HP Business Availability Center

for the Windows and Solaris operating systems

Software Version: 8.02

Using End User Management

Document Release Date: June 2009
Software Release Date: June 2009

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Welcome to This Guide

This guide describes how to work with the End User Management Administration interface to configure and maintain Real User Monitors and Business Process Monitors in HP Business Availability Center, and how to work with the End User Management application.

This chapter includes:

- How This Guide Is Organized on page 9
- Who Should Read This Guide on page 10
- Getting More Information on page 10

How This Guide Is Organized

The guide contains the following parts:

Part I General and Administration

Describes how to work with End User Management Administration including understanding and working with the monitor tree, defining and managing view settings, and working with Global Replace. Also describes working with End User Management reports, as well as the End User Management status snapshot report.

Part II Business Process Monitor

Describes how to create and manage Business Process Monitor profiles and monitors in HP Business Availability Center, as well as the Business Process reports, summary reports, and network tools.

Part III Real User Monitor

Describes how to create and manage Real User Monitors in HP Business Availability Center, as well as the Real User Monitor reports.

Who Should Read This Guide

This guide is intended for the following users of HP Business Availability Center:

- HP Business Availability Center administrators
- HP Business Availability Center application administrators
- HP Business Availability Center end users

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

Getting More Information

For a complete list of all online documentation included with HP Business Availability Center, additional online resources, information on acquiring documentation updates, and typographical conventions used in this guide, see the *HP Business Availability Center Deployment Guide* PDF.

Part I

General and Administration

1

End User Management Administration

This chapter provides information on End User Management Administration.

This chapter includes:

Concepts

- End User Management Administration Overview on page 14
- Working with End User Management Administration on page 15
- Navigating and Performing Actions in the Contents Tab and the Monitor Tree on page 18
- Setting Views on page 20
- Global Replace on page 21
- Understanding Monitor Tree Objects on page 22
- Synchronizing Profile Data on page 23
- Configuration Items and End User Management Monitor Objects on page 24
- Managing Containers in the Monitor Tree on page 25

Tasks

- Perform a Global Replace – Workflow on page 25
- Perform a Global Replace – Scenario on page 28
- Synchronize Profile Data on page 32
- Attach CIs to End User Management Administration Objects on page 33
- Map End-User Transactions to TransactionVision Business Transactions on page 35

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- Monitor Tree Elements on page 42
- End User Management Administration User Interface on page 44

End User Management Administration Overview

End User Management Administration is a Web-based, centralized solution for configuring the various monitor types that collect performance data for HP Business Availability Center. It provides an intuitive and customizable interface with multiple view options, based on a hierarchical tree view. The hierarchy can be built to reflect the monitoring structure of your HP Business Availability Center deployment.

You use End User Management Administration and the monitor tree to:

- organize performance monitoring data for your entire enterprise. For details on the various monitor tree objects, see "Understanding Monitor Tree Objects" on page 22.
- navigate across multiple monitors and profiles and drill down to monitor configuration details. For details, see "Navigating and Performing Actions in the Contents Tab and the Monitor Tree" on page 18.
- create relationships with existing configuration items in the Universal CMDB. For details, see "Configuration Items and End User Management Monitor Objects" on page 24.
- create user-defined containers to organize monitoring objects. For details, see "Managing Containers in the Monitor Tree" on page 25.
- create and manage business process profiles and transactions. For details, see "Creating Business Process Profiles and Monitors Overview" on page 66.
- manage Real User Monitor engine settings and probes, define server names and host aliases, and configure the Real User Monitor to report specific page, transaction, event, and end-user data. For details, see "Real User Monitor Administration" on page 293.
- customize the display of monitor information with filter settings. For details, see "Setting Views" on page 20.

- make changes to multiple monitor configurations across multiple servers with a single action using global search and replace. For details, see "Global Replace" on page 21.

Working with End User Management Administration

The End User Management Administration interface displays a number of elements that you use to manage the monitoring objects in your environment and customize the display of monitoring information. The interface is divided vertically into two main areas:

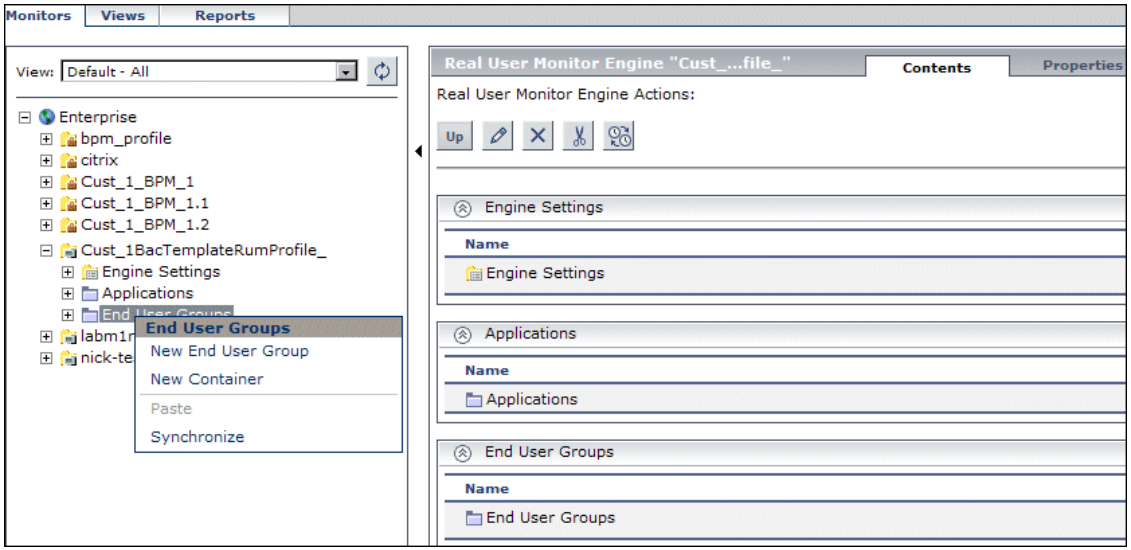
- the monitor tree (for details, see "Understanding Monitor Tree Objects" on page 22)
- the content area (for details, see "Navigating and Performing Actions in the Contents Tab and the Monitor Tree" on page 18)

The controls and action menus in these two areas of the End User Management Administration interface provide you with multiple paths for managing objects in your monitoring environment.

For example, to edit a monitor configuration, you can use the **Edit** option in the action menu for the monitor in the monitor tree or you can click the **Edit** button to the right of the monitor name in the Monitors panel of the Contents view tab.

Monitor Tree

The monitor tree displays object containers in a hierarchical or filtered view. You use this tree to navigate to specific object containers and perform actions by using context-sensitive, right-click menus. The following is an example of the monitor tree showing several objects and an example of a right-click action menu.



Contents Area

The contents area displays view panels and tables that you use to view the detailed content of object containers, and manage configuration settings for monitors. You control the information displayed by the content area using one of the view tabs along the top of the area. The view tabs available depend on the object or element selected in the monitor tree and include:

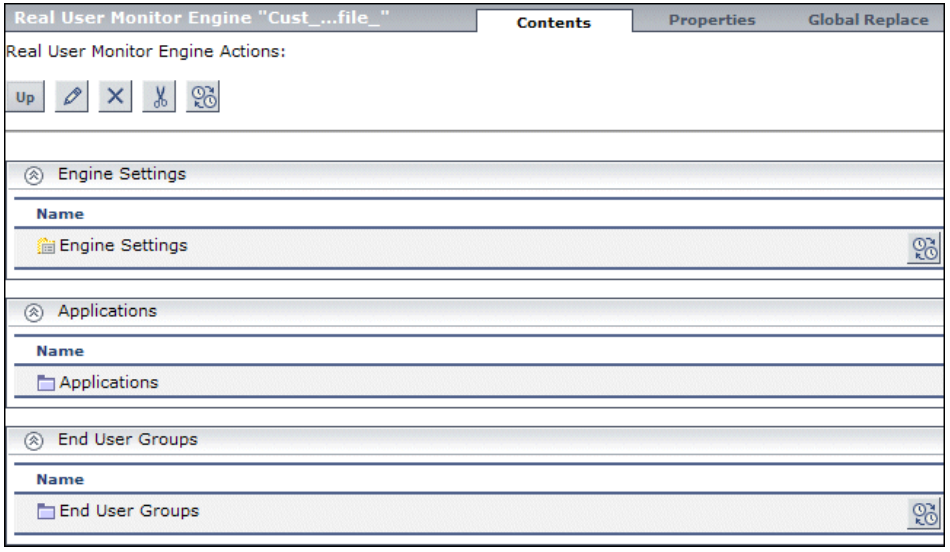
- Contents View
- Properties View
- Data Collectors
- Global Replace

The following sections provide an overview of these views.

Contents View

The Contents view displays the objects that are children of a node in the tree. The Contents view also provides features you use to manage objects. This includes actions that are available in the tree action menus as well as actions that can be performed on a group of objects.

