minimum and maximum number of actions are included in the report.

Remove duplicate actions

In the Actions Filter area of the Select Report Data dialog box, configure the report to remove duplicate actions (for example, automatically refreshed pages).

Ignore selected actions

In the Actions Filter area of the Select Report Data dialog box, configure the report to ignore selected actions. For example, if your application pings the server regularly, the ping page has no business meaning and can be ignored.

Include selected actions

In the Sessions Filter area of the Select Report Data dialog box, configure the report to include sessions that contain specific actions. For example, if you would like to find out why users leave the site after a certain page, filter only sessions that include that page, so BPR can find the most common business processes which lead to leaving the application through this page.

Select the report date range

In the Date Filter area of the Select Report Data dialog box, select which dates you want to analyze (remember that first you have to process a date's data into BPR format using the administration applet).

Configure popularity settings

The quality of a business process is characterized by its length (number of actions) and its popularity. The popularity is defined by the percentage of sessions in which the sequence of actions that represents the business process is included.

In the Advanced Algorithm Setting dialog box, configure the mode used to determine popularity. Smart mode uses an automatic algorithm and manual mode uses maximum and minimum popularity levels that you configure.

For user interface details, see "Advanced Algorithm Settings Dialog Box" on page 1150.

How to Customize Business Process Recognition

You can customize some aspects of Business Process Recognition.

Note:

- The steps in the task are optional and can be performed in any order.
- Changed settings apply to all users and all instances of Business Process Recognition.
- This task is part of a higher-level task. For details, see "How to Work with Business Process Recognition" on page 1142.

The following steps describe customizing BPR:

➤ "Modify the Threshold Defaults for Brownouts" on page 1148

➤ "Modify the Maximum Number of Processing Days per Application" on page 1148

➤ "Modify the Number of Business Processes That Can be Displayed in the Main View" on page 1149

Modify the Threshold Defaults for Brownouts

To modify the default threshold settings for brownouts, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**:

➤ Select **Applications**.

➤ Select **Business Process Recognition**.

➤ In the **Business Process Recognition - Brownout Settings** table, locate the **Critical threshold**, **Major threshold**, **Minor threshold**, and **Warning threshold** entries. Modify their values as required.

Modify the Maximum Number of Processing Days per Application

To modify the maximum number of processing days per application, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**:

➤ Select **Applications**.

➤ Select **Business Process Recognition**.

➤ In the **Business Process Recognition - Advanced Settings** table, locate **Maximum export days**. Modify the value of this entry as required. The default setting is 40.

Modify the Number of Business Processes That Can be Displayed in the Main View

To modify the number of business processes that can be displayed in the main view of the Business Process Recognition Tool, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**:

- ➤ Select **Applications**.
- ➤ Select **Business Process Recognition**.
- ➤ In the **Business Process Recognition - Advanced Settings** table, locate **Maximum results size**. Modify the value of this entry as required. The default setting is 100.

Reference

Business Process Recognition User Interface

This section includes (in alphabetical order):

Advanced Algorithm Settings Dialog Box

This dialog box enables you to specify if you want to find business processes, by their popularity level automatically using an algorithm, or manually.

To access	Select **Application** > **End User Management** > **Business Process Recognition** > **RUM Business Process Recognition Tool**. Click the **Select Report Data** link, then click the **Advanced Algorithm Settings** button.
Important information	The quality of a business process is characterized by its length (number of actions) and its popularity. The popularity is defined by the percentage of sessions in which the sequence of actions that represents the business process is included.

User interface elements are described below:

UI Element	Description
Manual mode	**Manual mode.** Select this radio button to manually set the algorithm parameters.
	Popularity level. Select the minimum and maximum popularity levels. **Default value:** Minimum 5%; Maximum 90%
	Business Process length. Specify the minimum and maximum number of actions in the business process. **Default value:** Minimum 2; Maximum 5

UI Element	Description
Smart mode	**Smart mode.** Select this radio button to make the HP mining algorithm run in smart mode. Smart mode automatically runs the algorithm with a high popularity level. It then checks the results and decides one of the following: ➤ lower the popularity level and run the algorithm again. ➤ stop the process (when more than 20 results have been discovered) and return the results to the user. This enables you to display the most popular business processes. You can define the initial popularity level to shorten the running time needed for getting the result. For example, if you know (from prior runs) that the maximum popularity level is 25%, set the default at 25% and avoid waiting till the smart mode processes down to this range.
	Popularity maximum level. Select the highest popularity level that interests you and from which the Smart mode should start identifying business processes. **Default value:** 90%
	Minimal length. Specify the minimum number of actions in a business process. **Default value:** 5
Restore	Click the **Restore** button to restore all default values.

RUM Business Process Recognition Settings Page

This page enables you to manage the processing task and to configure how exactly to process Real User Monitor sessions data.

To access	Select **Application** > **End User Management** > **Business Process Recognition** > **RUM Business Process Recognition Settings**
Important information	**Limitation:** For each application you can process only 40 days. The current status appears in the upper right corner of the month view (for example: 20 out of 40 export days in use). When reaching the quota of 40 days, clean some of existing dates to enable defining more dates. This value is customizable. For details, see "Modify the Maximum Number of Processing Days per Application" on page 1148.
Relevant tasks	"How to Work with Business Process Recognition" on page 1142

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
	Cancels the processing tasks that were assigned to the selected dates.
	Clears the processed data that exists for the selected dates. This date becomes available for reprocessing.

UI Element (A–Z)	Description
	Activates the processing tasks immediately. **Note:** ➤ The process may take a while, and can also lower Real User Monitor performance during business hours. ➤ The task processes each date one day at a time. The processing task takes time and depends on the amount of session click streams for the selected data and on the availability of the Real User Monitor engine. ➤ This operation is not recommended for day to day use, except for testing or troubleshooting purposes. It is recommended, instead, to use the scheduled processing option.
	Schedules a processing task for the dates you selected. You can select a range of dates and apply the selected schedule for the range. **Note:** This operation only schedules a future task for the Real User Monitor engine.
	**Refresh.** Updates the calendar view to show when the operation started at the time you clicked the  button for the immediate activation of processing tasks.
<Legend>	The legend describes the meaning of the possible colors of the cells in the calendar.
Application	Select the Real User Monitor application. **Note:** Applications are displayed in the following format: Application name (Tier name / RUM engine)

UI Element (A–Z)	Description
Clear downloaded data from local client machine	Select to remove the data downloaded from the Real User Monitor server from the local Client machine. Clear the option to save the data downloaded from the Real User Monitor server on the local Client machine after you close the session. **Note:** If you remove the downloaded data from the local Client machine, the next time you generate the report Business Process Recognition downloads the necessary data from Real User Monitor, which lengthens the total processing time.
Next Month with Data	Displays the next month, if it includes data. If the next month does not include data, the month after that is displayed, if it includes data, and so forth.
Previous Month with Data	Displays the previous month, if it includes data. If the previous month does not include data, the month before that is displayed, if it includes data, and so forth.
URL ID Setting	Opens the URL ID Settings dialog box. For details on the user interface, see "URL ID Settings Dialog Box" on page 1171.

RUM Business Process Recognition Tool Page

This page helps you discover frequently used processes/transactions patterns that might represent business processes. Also generates and displays multiple reports that provide data about the discovered business processes, simultaneously. Each tab on the application displays a different business process report.

To access	Select **Application** > **End User Management** > **Business Process Recognition** > **RUM Business Process Recognition Tool**
Important information	➤ You can close a tab (report), print it, save it, rename it, and create a new tab. ➤ Only the first 100 business processes are displayed. ➤ For more information about the Business Process Recognition, see "Business Process Recognition Application Overview" on page 1140. ➤ **Customization:** You can customize the number of business processes that can be displayed. For details, see "Modify the Number of Business Processes That Can be Displayed in the Main View" on page 1149.
Relevant tasks	➤ "How to Work with Business Process Recognition" on page 1142 ➤ "How to Configure the Business Process Recognition Tool" on page 1145

User interface elements are described below:

UI Element (A–Z)	Description
	**New.** Creates a new Business Process Recognition report. A new tab is created in the page. **Note:** A maximum of 10 tabs (new or existing) can be open at any one time.
	**Open.** Opens an existing Business Process Recognition report. For example, use this option to open a report that was sent to you. **Note:** A maximum of 10 tabs (new or existing) can be open at any one time.
	**Print.** Prints the report.
	**Save.** Saves the changes.

Business Process Recognition Filter Area

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Generate	Generates a report.
<Tabs>	Each discovered business process report is displayed on a separate tab. A new tab is created with a default name when you click **New**. Right-click the tab to display the following options: ➤ **Rename.** Opens the Rename dialog box where you can change the name of the tab. ➤ **Close.** Closes the current tab. ➤ **Close All Other Tabs.** Closes all tabs except the current one. ➤ **Close All.** Closes all the tabs. ➤ **New.** Creates a new tab.
Applications	Select the Real User Monitor application. Information about the date and the size of the data that was imported when you generated the report is displayed on the right of the Applications box. **Example:** Date:May 9, 2007-May 9, 2007, Session size:5-200 **Note:** Applications are displayed in the following format: Application name (Tier name / RUM engine)
Select Report Data	Opens the Select Report Data dialog box where you can select the data on which the report is based. For details, see "Select Report Data Dialog Box" on page 1167.

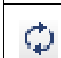
Results Area

By default, in each tab the business processes are not grouped and each process is displayed separately.

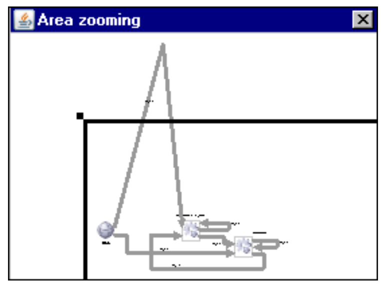
You can then filter the actions, group or ungroup actions, and select buttons to display different aspects of the data.

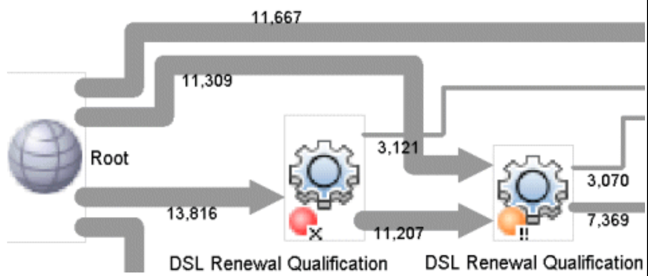
Important information	Using the buttons and options available on this panel, you modify how you display the report (without changing the actual contents). You can adjust the business process display so that each business process is displayed separately even if it has a shared page with other business processes. You can also select to display business processes that include specific actions. You can: ➤ Show only business processes with specified actions. ➤ Group actions (aggregate business processes to find the common paths between them). ➤ Ungroup actions (view each business process separately).