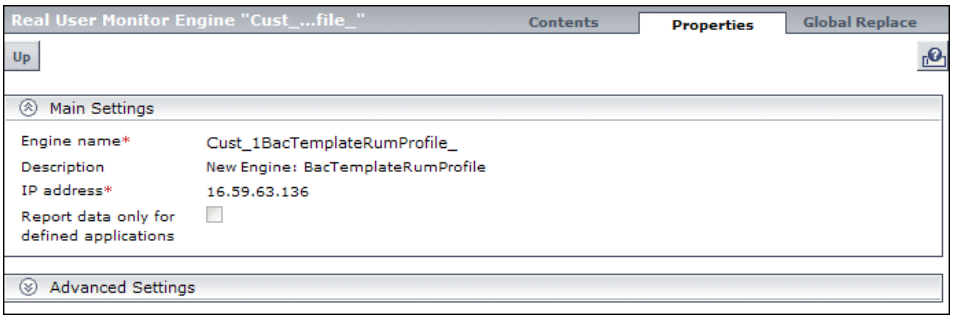
The following is an example showing the tables in the Contents tab for a Real User Monitor engine.



Properties View

You use the Properties view tab to view and edit configuration properties or settings for objects in the monitoring environment. The specific properties vary according to which object is selected in the monitor tree. The default Properties view is a read only view of the settings for the applicable object. You click the **Edit** button to be able to make changes to the settings.

The following is an example of the Properties tab for a Real User Monitor engine. This view contains collapsible panels you use to view and edit configuration settings.



Data Collectors

You use the Data Collectors tab to assign monitors to host locations for business process profiles. For more information, see “Data Collectors Page” on page 122.

Global Replace

The Global Replace tab provides a tool for making changes to multiple objects in a single operation. For more information, see “Global Replace” on page 21.

Navigating and Performing Actions in the Contents Tab and the Monitor Tree

There are several ways to navigate the monitor tree, perform actions, and edit object properties.

The monitor tree itself enables you to highlight any object within the tree and right-click the object to access a menu of options for that object. For example, if you right-click the enterprise node, you select from a menu listing only those actions that can performed on the enterprise node.

The Contents tab enables you to view all the objects within any of the containers or profiles in the monitor tree, including the enterprise node itself. When an object that includes child objects is highlighted, the Contents tab lists all of the child objects according to their type. For example, if a business process profile is highlighted in the monitor tree, the Contents tab lists all the monitors included in that profile, organized according to type of monitor.

Additionally, the Contents tab enables you to select actions for each object type. The actions applicable to the highlighted object appear as optional buttons at the top of the Contents page. The actions applicable to the child objects of the highlighted object appear as optional buttons in the area listing the objects of that type.

Accessing Object Properties for Editing

You can select from the following options when accessing an object's properties for editing:

- In the monitor tree, right-click the object and choose **Edit** in the profile's menu.
- In the Contents tab you can either:
  - highlight the appropriate object in the monitor tree and click the **Edit** button at the top of the Contents page.

  - click the **Edit** button next to the appropriate object where it appears under object type in the Contents page.

Setting Views

Setting views in End User Management Administration enables you to create views that customize the monitoring information displayed in the monitor tree. These views allow you to select the objects that appear in the monitor tree based on the database information stored for all monitor tree objects.

When administrating monitor deployment, an extensive monitor tree displaying every object added to it could prove difficult to manage. End User Management Administration enables you to select which objects in the tree you want to view, based on various filter criteria. You can define multiple views with different filter conditions that can be applied for varying configuration tasks.

For example, you can create a view to display only Real User Monitor engines that are monitoring specific applications. The result of this filter displays a tree with all the applicable Real User Monitor engines directly under the enterprise node.

You define and manage view settings by accessing the Views tab at the top of End User Management Administration. You can define views:

- **based on object type only.** For example, you can define a view that includes all business process profiles, regardless of their properties. In this view, the monitor tree lists all the business process profiles defined in the enterprise.
- **based on object type and the properties configured for the selected object types.** For example, you can define a view that includes all Real User Monitor engines monitoring the same application, giving you a view of only those monitors monitoring the selected application.
- **to appear in a flat list.** A flat list lists all objects meeting the view's selection criteria as child objects to the enterprise node, regardless of its parent object.
- **to appear as a hierarchy.** The hierarchy option lists all objects with their respective parent objects even if the parent object does not meet the view's selection criteria.
- **to include all child objects of a selected object.** This is done by making your selections recursively.

- **to represent object properties.** This is done by using regular expressions to represent object properties if basing your selections on an object's properties.

  If you have any views defined, they appear in the drop-down list above the monitor tree in the Monitors tab. You select the view from the list and the monitor tree displays only those objects defined in your view selection.

Note: If a view is selected and you add a new object to the tree, the new object appears only if the object's type is included in the view filter selection. Even if the object type is listed as a parent object because one of its child objects is selected, a new object of the same type does not appear in the tree if its object type is not in the selection.

For details on the Views tab, see "Views Tab" on page 51.

Global Replace

Global Replace is a search and replace function for changing monitor, alert, group, and other configuration settings and properties. Global 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 monitor tree. You determine the scope of the search and replace operation by selections made in the following control features:

- Monitor tree and current view
- **Select by Type** object list
- **Selected Objects** tree menu

The current node selected in the monitor tree and any view filter determine the types of objects available for selection by the other two controls. The **Select by Type** controls the objects available to the **Selected Objects** controls. Both these are features displayed in the content area when the **Global Replace** tab is selected.

You can refine your selection by applying a view to the monitor tree before performing the Global Replace. The objects appearing in the current view are then the only objects from which you can select while working with Global Replace. For details about creating and applying views, see "Setting Views" on page 20.

Global Replace is also useful for enabling or disabling groups of monitors or alerts associated with multiple monitors.

For the workflow to perform a global replace operation, see "Perform a Global Replace – Workflow" on page 25.

Understanding Monitor Tree Objects

The monitor tree of End User Management Administration represents the organization of systems and services in your network environment. The root node of the tree is the enterprise container. Only one enterprise node exists in the monitor tree. You add all other elements to the tree under the enterprise node.

There are two classes of elements in the monitor tree. These are:

- **Containers.** These enable you to organize the display of monitor configuration information according to location or organizational relationship. Container elements are user-defined and represent locations, organizations, servers, agents, and other hierarchies within the infrastructure. The containers you create are native to End User Management Administration. Every End User Management Administration tree includes the enterprise container as its default, top-level container, containing all the other objects in the tree.
- **Objects.** Object elements are configuration and control objects in your monitoring infrastructure. Objects can either be created within, or imported to, the monitor tree. Existing objects, such as Real User Monitor engines, cannot be created in End User Management Administration but are imported into the monitor tree for configuration.

For a detailed list of the monitor tree containers and objects, see "Monitor Tree Elements" on page 42.

Synchronizing Profile Data

Business process profile information is stored in the profile database and the management database used by your HP Business Availability Center platform. When working with profiles in End User Management Administration, you can synchronize the information stored in the databases with the profile information in your monitor tree. This procedure checks that the data related to profiles in both End User Management Administration and the profile database are consistent.

If you receive an error message telling you to synchronize, or you believe you have functionality issues because of a lack of synchronization with the databases, synchronize your profile data. For details, see "Synchronize Profile Data" on page 32.

Note: Synchronization should be performed only by advanced users. If you are not an advanced user, contact HP Software Support before performing the synchronization.

For business process profiles, you can either synchronize at the profile level, the container level, or synchronize all the profiles at once for the whole enterprise. Only containers containing profile settings can be synchronized.

Configuration Items and End User Management Monitor Objects

When an object is added to End User Management Administration, that object creates a corresponding configuration item (CI) (CI) in the HP Universal configuration management database (CMDB). For details on understanding configuration items, see "CMDB Overview" in *Model Management*.

The End User Management Administration objects that populate the Universal CMDB include both actual monitors and the groups or profiles in which they are created. Actual monitors, for example transaction monitors and Real User Monitor transactions and pages, are represented in the Universal CMDB as monitor CIs. Monitor CIs receive data from the data collectors and use the data to calculate Key Performance Indicator (KPI) status. Profiles in End User Management Administration are represented as group CIs in the Universal CMDB and receive KPI status from the monitor CIs created by the monitors they are running.

You can also create relationships between an End User Management Administration object and any existing, logical CI in the Universal CMDB. This relationship enables the monitor or profile to pass KPI status to the CI to which it is attached.

You can create this relationship:

- using the Modeling tab in Universal CMDB Administration. For details, see "Attaching Existing CIs" in *Model Management*.
- using End User Management Administration. For details, see "Attach CIs to End User Management Administration Objects" on page 33.

Managing Containers in the Monitor Tree

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 containers named Europe, America, and Asia representing different locations. Within the America location container, you could create four other containers North, East, South, and West. Within each of these container locations, you can add multiple containers, representing different departments in your organization. These containers can then be used to organize your organizations profiles and monitors.

You can add a container directly to the enterprise node or into any container.

When you delete a container, you also delete all the contents of that container. For example, if you have a container into which Real User Monitor pages have been added, deleting the container also deletes the Real User Monitor pages from the monitor tree.

For details on adding or editing containers in the monitor tree, see "New/Edit Container Page" on page 47.

Perform a Global Replace – Workflow

This task describes the working order for performing a global replace operation in End User Management Administration.

For a scenario of this task, see "Perform a Global Replace – Scenario" on page 28.

This task includes the following steps:

- "Select Objects in the Monitor Tree" on page 26
- "Display the Global Replace Tab" on page 26
- "Select Object Types in the Select by Type Tree" on page 26
- "Refine the Selection" on page 26

➤ "Select Property Selection and Replace Mode" on page 26

➤ "Select Configuration Settings" on page 27

➤ "Apply the Changes" on page 27

➤ "Results" on page 27

1 Select Objects in the Monitor Tree

Decide what settings you want to change and to which class or type of objects these settings apply. Select the node in the monitor tree that encompasses the scope you want to include in the replace operation. You may also create a view to filter object types in the monitor tree.