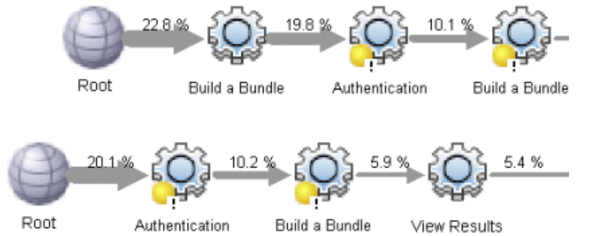
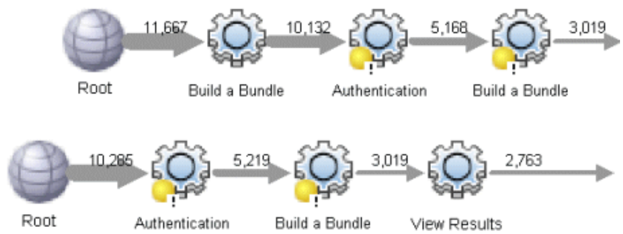
User interface elements are described below:

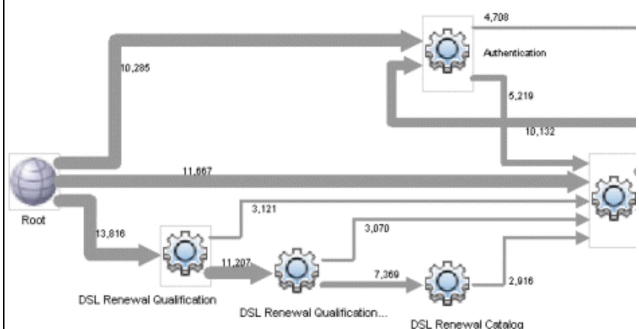
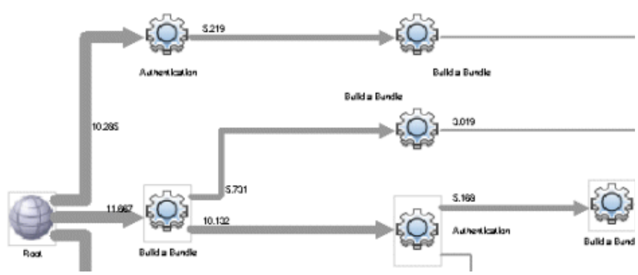
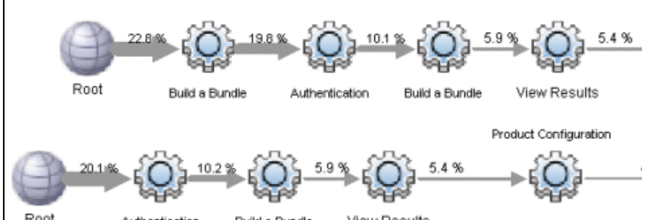
UI Element (A–Z)	Description
	**Configured action.** This icon represents an action included in a discovered business process that you have already configured for monitoring by RUM in EUM Administration.
	**Unconfigured action.** This icon represents an action included in a discovered business process that you have not yet configured for monitoring by RUM in EUM Administration.
	**Layout current graph view.** Returns the graph to the original layout. The layout displays the percentage of participation of an action compared to the total number of sessions of the business process.

UI Element (A–Z)	Description
	**Running info.** Displays the current report raw data information (sessions include, average session size and more). For details, see "Running Info Page" on page 1167.
	**Define action.** Opens the Real User Monitor Application <Actions> page in a new window, where you can add and define a new action for an application. When you access the New Action dialog box from the Real User Monitor Application <Actions> page, the selected action's description or URL, attributes, and parameters are automatically entered in the dialog box. For user interface details, see "<Action> Dialog Box" on page 310. **Note:** The Define Action button is enabled only for selected actions that are not yet defined in EUM Administration.
	**Define transaction.** Opens the Define Transaction dialog box, where you can create a transaction that includes the selected actions. The transaction is saved for the application in EUM. When creating the transaction, you specify the transaction name and can also change the order of the selected actions. **Note:** ➤ You can only include defined actions (that is, actions that are already configured for the application in EUM. ➤ Apart from the transaction name and the order of the actions within the transaction, the transaction is created with default configuration values. You can edit the transaction configuration in EUM. For user interface details, see "Business Transaction Real User Monitor Configuration Page" on page 330.
	**Fit to canvas.** Fits the complete view in the window. If, for example, you have enlarged the view in such a way that it does not fit in the window, click the button, to shrink the graph so that it fits in the window.

UI Element (A–Z)	Description
	**Select.** Selects actions and drag them to the required location. To curve a link, click the button, click the link where you want to give it a curve, and drag until you obtain the right curve.
	**Area zooming.** Opens a small window in which you can drag the rectangle, to magnify the corresponding area in the main view. 
	**Pan.** Enables you to click and then drag the graph to shift the location of the complete graph in the main view.
	**Zoom.** Enables you to click the graph in the main view and to move the cursor up to shrink the graph, and down to enlarge the graph.
	**Show min/max support levels in path.** Toggles the display of the minimum and maximum number of flows that include the action.

UI Element (A–Z)	Description
	**Show brownouts.** Displays the percentage of brownout for the actions (an action is considered as a brownout when the incoming traffic is larger than the outgoing traffic. **Example:** The incoming traffic is 75% while the outgoing traffic is 35%).  The colors of the brownout levels are as follows: ➤ **Green.** 0%-25% (Normal) ➤ **Yellow.** 25% - 35% (Minor) ➤ **Light olive.** 35% - 55% (Warning) ➤ **Orange.** 55% - 75% (Major) ➤ **Red.** 75% - 100% (Critical) **Customization:** You can change the threshold values. For details, see "How to Customize Business Process Recognition" on page 1147.

UI Element (A–Z)	Description
	**Show hits/percent support levels in path.** Toggles the display to show: ➤ Percentage values:  ➤ Accurate values:  **Default value:** The diagram is initially displayed with percentage values. **Note:** This button is enabled only when you do not group the results (that is, when you select the **Do not group** radio button).

UI Element (A–Z)	Description
Group by:	Select: ➤ **Identical linked actions.** Superimposes identical actions that have links to identical actions and superimposes the links.  ➤ **Identical actions.** Creates a separate path for each link to a different action or when the percentage of links to the same action is different for different business processes. Similar actions are displayed one under the other so you can see each link separately.  ➤ **Do not group.** Shows each business process individually. 

UI Element (A–Z)	Description
View Business Processes Containing Actions	Select to open the Select actions dialog box where you can select the actions you want to display. The dialog box displays all the actions that are displayed in the graph in the Results area. For details on the user interface, see "Select Actions Dialog Box" on page 1170.

Displayed Business Process Actions Area

This area shows details on all the actions that were discovered during the Business Process Recognition process and that appear in the graph.

Important information	Right-click a row to display a Shortcut menu with the following options for the selected actions: **Define action.** Opens the Real User Monitor Application <Actions> page in a new window, where you can add and define a new action for an application. When you access the New Action dialog box from the Real User Monitor Application <Actions> page, the selected action's description or URL, attributes, and parameters are automatically entered in the dialog box. For user interface details, see "<Action> Dialog Box" on page 310. **Note:** The Define Action button is enabled only for selected actions that are not yet defined in EUM Administration. **Define transaction.** Opens the Define Transaction dialog box, where you can create a transaction that includes the selected actions. The transaction is saved for the application in EUM. When creating the transaction, you specify the transaction name and can also change the order of the selected actions. **Note:** ➤ You can only include defined actions (that is, actions that are already configured for the application in EUM. ➤ Apart from the transaction name and the order of the actions within the transaction, the transaction is created with default configuration values. You can edit the transaction configuration in EUM. For user interface details, see "Business Transaction Real User Monitor Configuration Page" on page 330.

User interface elements are described below:

UI Element (A–Z)	Description
Max Popularity	Displays the highest number of times the action was included in any of the discovered business processes.
Min Popularity	Displays the least number of times the action was included in any of the discovered business processes.
Nbr. of Business Processes Using the Action	The number of discovered business processes in which this action is included.
Action Name	The unique action ID or the name of the action.

Running Info Page

This page displays raw data information about the report and about the algorithm parameters that were used to run the report.

To access	Click the button in the Business Process Recognition Tool page.

Select Report Data Dialog Box

This dialog box enables you to select the data to be analyzed for business processes.

To access	Click **Select Report Data** in the Business Process Recognition Tool page.
Relevant tasks	➤ "How to Work with Business Process Recognition" on page 1142 ➤ "How to Configure the Business Process Recognition Tool" on page 1145

Actions Filter Area

User interface elements are described below:

UI Element (A–Z)	Description
Ignore selected actions	Lists the actions that you selected to filter out in the Select Actions dialog box.
Remove consecutive duplicate actions	Select to ignore multiple consecutive instances of the same action (leave only one instance). **Example:** If the session includes the following sequence of hits: login, choose package, choose package, choose package, submit, it is reduced to: login, choose package, submit.
Select Actions	Opens the Select Actions dialog box. You can filter out actions that are common and that have no impact on the business (for example, Welcome page). For details on the user interface, see "Select Actions Dialog Box" on page 1170.

Sessions Filter Area

User interface elements are described below:

UI Element (A–Z)	Description
Include only sessions that contain the following actions	Lists the actions that must be included in the session. **Example:** Sessions that include the log out page.
Filter out sessions with less than <min> or more than <max> actions	Specify the **minimum** and **maximum** number of actions of the session. This helps you ignore sessions that are too short or too long. **Default value:** Minimum 5 and maximum 200.
Select Actions	Opens the Select Actions dialog box. For details on the user interface, see "Select Actions Dialog Box" on page 1170.

Date Filter Area

This area enables you to select which date you want to analyze (remember that first you have to process a date's data into BPR format using the administration applet).

Important information	The colors of the cells in the date table indicate whether the date has been selected, there is data available for processing for that date, and the current date.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<Legend>	The legend describes the meaning of the possible colors of the cells in the calendar.
Advanced algorithm setting	Opens the Advanced Algorithm Setting dialog box. For details on the user interface, see "Advanced Algorithm Settings Dialog Box" on page 1150.
Clear All	Clears the dates you selected for the month.
Next Month with Data	Displays the next month, if it includes data. If the next month does not include data, the month after that is displayed, if it includes data, and so forth.
Previous Month with Data	Displays the previous month, if it includes data. If the previous month does not include data, the month before that is displayed, if it includes data, and so forth.
View Selected Date	Displays the dates you selected in the Selected Date Summary dialog box.