2 Display the Global Replace Tab

In End User Management Administration, select the **Global Replace** tab. The Global Replace page is displayed. For details on the user interface, see "Global Replace Page" on page 44.

3 Select Object Types in the Select by Type Tree

Select the types of objects you want to modify from the **Select by Type** tree and click the **Apply Selection** button to register the selection. The **Selected Objects** tree is populated with all matching objects.

4 Refine the Selection

Expand the **Selected Objects** tree and review the objects targeted for the replace operation. Clear objects you want to exclude from the replace operation, if necessary.

5 Select Property Selection and Replace Mode

Choose the applicable **Property Selection** mode and verify that the **Replace** mode is selected. The configuration settings entry fields are updated below the Selected Objects tree.

6 Select Configuration Settings

Select the check box to the left of the configuration settings that you want to change. Enter the new values for the selected settings in the appropriate text boxes.

7 Apply the Changes

Click **Apply** to start the global replace operation.

8 Results

A page is displayed with information about the success of the replace operation, or any errors that were encountered. The monitor tree is updated after a short delay.

Perform a Global Replace – Scenario

This scenario describes how to perform a global replace operation in End User Management Administration.

For a workflow of this scenario, see "Perform a Global Replace – Workflow" on page 25.

This task includes the following steps:

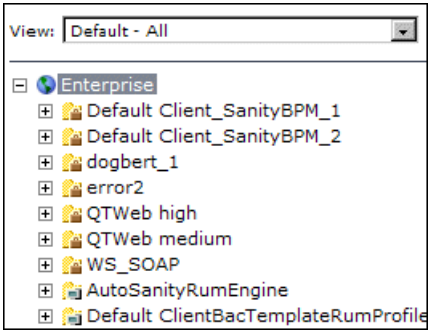
- "Scenario Objective" on page 28
- "Select Objects in the Monitor Tree" on page 29
- "Display the Global Replace Tab" on page 29
- "Select Object Types in the Select by Type Tree" on page 29
- "Refine the Selection" on page 30
- "Select Property Selection and Replace Mode" on page 31
- "Select Configuration Settings" on page 31
- "Apply the Changes" on page 31
- "Results" on page 32

1 Scenario Objective

You want to enable breakdown for all the configured Business Process transaction monitors, except for the transaction monitor called **error2**.

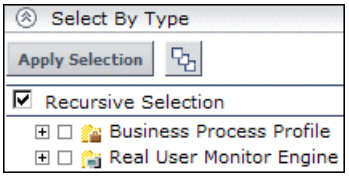
2 Select Objects in the Monitor Tree

In the monitor tree you select the **Enterprise** node that encompasses all of the business process profiles (that include all the transaction monitors).



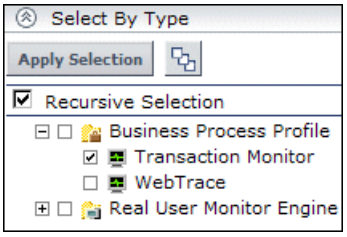
3 Display the Global Replace Tab

You click the **Global Replace** tab to display the **Global Replace** page. The main objects in the **Enterprise** node are displayed in the **Select by Type** tree.

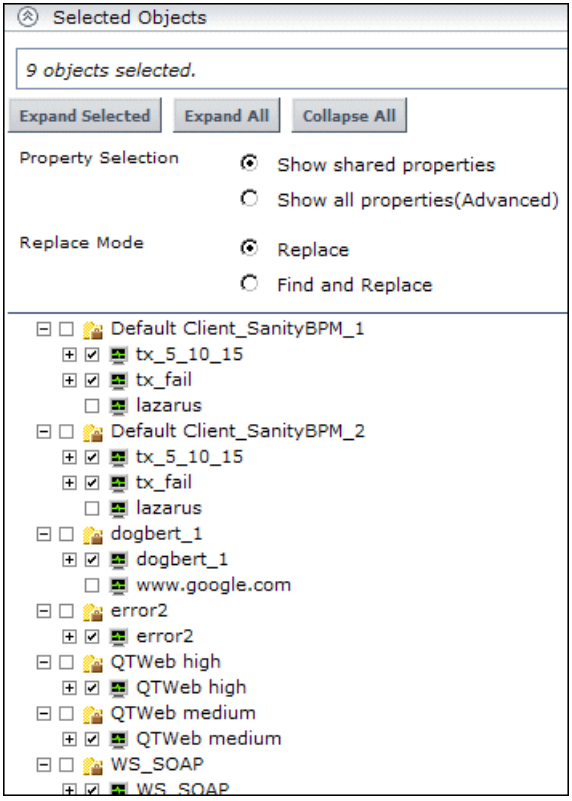


4 Select Object Types in the Select by Type Tree

In the **Select by Type** tree, you expand the **Business Process Profile** object and select **Transaction Monitor**.



You click the **Apply Selection** button and all the transaction monitors in all of the business process profiles are selected for the global replace operation. They are displayed in the **Selected Objects** tree.

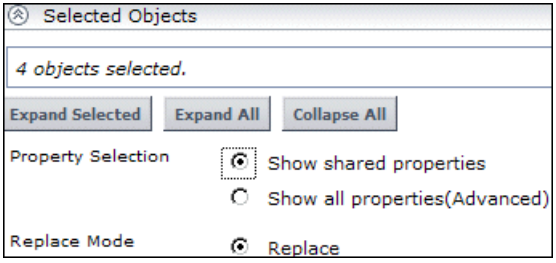


5 Refine the Selection

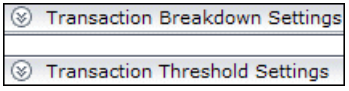
In the **Selected Objects** tree, you clear the check box for the **error2** transaction monitor, so that it is not included in the global replace operation.

6 Select Property Selection and Replace Mode

You select the **Replace** mode and **Show shared properties** as the Property Selection.

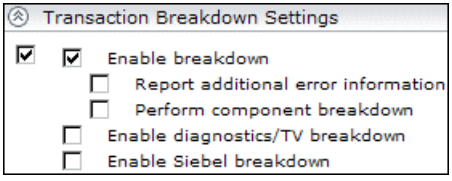


The configuration settings that are common to all the transaction monitors are displayed at the bottom of the page.



7 Select Configuration Settings

You expand the **Transaction Breakdown Settings** panel and select the check box for the property. You then select the **Enable breakdown** check box as the change you want to make.

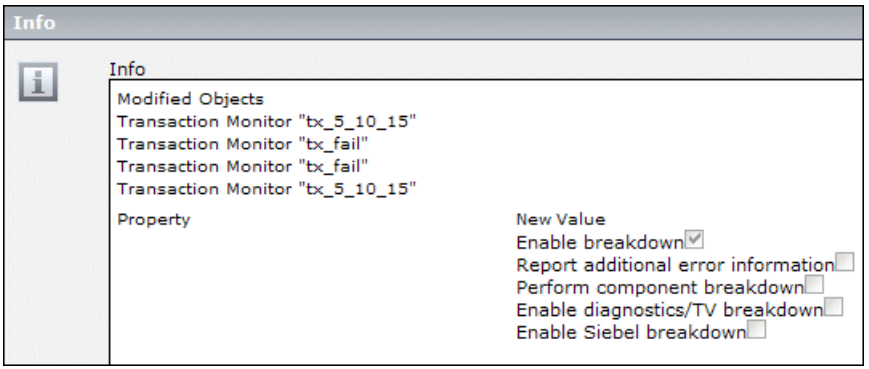


8 Apply the Changes

Click **Apply** to start the global replace operation.

9 Results

When the global replace operation is complete, a new window displays information about the objects that were updated and the properties that were changed.



All the transaction monitors, apart from **error2**, are now enabled for breakdown.

Synchronize Profile Data

This task describes how to synchronize profile settings with the profile database in End User Management Administration.

To synchronize profile settings with the profile database:

1 Access End User Management Administration by selecting **End User Management** in the Admin menu. Select from the following options:

- Right-click the enterprise node, the container, or the selected profile that you want to synchronize. The container action menu is displayed. Select **Synchronize**.
- Alternatively, highlight the enterprise node, the container, or the selected profile that you want to synchronize and select the **Synchronize** button in the Contents tab.

If the object highlighted is a business process profile that has descendant objects, but no direct child objects, that are not synchronized, the synchronization progress bar indicates that synchronization has begun.

If the object highlighted is a business process profile and has direct child objects that are not synchronized with the database, the Synchronize page opens.

2 In the Main Settings area of the Synchronize page, all the profiles and monitors that are not synchronized with your monitor tree are listed by type. You can select from the following options:

- select individual profiles and/or monitors to synchronize
- select **Import all** under any object type to synchronize all the profiles or monitors listed for that type
- select **Synchronize Enterprise children** to synchronize all the objects in the monitor tree with the profile database

3 Click **OK**.

Attach CIs to End User Management Administration Objects

This task describes how to attach an existing CI to a monitor object that you are creating. You can attach one or more configuration items to the following types of End User Management Administration objects:

- Business process profile
- Business process transaction monitor
- Real User Monitor page
- Real User Monitor transaction

To attach a configuration item to a monitor object in End User Management Administration:

1 While adding a Real User Monitor page or transaction, expand the **Configuration Item Attachment Settings** area. For business process profiles go to the **Define Profiles Properties** or **Add Transaction Monitor Scripts** page in the **Business Process Profile** wizard.