Select Actions Dialog Box

This dialog box enables you to select the pages that are to be ignored when running Business Process Recognition.

To access	Click **Select Actions** in the Select Report Data dialog box.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
<arrows>	Click the single arrows to select/unselect a single action. Click the double arrows to select/unselect all the actions.
Filter	Enter a string to filter the list of unselected actions. The string behaves as if it is preceded and followed by an asterisk (*) wildcard - you do not need to enter these characters. You can also insert an asterisk (*) wildcard anywhere in the string.
Selected Actions	Lists the selected actions. Select actions and click the arrows to move them back to the **Unselected Actions** box.
Unselected Actions	Lists the available actions. Select actions and click the arrows to move them to the **Selected Actions** box.

URL ID Settings Dialog Box

This dialog box enables you to specify the export method and the URL ID setting.

To access	Click the **URL ID Setting** button in the **Business Process Recognition Settings** page.
Important information	The first step in analyzing a Web application depends on the ability to identify its actions. Since the same action in a Web application probably has different URLs due to different session IDs, end users, and other parameters, it is important to configure how to identify the same action across all sessions. To do so, you must supply the Business Process Recognition application with a configuration that helps it to identify actions. The unique ID can rely on existing naming methods (defined (business critical) actions and the meaningful names feature).

User interface elements are described below:

UI Element (A–Z)	Description
Add	Opens a dialog box where you can add a parameter name to include in a unique ID setting.
Remove	Removes a selected parameter from the list of included parameters.

UI Element (A–Z)	Description
Processing Method	Select one of the following: ➤ **Use only named hits (defined actions and names actions)**. Use the business critical actions that are defined in EUM Administration and actions to which meaningful names were assigned. ➤ **Create unique ID for all hits**. Use all actions in the click stream and assign a unique Business Process Recognition ID to each one of them. ➤ **Both (use named hits and create unique ID for unknown hits).** Provide a unique ID to all actions in the click stream that do not have a name or are not defined (business critical) actions. The named actions retain their original name.
Include URI in Unique ID	Select this check box to include an action's URI in the generated unique ID.
Included Parameters	Lists the included URL parameters. The actions whose URL includes these parameters, which should be referred to for action identification, are included in the export operation. **Example:** If a page's source URL is: http://micrm.hp.com/callcenter_enu/start.swe?SWECmd=GotoPageTab&SWEBID=-1&SWEView=All Service Request List view&SWEC=2&SWETS=&SWEScreen=Service Request Screen&SWEVST=-1&SWEStrCCnt=372&SWECacheId=1&SWEJFN=top._swe._swejssview.s00 and you enter the **SWECmd** and **SWEView** parameters to identify this page, the result is: SWECmd=GotoPageTab&SWEView=All Service Request List view

15

End User Management Pages in MyBSM

This chapter includes:

Concepts

Tasks

Reference

Concepts

End User Management Pages in MyBSM Overview

MyBSM enables you to create role-based workspaces for different types of users, such as operations users and senior management, by setting up pages that include components that are of specific interest to them. For concept details, see "MyBSM Overview" in *Using MyBSM*.

MyBSM comes out-of-the-box with a number of predefined pages. Some of these predefined pages include End User Management (EUM) reports and you can use these pages to help you troubleshoot problems in applications monitored by your end-user monitors (Business Process Monitor and Real User Monitor).

Tip: To obtain an overall view of an application, it is recommended to use a view that includes the infrastructure serving the application, as well as its business transactions. Such views can be defined using the APM perspective.

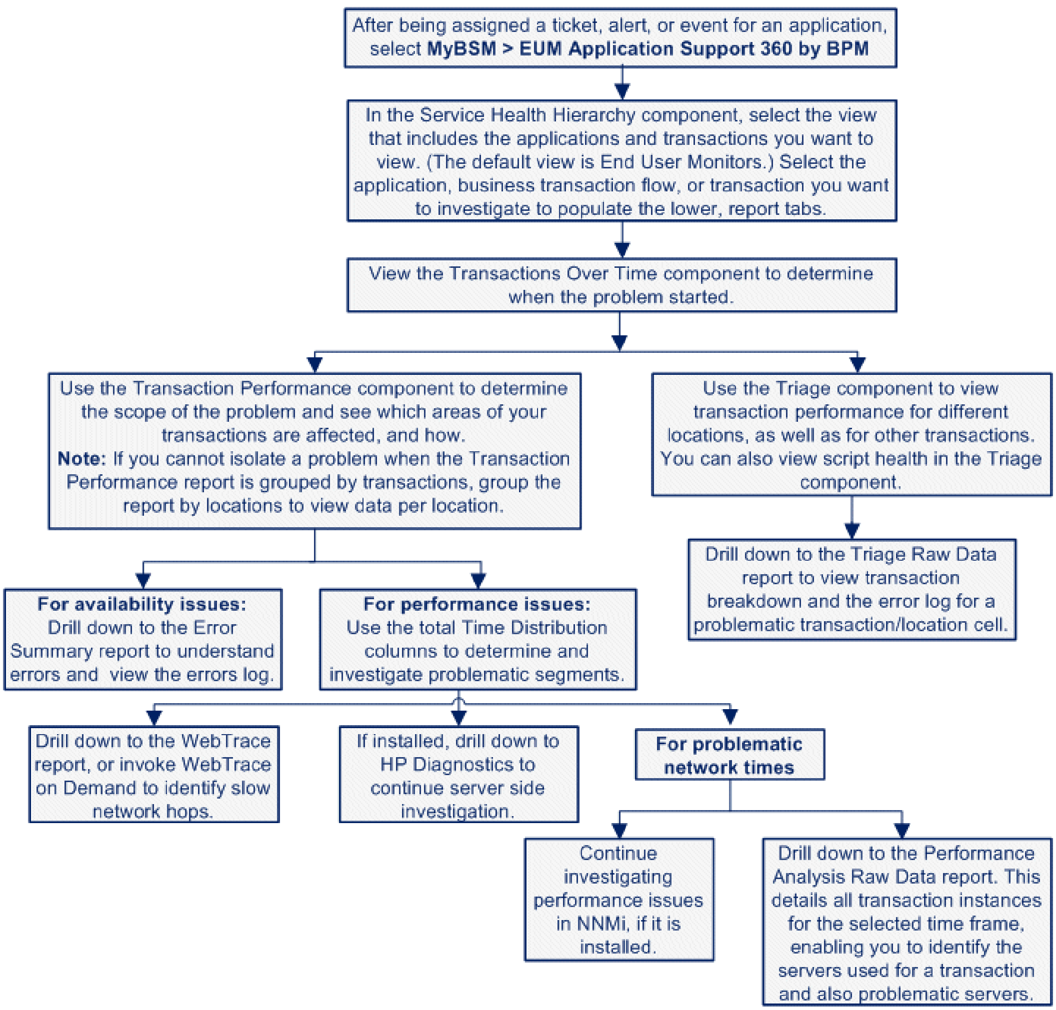
The following table describes the EUM related predefined MyBSM pages:

MyBSM Page	Description	For user interface details, see...
EUM Application Status	Displays application online status, together with over time status of the application, transactions and related locations, from both real user and synthetic user perspectives.	"EUM Application Status Page" on page 1183
EUM Application Support 360 by BPM Page	Displays, from the synthetic user perspective, online application status, together with an overview of transaction performance breakdown by time, locations, and segments.	"EUM Application Support 360 by BPM Page" on page 1184
EUM Application Support 360 by RUM Page	Displays, from the real user perspective, online application status, together with the status of its different tiers, the status of the infrastructure serving the application, and the impact on user sessions.	"EUM Application Support 360 by RUM Page" on page 1186
EUM High-Level Status	Displays a high-level view of multiple applications and locations and their end user status, from both real user and synthetic user perspectives.	"EUM High-Level Status Page" on page 1187

Tasks

How to Troubleshoot Problems Using the EUM Application Support 360 by BPM Page

This task describes a suggested working order for using the EUM Application Support 360 by BPM page in MyBSM to investigate problems in applications monitored by BPM.



This task includes the following steps:

- "View the EUM Application Support 360 by BPM page" on page 1178
- "View application status and select a problematic application for investigation" on page 1178
- "Determine when a problem started" on page 1178
- "Determine the scope of a problem" on page 1178
- "Change the Transaction Performance group by setting - optional" on page 1179
- "Investigate problems for specific locations" on page 1179
- "Understand problems in scripts" on page 1179

1 View the EUM Application Support 360 by BPM page

In MyBSM, open the EUM Application Support 360 by BPM page by selecting it from the Page Selector drop-down list on the toolbar, or from the Page Gallery. For user interface details, see "EUM Application Support 360 by BPM Page" on page 1184.

2 View application status and select a problematic application for investigation

In the Service Health Hierarchy component, view the current status of applications and their transactions. Select the application, business transaction flow, or business transaction you want to investigate. The report components are automatically updated with the relevant data. For concept data, see "Hierarchy Component Overview" in *Using Service Health*.

3 Determine when a problem started

Use the Transactions Over Time component to see when the problem started. For user interface details, see "Transaction Over Time Report" on page 1035.

4 Determine the scope of a problem

Use the Transaction Performance component to scope the problem and see which portion of your business transactions are affected, and how.

For availability issues, drill down to the BPM Error Summary Report to understand the nature of errors and view the error log. For user interface details, see "BPM Error Summary Report" on page 876.

For performance issues, use the Total Time Distribution columns to determine problematic segments and continue investigating:

➤ For problematic network segments, drill down to the WebTrace Report, or invoke a WebTrace On Demand, to identify slow network hops. For user interface details, see "BPM WebTrace Report" on page 1082 and "BPM WebTrace on Demand Report" on page 1089.

  You can also continue investigating performance problems in NNMi, if it is installed.

➤ For abnormal server times, drill down to HP Diagnostics to investigate server issues. If HP Diagnostics is not available, you can drill down to the Performance Analysis Raw Data report, which details all transaction instances in the report time period. In this report, you can see the servers used for a transaction and identify problematic servers. For user interface details, see "Performance Raw Data Report" on page 913.

5 Change the Transaction Performance group by setting - optional

If you cannot isolate a problem using the Transaction Performance component when it is grouped by transactions, it may be that there are problems from specific locations, which are not displayed when you view data from all locations. Change the **group by** option to view data for each location, or use the Triage component.