2. Click **Add CIs**. The Add CIs dialog box opens.
3. Select a view in the left pane that includes the CI you want to attach to the monitor object. For details on selecting and working with views, see "Working with View Explorer" in *Model Management*.
4. Select a CI from the listed CIs in the view by selecting the check box to the left of the CI name.

   To make your selections, you can also use the buttons at the bottom of the pane for **Select All**, **Clear All**, and **Invert Selection**.
5. Click the right-hand arrow button to move the selected CIs from the left pane to the right pane.
6. Click **OK** to attach the selected CIs to the monitor object. The CI name and type are listed in the settings for this monitor object.

   You can view and edit the relationship you created in the IT Universe Manager in Universal CMDB Administration. For details, see "Topology Map User Interface" in *Model Management*.

Map End-User Transactions to TransactionVision Business Transactions

This task describes how to map Business Process Monitor and Real User Monitor transactions in End User Management Administration, to business transactions from TransactionVision. Once such mapping exists, you can see:

- the end-user transaction CIs added in the Business Transactions view. For details on the Business Transactions view, see "Business Transactions View for TransactionVision" in *Using Dashboard*.
- the end-user KPI information in the Business Transaction Flow Map (after the next sample update). For details on the Business Transaction Flow Map, see "Flow Map Overview" in *Using Dashboard*. In Business Availability Center, you can view the flow map both in the Dashboard application (select **Applications** > **Dashboard** > **Flow Map** tab) and in the TransactionVision application (select **Applications** > **TransactionVision** > **Transaction Topology** tab > **Aggregated Topology**).

This task includes the following steps:

- "Prerequisites" on page 35
- "Map Business Process Monitor Transactions in the Business Process Profile Wizard" on page 36
- "Map New and Existing Transactions" on page 37
- "Results in Dashboard" on page 39

1 Prerequisites

In order to do the mapping, TransactionVision must be deployed in Business Availability Center and there must be Business Transaction CIs in the Business Transactions view.

2 Map Business Process Monitor Transactions in the Business Process Profile Wizard

While working in the Business Process Profile Wizard to create a new Business Process profile, or to add a new transaction monitor to an existing profile, you have the option to map the Business Process Monitor transactions to business transactions.

a Open the Business Process Profile Wizard and define profile and transaction monitor properties. For details on the user interface, see "Business Process Profile Wizard" on page 102.

b In the Set Transaction Properties Page, select the check box for the transaction you want to map. Selecting a check box enables the **Map Business Transaction** button. For details on the user interface, see "Set Transaction Properties Page" on page 111.

Note: If more than one transaction is selected, or if the transaction is already mapped to a business transaction, then the button remains disabled.

---

c Click **Map Business Transaction** to open the Select Related Business Transaction dialog box, where you select the required Business Transaction CI. For details on the user interface, see "Select Related Business Transaction Dialog Box" on page 149.

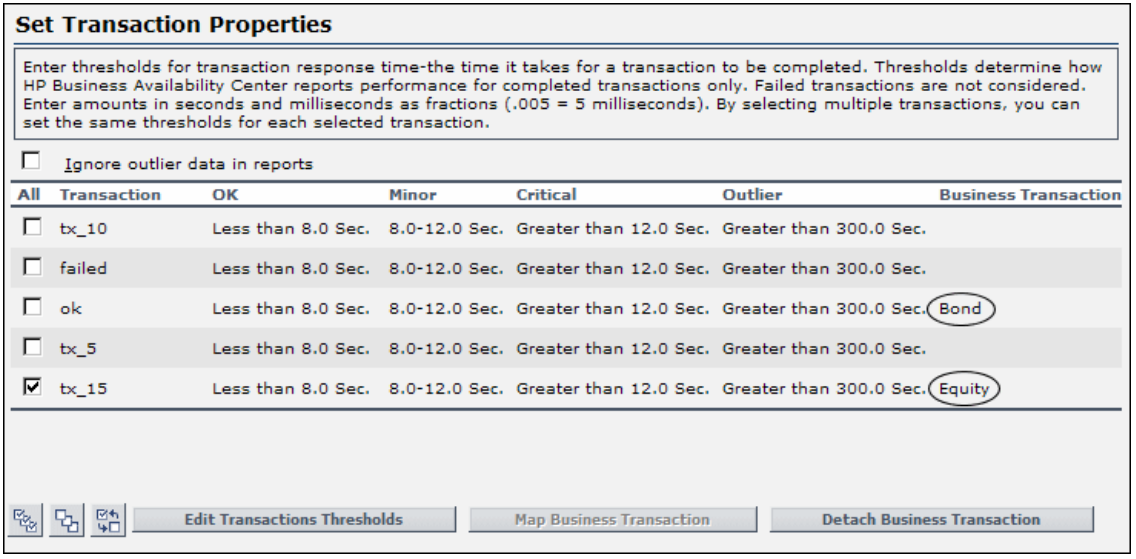
d Save your selection. After mapping, the **Business Transaction** column in the Set Transaction Properties page displays the name of the Business Transaction CI mapped to the Business Process Monitor transaction.

e Repeat for each Business Process Monitor transaction you want to map to a business transaction.

f To change the mapping for a transaction, you must first remove the mapping by selecting the transaction check box and clicking **Detach Business Transaction**. You can then remap the transaction to a different business transaction, as described in step c.

Example

In the following picture, the transaction ok in a transaction profile has been mapped to the Business Transaction CI Bond, and transaction tx_15 has been mapped to the Business Transaction CI Equity:



3 Map New and Existing Transactions

In the End User Management Administration Monitors tab, you can select a Business Process Monitor transaction already in a profile and map it directly to a business transaction. You can also map a new or existing Real User Monitor transaction to a business transaction.

a Access the Edit Transaction page for a Business Process Monitor transaction (for details on the user interface, see “Edit Transaction Page” on page 138), or the New Transaction or Edit Transaction page for a Real User Monitor transaction (for details on the user interface, see “New/Edit Transaction Page” on page 387).

b In the **Related Business Transaction** area, click **Map Business Transaction** to open the Select Related Business Transaction dialog box, where you select the required Business Transaction CI. For details on the user interface, see “Select Related Business Transaction Dialog Box” on page 149.

c To change the mapping for a transaction, you must first remove the mapping by clicking **Detach Business Transaction**. You can then remap the transaction to a different business transaction.

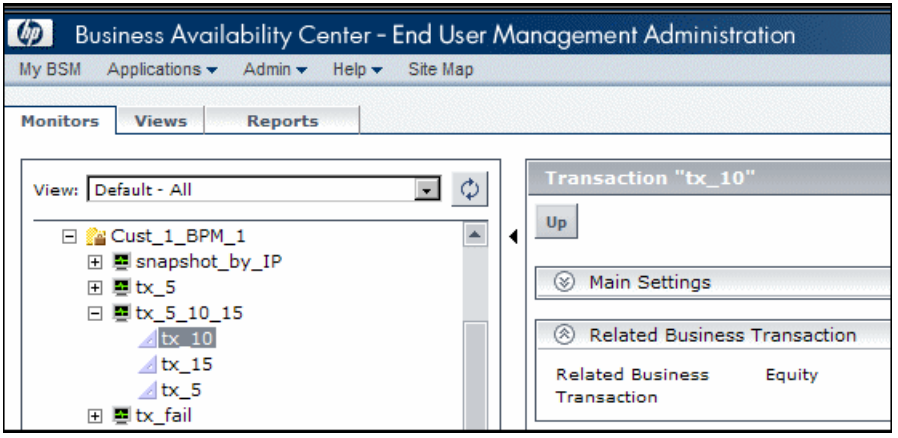
Note: The **Map Business Transaction** and **Detach Business Transaction** buttons are displayed only in **Edit** mode.

---

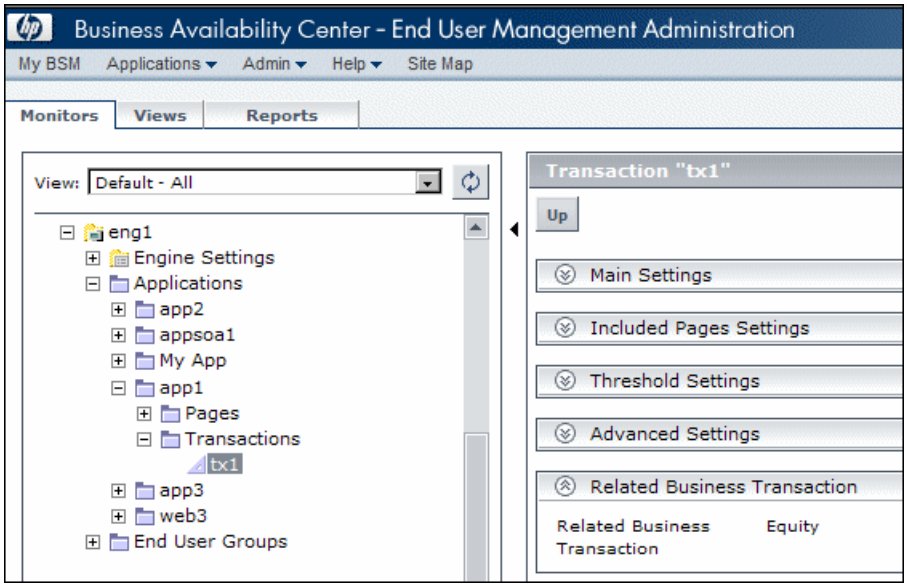
d After mapping, the **Related Business Transaction** area displays the name of the Business Transaction CI.

Example

In the following pictures, the Business Process Monitor transaction tx_10 has been mapped to Business Transaction CI Equity:



And the Real User Monitor transaction tx1 has been mapped to Business Transaction CI Equity:



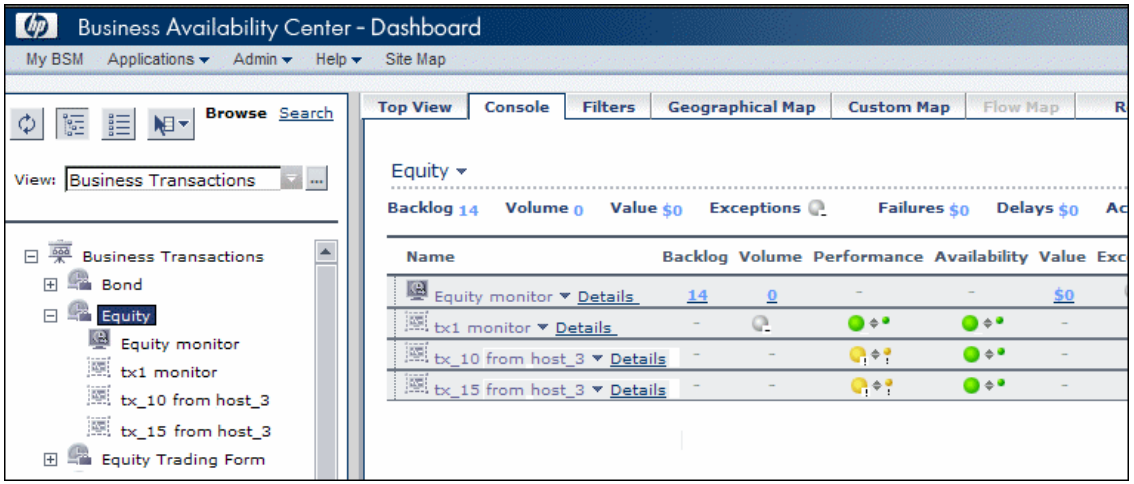
4 Results in Dashboard

After performing the mapping, you can immediately see the end-user transaction CIs added in the Business Transactions view.

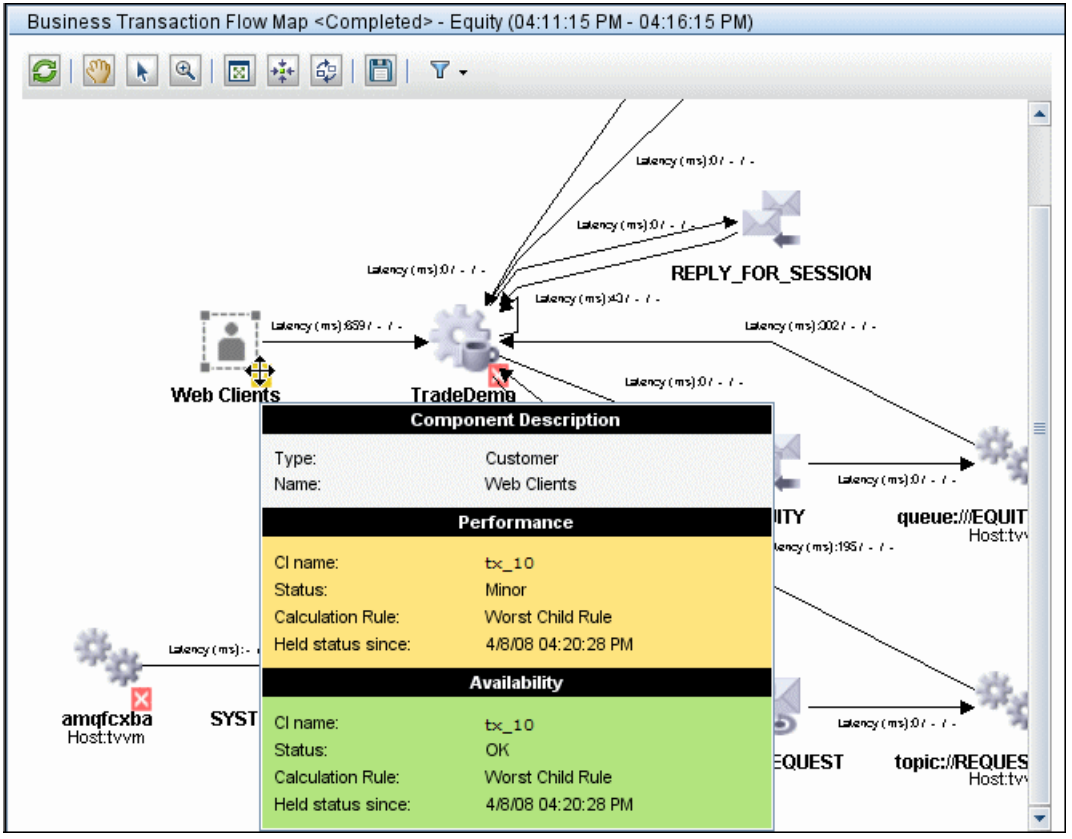
The end-user KPI information appears in the Business Transaction Flow Map only after the next sample update.

Example

In the Business Transactions view in Dashboard, you can see the end-user transaction CIs mapped to the Business Transaction CI Equity:



In the Business Transaction Flow Map for Equity, you can see worst status for the end-user Availability and Performance KPIs attached to the Web Clients component:



Monitor Tree Elements

The following tables describe the containers and objects that can appear in the monitor tree.

Containers

The monitor tree can include the following containers:

Container	Icon	Description
Enterprise		Each tree has one enterprise container as its root node, representing the entire monitoring infrastructure.
Container		A container used to organize the display of information based on any criteria. For details, see “Managing Containers in the Monitor Tree” on page 25.

With the exception of the enterprise container, multiple instances of containers can be added to the monitor tree. Each container may be added as a child within another container or directly under the enterprise node.

Objects

The following table lists the objects that may appear in the tree. It also lists to which parent item in the tree the object belongs and how the object can be added to the monitor tree.

Icon	Object Description	Parent	Add to Tree by:
Business Process Objects			
	Business Process Profile	Enterprise or container	Creating
	Any monitor belonging to a business process profile	Business process profile	Creating

Icon	Object Description	Parent	Add to Tree by:
	Business Process Transaction	Transaction monitor	Automatically added with monitor object
Real User Monitor Objects			
	Real User Monitor engine	Enterprise or container	Adding to End User Management Administration
	Real User Monitor settings	Real User Monitor engine	Automatically added with engine object
	Real User Monitor container for Probes, Servers, Host Aliases, Applications, Pages, End Users, and Transactions	Real User Monitor engine or settings directory	Automatically added with engine object
	Real User Monitor Probes, Pages, and End Users	Real User Monitor container	Automatically added with engine object
	Real User Monitor Transactions	Real User Monitor container	Automatically added with engine object
	Global HTTP Error Event	Real User Monitor engine or settings directory	Automatically added with engine object
	Application or Page Event	Real User Monitor application or page directory	Automatically added with engine object

For details on:

- Business Process objects, see "Business Process Monitor Administration" on page 65.
- Real User Monitor objects, see "Real User Monitor Administration" on page 293.

End User Management Administration User Interface

This section describes:

- Global Replace Page on page 44
- New/Edit Container Page on page 47
- New/Edit View Page on page 48
- Views Tab on page 51

Global Replace Page

Description	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 monitor tree. **To access:** Select **Admin** > **End User Management** > **Global Replace** tab.
Included in Task	"Perform a Global Replace – Workflow" on page 25
Useful Links	"Global Replace" on page 21

This section includes the following topics:

- "Select by Type Panel" on page 45
- "Selected Objects Panel" on page 45
- "Configuration Settings Area" on page 47

Select by Type Panel

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

GUI Element (A–Z)	Description
<**Object tree**>	An expandable tree you use to select the class or type of objects to be used as targets for the replace operation. The tree mirrors the current view setting and selection in the monitor tree. Expand the tree by clicking the plus icon to the left of an object name. Select the check box to the left of an object name to include the object as a target for the replace operation.
Apply Selection	Click the **Apply Selection** button to locate all objects of the types you selected in the object tree that are currently configured in the monitor tree. The objects are then available for review in the **Selected Objects** panel.
Recursive Selection	Select the Recursive Selection check box to enable the automatic selection of all child nodes when you select a parent node in the object tree. You use this to include all objects within an object type hierarchy. **Example:** To perform a global replace operation on all Real User Monitors, the Recursive Selection option recursively selects all Real User Monitors when you check the box to the left of the Real User Monitor object type in the object tree.

Selected Objects Panel

Description	Displays information and controls that you use to verify the targets of the replace operation and refine the selection of target objects and properties.
Important Information	The Selected Objects panel is only populated after you make selections in the **Select by Type** panel and apply the selection. If a message "0 objects selected" is shown, you should review your selections in the **Select by Type** panel and click the **Apply Selection** button.