6 Investigate problems for specific locations

In the Triage component you can see transaction performance for different locations. For user interface details, see "Triage Report" on page 1046.

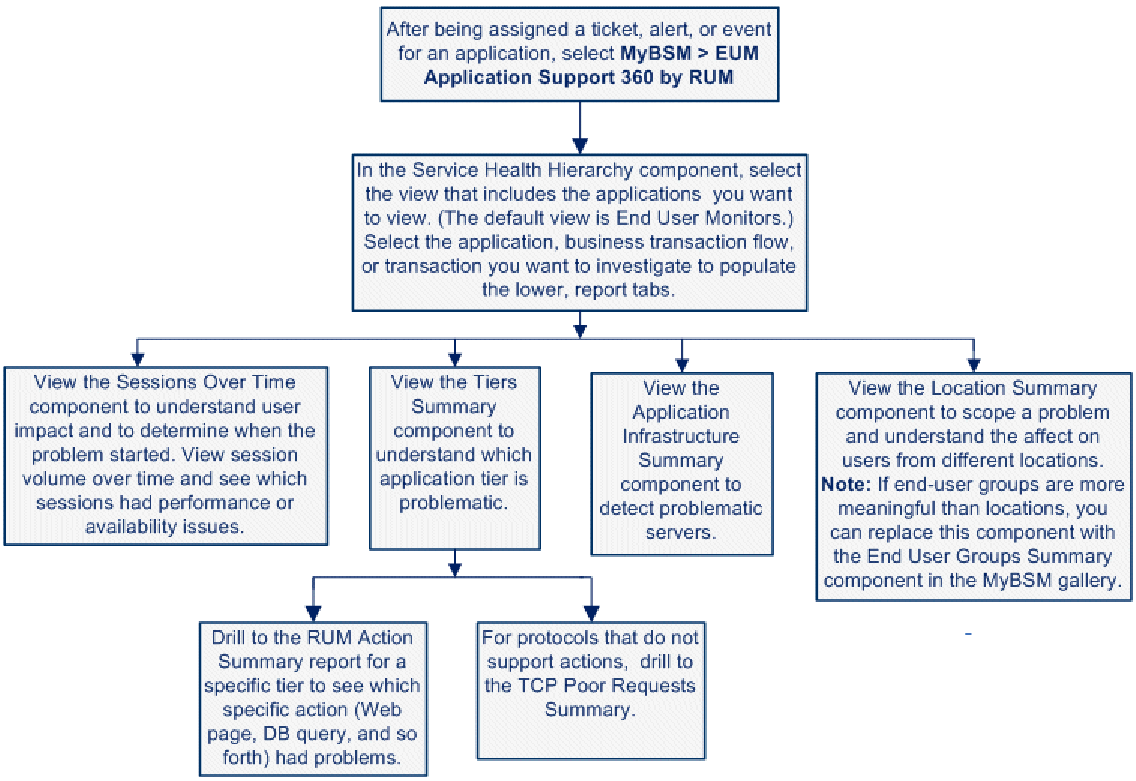
If a specific transaction at a specific location is problematic, drill down from the relevant transaction-location cell to the Triage Raw Data report. Use the Transaction Breakdown component and the Error Log to find the root cause of the problem and correct as necessary. For user interface details, see "Triage Raw Data Report" on page 1057.

7 Understand problems in scripts

Use the Triage component to view script health. For user interface details, see "Triage Report" on page 1046.

How to Troubleshoot Problems Using the EUM Application Support 360 by RUM Page

This task describes a suggested working order for using the EUM Application Support 360 by RUM page in MyBSM to investigate problems in applications monitored by RUM.



This task includes the following steps:

- "View the EUM Application Support 360 by RUM page" on page 1181
- "View application status and select a problematic application for investigation" on page 1181
- "Determine the user impact of a problem" on page 1181
- "Understand which tiers and actions are problematic" on page 1181

- "Find problematic servers" on page 1182
- "Understand user impact at different locations" on page 1182

1 View the EUM Application Support 360 by RUM page

In MyBSM, open the EUM Application Support 360 by RUM page by selecting it from the Page Selector drop-down list on the toolbar, or from the Page Gallery. For user interface details, see "EUM Application Support 360 by RUM Page" on page 1186.

2 View application status and select a problematic application for investigation

In the Service Health Hierarchy component, view the current status of applications and their transactions and select the application you want to investigate. The report components are automatically updated with the relevant data. For concept data, see "Hierarchy Component Overview" in *Using Service Health*.

3 Determine the user impact of a problem

Use the Sessions Over Time component to see session volume over time, as well as the sessions affected by performance or availability issues. You can also see when the problem started. For user interface details, see "Sessions/Connections Over Time" on page 774.

4 Understand which tiers and actions are problematic

Use the Tiers Summary component to understand which tier of the application is problematic. For user interface details, see "RUM Tier Summary Report" on page 983.

From the Rum Tiers Summary report, you can:

- Drill down to the RUM Action Summary report to determine specific actions (for example, Web page or database query) that have problems. For user interface details, see "RUM Action Summary Report" on page 919.
- Drill down to the TCP Poor Requests Summary report to investigate protocols that do not support actions. For user interface details, see "TCP Poor Requests Summary Report" on page 1013.

5 Find problematic servers

As many application problems can originate in infrastructure elements, use the Application Infrastructure Summary component to determine problematic servers.