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

GUI Element (A–Z)	Description
<Selected Objects tree>	Displays the specific objects and names as they are configured in End User Management Administration. **Default value:** All objects that match the applied criteria in the **Select by Type** panel are selected.
Collapse All	Collapses the Selected Objects tree.
Expand All	Expands the Selected Objects tree to show all object types matching the criteria selected in the **Select by Type** panel.
Expand Selected	Expands the Selected Objects tree to show currently selected objects. The object nodes are those that match the criteria selected in the **Select by Type** panel and those objects that have not be deselected previously. **Tip:** This option is useful if there are a large number of objects in the tree, but you have deselected several of them. Using the **Collapse All** button followed by the **Expand Selected** button redisplays the tree with only the updated selection of objects displayed.
Replace	Select this option to search the target objects and replace the selected properties with the values entered in the configuration settings fields. Existing configuration properties are completely replaced with the values entered in the Global Replace tab.
Show all properties	Select this option to include all properties for the selected object types.
Show shared properties	Select this option to include only those properties which are shared or common to all of the selected object types.

Configuration Settings Area

Description	Displays the configuration settings and properties that are common among all of the objects selected in the tree in the **Selected Objects** panel. If you select **Show all properties** in the **Selected Objects** panel, all of the properties are listed whether or not they are common to all of the selected objects. Depending on the degree of commonality, the common settings are organized into subsections with **Main Settings** listed first.

New/Edit Container Page

Description	Enables you to create a new container in the monitor tree, or to edit an existing container. **To access:** ➤ Right-click the container into which you want to add a container and select **New Container** from the menu displayed. ➤ Highlight the enterprise container into which you want to add a container and click the **New Container** button at the top of the Contents page. ➤ Right-click the container you want to edit and select **Edit** from the menu displayed.

Main Settings

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

GUI Element (A–Z)	Description
Name	Enter a name for the container. **Syntax exceptions:** The maximum length is 250 characters.

Advanced Settings

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

GUI Element (A–Z)	Description
Description	Enter a description for the container. The description is visible only when editing or viewing the container's properties.

New/Edit View Page

Description	Enables you to create a new view in End User Management Administration, or to edit an existing view. **To access:** Select **Applications** > **End User Management Administration** > **Views** tab: ➤ Click the **New View** button to create a new view ➤ Select the check box for an existing view and click the Edit button.
Useful Links	"Setting Views" on page 20

This section includes the following topics:

➤ "Main Settings" on page 49

➤ "Filter by Type" on page 49

➤ "Advanced Settings" on page 50

➤ "Filter by Property Values" on page 51

Main Settings

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

GUI Element (A-Z)	Description
Name	Enter the view filter name that appears in the list of available views above the monitor tree.
Result Type	Select whether you want your view to appear as a flat list or in a hierarchy.

Filter by Type

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

GUI Element (A-Z)	Description
Apply Selection	Click to apply your selection. A scroll bar opens on the right-hand side of the page. Use the scroll bar to scroll down to view the **Advanced Settings** and **Filter by Property Values** areas.
Recursive Selection	Select the **Recursive Selection** check box to automatically select all child objects of a selected object. **Note:** If you have selected Recursive Selection and want to remove a selected object from the selection, you must clear the selection of the object which you do not want to appear in the view and clear Recursive Selection. If you do not clear Recursive Selection, all objects within that parent object appear in the view even if you have cleared that object from the selection. For example, to configure a view displaying all business process profiles except for a specific transaction monitor, select Recursive Selection, select the Business Process Profile object type, clear the selection for the specific transaction monitor, and then clear Recursive Selection.

GUI Element (A-Z)	Description
Show all properties	Select the **Show all properties** option to display in the **Filter by Property Values** area all properties associated with all the object types selected in this Filter by Types list.
Show shared properties	Select the **Show shared properties** option to display in the **Filter by Property Values** area only those properties that are shared by all the object types selected in this Filter by Types list.
Types	Select one or more object types by which you want to filter your view. The Filter by Types list presents every object type within its respective hierarchy as they are represented in the monitor tree, including those that may not have been defined or added to your tree.

Advanced Settings

Description	Optionally, enter a description for the view. This description is available only in the **Views** page and when editing the view.

Filter by Property Values

Description	Enables you to further refine your view by selecting properties for the object types selected in the Filter by Types area. If you selected the **Show shared properties** option in the Filter by Types area, only those properties that are common to all of the selected object types are listed. If you selected the **Show all properties** option in the Filter by Types area, all of the properties that are associated with all of the selected object types are listed. Each set of properties is displayed in an expandable table. Select the check box to the left of the property by which you want to filter your view and enter or select a value for the property. You can select multiple properties. **Note:** There are properties that cannot be used for filtering a view. These are listed in the Filter by Properties area but with a message indicating that they are unavailable. **Example:** To filter the view using a threshold setting, expand the Threshold Settings area. All the thresholds applicable to the selected objects are listed. Select the required thresholds and enter the values you want for the view.

Views Tab

Description	Displays existing views configured in End User Management Administration and enables you to manage them. Also enables you to create new views. **To access:** Select **Applications** > **End User Management** > **Views** tab
Useful Links	“Setting Views” on page 20

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

GUI Element (A-Z)	Description
<Check box>	Select the check box to the left of a configured view to select it for editing or deletion when you click the Edit or Delete buttons.
Description	Displays the description of configured views.
Name	Displays the names of configured views.
New View	Click the **New View** button to open the New/Edit View page, where you create a new view, or edit an existing view. For details on the user interface, see "New/Edit View Page" on page 48.

2

End User Management Reports

This chapter provides information on End User Management Reports.

This chapter includes:

Concepts

- End User Management Reports - Overview on page 53
- Status Snapshot on page 56

Reference

- End User Management Reports User Interface on page 58

End User Management Reports - Overview

HP Business Availability Center End User Management 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 End User Management application to view and analyze reports based on performance data collected by HP Business Availability Center data collectors and stored in the HP Business Availability Center database.

End User Management 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 End User Management reports from the End User Management application in the Applications menu.

For details on working with HP Business Availability Center reports, see "Working in Reports - Overview" in *Reports*.

For details on configuring reports in HP Business Availability Center, see "Configure Business Process Reports" on page 188.

Report Access and Permissions

The availability of report data for a specific user is dependent on the profile access permissions granted that user. Furthermore, access to specific data within a profile can also be limited by the administrator using report filters. For details on granting permissions, see "Permissions Overview" in *Platform Administration*. For details on setting report filters, see "Report Filters Page" on page 243.

Data Aggregation

HP Business Availability Center 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 HP Business Availability Center, see "Data Aggregation" in *Reference Information*.

Report Types

The following types of End User Management reports are available:

Reports	Description	For Details, See...
End User Management Snapshot Status	Displays a summary of the five worst transactions and locations for Business Process Monitor for the last day. For Real User Monitor, End User Management displays the five worst sessions (that is, the least available) and the slowest applications.	"Status Snapshot" on page 58
Summary reports	Displays reports that provide an overall snapshot of the health of your monitored environment. Report data is based on Business Process Monitor data.	"Business Process Reports User Interface" on page 192
Business Process reports	Displays 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 problems. Report data is based on Business Process Monitor data.	"Business Process Reports User Interface" on page 192

Reports	Description	For Details, See...
Real User Monitor reports	Displays reports that help you monitor the experience of real users who access your application. Report data is based on Real User Monitor data.	"Real User Monitor Reports User Interface" on page 454
Network and Tool reports	Displays reports that help you identify problems along the network. Report data is based on WebTrace/Traceroute monitor data.	"Business Process Reports User Interface" on page 192

Status Snapshot

The Status Snapshot displays a summary of the following data:

- for Business Process Monitor, the five worst transactions and locations (that is, the least available) across all profiles, for the last day
- for Real User Monitor, the five least available applications (that is, the applications with the highest number of sessions ending in error) and the five slowest applications, for the last day

From the data in the graphs, you can drill down to the Transaction Analysis, Location Analysis, and Session Analyzer reports.

For Business Process Monitor, End User Management calculates the Status Snapshot by data aggregation, once an hour (by default). For Real User Monitor, End User Management calculates the Status Snapshot on raw data.

The calculated data resides in the cache and remains there until an hour has passed and a user has accessed the Status Snapshot. When these two criteria are fulfilled, End User Management empties the cache and calculates the data again. If a user attempts to access the Status Snapshot when the cache is empty, a message is displayed until new data is processed.

You can verify the date and time that data was last calculated by looking at the Status Snapshot title:

You can customize the End User Management setting that defines the time (in seconds) to hold cached calculated data for the Status Snapshot.

To define the time to hold cached calculated data for the Status Snapshot report:

Select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Foundations**, select **End User/System Availability Management**, and locate the **End User Management Status Snapshot data timeout** entry in the **End User/System Availability Management – Timing** table. Modify the value to the number of seconds required.

Note for HP Software-as-a-Service customers: To access the **End User/System Availability Management – Timing** table, select the Customer Settings tab.

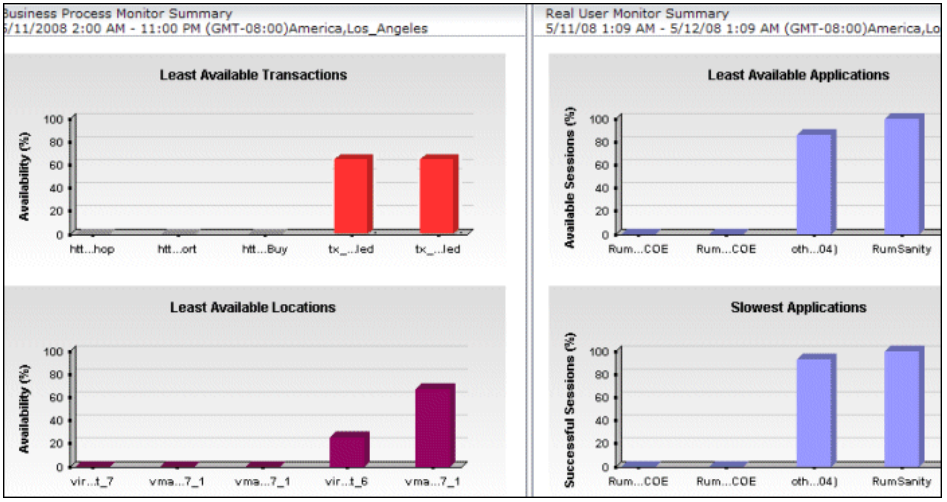
End User Management Reports User Interface

This section describes:

➤ Status Snapshot on page 58

Status Snapshot

The following is an example of the Status Snapshot.



Description	Displays a summary of the following data: ➤ for Business Process Monitor, the five worst transactions and locations (that is, the least available) across all profiles, for the last day. ➤ for Real User Monitor, the five least available applications (that is, the applications with the highest number of sessions ending in error) and the five slowest applications, for the last day **To access:** Select **Applications** > **End User Management** > **Status Snapshot**
Important Information	You can customize the End User Management setting that defines the time (in seconds) to hold cached calculated data for the Status Snapshot. To modify the time to hold cached calculated data, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Applications**, select **End User/System Availability Management**, and locate the **End User Management Status Snapshot data timeout** entry in the **End User/System Availability Management – Timing** table. Modify the value to the number of seconds required.
Useful Links	"Status Snapshot" on page 56

The section includes the following topics:

➤ "Least Available Transactions Graph (Business Process Monitor Summary)" on page 60

➤ "Least Available Locations Graph (Business Process Monitor Summary)" on page 60

➤ "Least Available Applications Graph (Real User Monitor Summary)" on page 61

➤ "Slowest Applications Graph (Real User Monitor Summary)" on page 62

Least Available Transactions Graph (Business Process Monitor Summary)

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

GUI Element (A-Z)	Description
<Bars>	Indicate the availability percentage for a specific transaction. Click a bar to drill down to the **Transaction Analysis** report for the transaction. For details on the user interface, see "Transaction Analysis Report" on page 260. **Tooltip:** Transaction name, the relevant business process profile, average response time, average availability, number of successful transaction runs, and total number of transaction runs.
<Transaction name> (x-axis)	Displays the names of the five worst transactions.
Availability (%) (y-axis)	Displays the percentage of availability.

Least Available Locations Graph (Business Process Monitor Summary)

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

GUI Element (A-Z)	Description
<Bars>	Indicate the availability percentage for a specific location. Click a bar to drill down to the **Location Analysis** report for the location. For details on the user interface, see "Location Analysis Report" on page 219. **Tooltip:** Location name, the relevant business process profile, average response time, average availability, number of successful transaction runs, and total number of transaction runs.

GUI Element (A-Z)	Description
Availability (%) (y-axis)	Displays the percentage of availability.
Location name (x-axis)	Displays the names of the five worst locations.

Least Available Applications Graph (Real User Monitor Summary)

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

GUI Element (A-Z)	Description
<Application name> (y-axis)	Displays the names of the five least available applications.
<Bars>	Indicate the percentage of available sessions for a specific application. Click a bar to drill down to the **Session Analyzer** report for the application. For details on the user interface, see "Session Analyzer Report" on page 612. Tooltip: Application name, percentage of available sessions, performance, available sessions, and total sessions.
Available Sessions (%) (y-axis)	Displays the percentage of available sessions.

Slowest Applications Graph (Real User Monitor Summary)

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

GUI Element (A-Z)	Description
<Application name> (y-axis)	Displays the names of the five slowest applications.
<Bars>	Indicate the percentage of successful sessions for a specific application. Click a bar to drill down to the **Session Analyzer** report for the application. For details on the user interface, see "Session Analyzer Report" on page 612. Tooltip: Application name, percentage of available sessions, performance, successful sessions, and total sessions.
Successful Sessions (%) (y-axis)	Displays the percentage of successful sessions.

Part II

Business Process Monitor

3

Business Process Monitor Administration

This chapter provides information on Business Process Monitor Administration in End User Management.

This chapter includes:

Concepts

- Creating Business Process Profiles and Monitors Overview on page 66
- Managing Business Process Profiles Overview on page 67
- Maintaining Business Process Profiles on page 68
- Baselines on page 70
- Monitoring Essential Transactions on page 73
- Editing the Schedule for Business Process Profiles on page 74
- Enabling Component Breakdown on page 74
- Managing Alerts and Recipients on page 77
- Enabling SOA Transaction Breakdown on page 77

Tasks

- Set up Business Process Monitors – Workflow on page 80
- Plan Profiles – Workflow on page 82
- Replicate Profiles and Monitors on page 83
- Zip Scripts on page 84

Reference

- Guidelines for Working with QuickTest Professional on page 85
- VuGen Recording Tips on page 89

➤ Business Process Monitor Administration User Interface on page 100

Troubleshooting and Limitations on page 155

Creating Business Process Profiles and Monitors Overview

The Business Process Monitor collects availability and performance data from various points throughout the infrastructure, as well as from external locations, as defined in the business process profiles created using End User Management Administration. The profiles run transactions which perform the business processes you want to monitor and WebTrace monitors to collect server/network performance data.

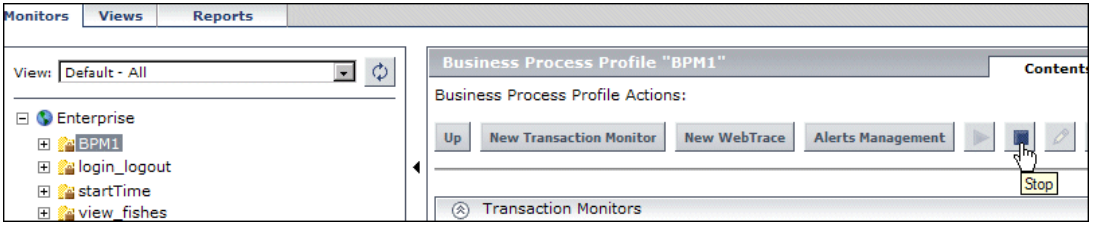
Before creating profiles for the Business Process Monitor to run, it is important to establish a monitoring strategy for the organization. This includes following some basic profile planning guidelines as well as setting up your data collectors and platform. For details, see "Plan Profiles – Workflow" on page 82.

Once you have planned your profiles, you begin the process of creating the profiles and their monitors in End User Management Administration. You create profiles and monitors, and configure their settings using the **Business Process Profile wizard**. For details on the user interface, see "Business Process Profile Wizard" on page 102.

You also use the **Business Process Profile wizard** to add transaction monitors to an existing profile. When you choose this option, the **Add Transaction Monitor Scripts** page of the wizard opens. For details on the user interface, see "Add Transaction Monitor Scripts Page" on page 106.

Once a profile is created or transactions are added to a profile, you can modify them using the monitor tree, Contents tab and Properties tab in End User Management Administration. For details on this topic, see "Managing Business Process Profiles Overview" on page 67.

Once you have created a profile, added one or more transaction monitors, and configured the schedule settings, End User Management Administration begins running the profile by default. To stop the profile run, right-click the profile and choose **Stop Profile** or highlight the profile and click the **Stop Profile** button in the Contents tab. To begin running the profile again, choose **Start Profile**.



Managing Business Process Profiles Overview

Business process profiles and transaction monitors are created using the Business Process Profile wizard. For details on the user interface, see "Business Process Profile Wizard" on page 102. Once created, these profiles and monitors are represented in the monitor tree in End User Management Administration. To make any changes to these profiles and monitors, you must use the monitor tree, Properties tab, and Contents tab.

You use End User Management Administration to:

- edit business process profiles. For details on the user interface, see "Edit Business Process Profiles Page" on page 125.
- edit business process profile transaction monitors. For details on the user interface, see "Edit Transaction Monitor Page" on page 132.
- reassign monitors to run on host locations. For details on the user interface, see "Data Collectors Page" on page 122.
- define data collector configurations for business process profiles, including group names, schedules, and advanced properties at the host location level. For details on the user interface, see "Data Collectors Page" on page 122.
- edit WebTrace destinations for business process profiles. For details on the user interface, see "Edit WebTrace Monitors Page" on page 141.

- specify Single URL monitors (HP Software-as-a-Service customers only). For details on the user interface, see "New Single URL Monitor Page" on page 143.
- copy and paste configuration settings for profiles and monitors. For details on how to perform this task, see "Replicate Profiles and Monitors" on page 83.
- start and stop the running of business process profiles.

  You use the monitor tree to navigate through containers and elements in the tree structure and drill down to monitor and other configuration settings. For details on the different hierarchy elements, see "Understanding Monitor Tree Objects" on page 22.

  You can customize your view of the monitor tree to list only those elements with which you are working. For details on this topic, see "Setting Views" on page 20.