6 Understand user impact at different locations

Use the Location Summary component to determine the scope of the problem and its effect on users from different locations. For user interface details, see "Location Summary Report" on page 799.

Tip: If you want to view data for end-user groups instead of locations, you can replace this component with the End User Groups Summary component that is available in the MyBSM gallery.

Reference

End User Management Pages in MyBSM User Interface

This section describes:

➤ EUM Application Status Page on page 1183

➤ EUM Application Support 360 by BPM Page on page 1184

➤ EUM Application Support 360 by RUM Page on page 1186

➤ EUM High-Level Status Page on page 1187

EUM Application Status Page

This page displays online application status, together with over time status of the application, transactions and related locations, from both real user and synthetic user perspectives.

This page is useful for application support or application owners or managers who would like to see both online status and over time status.

To access	Within **MyBSM**, open the **EUM Application Status** page.
See also	➤ "How to Create Your MyBSM Workspace" in *Using MyBSM* ➤ "Available Components" in *Using MyBSM*

User interface elements are described below:

UI Element	Description
Application Status	Displays the overall status of the selected applications by availability and performance, and also by location, over time. For details, see "Application Summary Report" on page 781.
Hierarchy	Displays a hierarchy of CIs in a view, the KPIs assigned to each CI, and their KPI statuses. For details, see "Hierarchy Component Overview" in *Using Service Health*.
Location Status	Displays the performance and availability status of the selected applications by end-user location. For details, see "Location Summary Report" on page 799.
Transaction Status	Displays the overall status of the transactions by availability and performance and also by location, over time. For details, see "Application Health Report" on page 767.

EUM Application Support 360 by BPM Page

This page displays online application status, together with status over time of transactions and related locations, from synthetic user perspectives. It also displays breakdown and transaction by location (triage) data.

This page is useful for application support or application owners or managers who would like to investigate performance and availability problems using synthetic user data.

To access	Within **MyBSM**, open the **EUM Application Support 360 by BPM** page.
Important information	To obtain an overall view of an application, it is recommended to use a view that includes the infrastructure serving the application, as well as its business transactions. Such views can be defined using the APM perspective.

Relevant tasks	"How to Troubleshoot Problems Using the EUM Application Support 360 by BPM Page" on page 1176
See also	➤ "How to Create Your MyBSM Workspace" in *Using MyBSM* ➤ "Available Components" in *Using MyBSM*

User interface elements are described below:

UI Element	Description
Hierarchy	Displays a hierarchy of CIs in a view, the KPIs assigned to each CI, and their KPI statuses. For details, see "Hierarchy Component Overview" in *Using Service Health*.
Transaction Performance	Displays summary information per transaction about performance, availability and breakdown. For details, see "Performance Analysis Report" on page 906.
Transactions Over Time	Displays transaction performance and availability over time. For details, see "BPM Performance Over Time Report" on page 787.
Triage	Displays transaction performance from different locations. For details, see "Triage Report" on page 1046.

EUM Application Support 360 by RUM Page

This page displays online application status, together with status of the application tiers, infrastructure, and related locations, from real user perspectives.

This page is useful for application support or application owners or managers who would like to investigate performance and availability problems, using real user data.

To access	Within **MyBSM**, open the **EUM Application Support 360 by RUM** page.
Important information	To obtain an overall view of an application, it is recommended to use a view that includes the infrastructure serving the application, as well as its business transactions. Such views can be defined using the APM perspective.
Relevant tasks	"How to Troubleshoot Problems Using the EUM Application Support 360 by RUM Page" on page 1180
See also	➤ "How to Create Your MyBSM Workspace" in *Using MyBSM* ➤ "Available Components" in *Using MyBSM*

User interface elements are described below:

UI Element	Description
Application Infrastructure Summary	Displays the performance and availability of running software or servers, according to RUM measurements. For details, see "RUM Application Infrastructure Summary Report" on page 928.
Hierarchy	Displays a hierarchy of CIs in a view, the KPIs assigned to each CI, and their KPI statuses. For details, see "Hierarchy Component Overview" in *Using Service Health*.

UI Element	Description
Location Summary	Displays which locations were affected by problems. For details, see "Location Summary Report" on page 799 and "RUM End User Group Summary Report" on page 962.
Sessions Over Time	Displays details about sessions volume and sessions affected by availability or performance problems. For details, see "Application Health Report" on page 767. **Note:** You can also drill-down to the RUM Session Analyzer report.
Tiers Summary	Displays details about page and connection performance and availability. For details, see "RUM Tier Summary Report" on page 983. **Note:** You can also drill-down to the RUM Action Summary report.

EUM High-Level Status Page

This page displays a high-level view of multiple applications and locations and their end user status, from both real user and synthetic user perspectives.

This page is useful for users such as NOC, LOB, or Application Support managers who are interested in seeing overall status over multiple applications and locations.

To access	Within **MyBSM**, open the **EUM High-Level Status** page.
See also	➤ "How to Create Your MyBSM Workspace" in *Using MyBSM* ➤ "Available Components" in *Using MyBSM*

User interface elements are described below:

UI Element	Description
Application Status	Displays the overall status of the selected applications by availability and performance, and also by location, over time. For details, see "Application Summary Report" on page 781.
Location Status	Displays the performance and availability status of the selected applications by end-user location. For details, see "Location Summary Report" on page 799.

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