  In addition, End User Management Administration enables you to change configurations across multiple profiles and transaction monitors using **Global Replace**. For details on this topic, see "Global Replace" on page 21.

Maintaining Business Process Profiles

Over time, you may find it necessary to make changes to profiles that you create, due to organizational changes, changes to your network environment, and so forth. You edit existing business process profiles in End User Management Administration.

You also may find it necessary to synchronize the information stored in the profile database with your monitor tree.

Note that you do not have to stop a profile run to edit the profile. However, when you make changes to profiles, the data that HP Business Availability Center collects reflects the changes that you make. Such changes may be significant when you are viewing performance data reports. Keep in mind that, if you choose to view a report for a time period during which changes were made to the profile, the significance of the data may be affected.

The following table describes typical changes that might occur in your organization, requiring you to modify profiles:

Type of Change	Description
Changes to your network	Changes to your network may require you to select different host machines on which to run scripts. Alternatively, if your network grows, you may want to add hosts to a business process profile.
Changes to your customer base	Changes to your customer base may require you to select different locations, which better reflect the geographical dispersion of your customers.
Changes within your organization	Changes within your organization, such as opening or closing of branch offices, or restructuring of departments, may require you to select different data collectors and/or different Group settings for them.
Changes to your monitored application	Changes to your monitored application may require you to redefine or rerecord existing scripts to suit the changes to the application. Alternatively, if new features are added to the application, you may want to define or record new scripts that include these new URLs or business processes, and add them to the profile.
Changes to application performance monitoring priorities	Changes to application performance monitoring priorities—due to changes in application usage, competition, hardware or software improvements, and so forth—may require you to modify your profiles. For example, you may decide that a particular transaction in your profile no longer reflects a typical or commonly used business process in your application. In such a case, you may want to remove the transaction from the profile and replace it with a more relevant one.

Note: After changing a profile name, users viewing the trend reports for that profile must log in to HP Business Availability Center again.

Baselines

Measuring your baseline is essential for knowing the normal performance of your application. Having a baseline helps you know how your site typically performs and determine whether a performance problem is an isolated incident or a sign of a significant downward performance trend.

Performance metrics are analyzed over a period of time and are used to provide a comparison for establishing acceptable performance ranges. When a monitor's performance exceeds that range by some value, the monitor can signal an error or warning. The acceptable performance range of a monitor is determined by how far the current performance is from the baseline. Using realistic baseline threshold values is important so that you receive errors and warnings on transaction response times that are genuinely problematic.

You can configure HP Business Availability Center to calculate transaction baseline thresholds for a business process profile and can use the calculated threshold values to update transaction thresholds either manually, or automatically. Using HP Business Availability Center's baseline option provides you with realistic transaction baseline thresholds based on real data, that are updated on a daily basis.

For details of working with baselines when editing business process profiles, see "Edit Business Process Profiles Page" on page 125.

This section includes the following topics:

- "Calculating Baseline Thresholds" on page 71
- "Using Suggested Transaction Thresholds Manually" on page 71
- "Updating Transaction Thresholds Automatically" on page 72
- "Reverting to Previous Transaction Threshold Values" on page 72

Calculating Baseline Thresholds

When you initially activate baselining for a business process profile, by default HP Business Availability Center analyzes available transaction raw data for the last three months and calculates suggested transaction thresholds for all the transactions included in the profile. A new analysis and calculation is made each day (at 1 A.M. according to your system time zone) using a rolling date (that is, each day the latest date is added to the calculation period and the earliest date is removed). If there is less than three months of available data, HP Business Availability Center uses the existing available data and each day adds the new data until a three month period is reached, at which time a rolling date is used. You can change the start date of the analysis and calculation to any day within the past three months.

To activate baselining for a profile, you edit the profile and select the **Manual** mode. The calculation can take a number of hours and a status bar is displayed indicating the progress (as a percent) and the estimated time to completion. You cannot switch to one of the automatic baseline modes, or use suggested thresholds manually until the calculation has ended. You can set an upper limit for each transaction in the profile, which is the highest threshold value for the transaction that is suggested or set by HP Business Availability Center's baseline option.

Using Suggested Transaction Thresholds Manually

When you activate baselining for a business process profile, once the suggested baseline thresholds have been calculated you can view and use them when editing the profile's transaction thresholds. You can view the suggested thresholds for all the transactions in the profile and can select the specific transactions for which you want to use the suggested thresholds. The threshold values for those transactions are then updated with the suggested values.

Updating Transaction Thresholds Automatically

When you activate baselining for a business process profile, once the suggested baseline thresholds have been calculated you can select one of the automatic baseline modes. When you use an automatic mode, HP Business Availability Center updates all the transactions in the profile with the suggested baseline threshold values on a daily basis. The suggested baseline threshold values are updated automatically only if there is a significant change from the existing value (by default, 10% or more). There are two automatic modes:

- **Automatic mode for Dashboard and Alerts applications.** In this mode, the transaction threshold values are automatically updated for use in Dashboard and Alerts, but manually configured thresholds are used in reports. You can edit the profile's transaction thresholds manually for reports and use suggested baseline thresholds as required. The automatically updated threshold values are not visible when you edit the profile.
- **Automatic mode for Dashboard, Alerts and Reports.** In this mode, the transaction threshold values are automatically updated for use in Dashboard, Alerts and Reports. The automatically updated threshold values are visible when you edit the profile, but you cannot change them manually.

Reverting to Previous Transaction Threshold Values

When you select the automatic mode for Dashboard, Alerts and Reports for a profile, the currently configured transaction threshold values are saved. If you decide to change the baseline mode to either manual or automatic mode for Dashboard and Alerts applications, you can revert to the saved threshold values that were in use before you activated the automatic mode for Dashboard, Alerts and Reports. This option is only available at the time you change the baseline mode when editing the profile. Once you have saved the edited profile configuration, you cannot revert to these previous values.

Monitoring Essential Transactions

The Business Process Monitor emulates 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 Profiles

When determining how often to run a business process profile, 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 profile to run more frequently.
- How much load the system can handle. If the script run by the profile creates a high load on the system, schedule the profile 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 a profile more frequently.
- How much load can the Business Process Monitor and Business Availability Center handle. If you schedule a profile to run very frequently, it increases the load on the Business Process Monitor and Business Availability Center. This may affect the performance of all the scripts run on the overloaded Business Process Monitor and the performance of Business Availability Center.
- 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 profile 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 a transaction monitor, you can select the **Perform component breakdown** option to specify that you want HP Business Availability Center 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.

Collecting component breakdown data enables drilling down in the transaction breakdown reports, in the End User Management 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 "Page Component Breakdown Report" on page 232.

This section includes the following topics:

➤ "Protocols for Breakdown" on page 75

➤ "Breakdown Samples" on page 76

Protocols for Breakdown

For component breakdown to appear in reports, the script containing the transactions must have been recorded using one of the following protocols:

➤ **Web based protocols.** HTTP, Oracle NCA, OracleWebJS, PS8, PS8WebJS, QTWeb, SAP_Web, SapJS, Siebel_Web, SOAP, WebJS, WinSockWeb, WS_SOAP

➤ **Non-Web based protocols.** SAP GUI, SMTP, POP3, IMAP, Oracle 2-Tier, ODBC, FTP, LDAP, EJB, RMI Java, Java Record/Replay, Oracle NCA. For notes and limitation on non-Web based protocols, see "Notes and Limitations for Non-Web Based (TCP) Protocols" on page 175.

Note: If a script for which Business Process Monitor 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 in the **agent1.cfg** file on the Business Process Monitor 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 Business Process Monitor machine.

For details on the agent1.cfg file, see "Parameters in agent1.cfg" in the *Business Process Monitor Administration* PDF.

Breakdown Samples

By default, HP Business Availability Center 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 Business Process Monitor 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 configuring transaction thresholds, see "Transaction Threshold Settings" on page 137.

Managing Alerts and Recipients

Once you have set up your profiles and monitors, you can create alert schemes for those profiles to inform users when predefined performance limits are breached.

You can define alert schemes for your profiles by choosing **Alerts Management** from the Business Process Profile menu (right-click a profile in the monitor tree) or in the Contents page under the list of business process profiles. The Alerts Management page opens listing all the alerts configured for the selected profile. To a create a new alert scheme for the profile, click **New Alert**.

For details on configuring alert schemes, see "Create Event-Based Alert Schemes – Workflow" and for details on defining recipients to receive alerts, see "Configure and Manage Recipients" in *Alerts*.

Enabling SOA Transaction Breakdown

You can configure Business Process Monitor to send SOA data to HP Business Availability Center for inclusion in HP Business Availability Center for SOA reports and Dashboard. For details on incorporating SOA data from HP Business Process Monitor in HP Business Availability Center for SOA, see "Enrich the SOA Model From Scripts" in *Solutions and Integrations*.

If a script contains both regular Business Process Monitor transactions and SOA WebService calls, samples for both types of data are sent to HP Business Availability Center. Data for the regular Business Process Monitor transactions is included in HP Business Availability Center reports and Dashboard, and data for the SOA WebService calls is included in HP Business Availability Center for SOA reports and Dashboard. There is no automatic link between the two types of data, that is, you cannot view or access SOA breakdown data from regular Business Process Monitor 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 details on the user interface, see "Transaction Breakdown Settings" on page 135. You add SOA scripts to a transaction monitor in the same way that you add regular Business Process Monitor scripts. For details on the user interface, see "Add Transaction Monitor Scripts Page" on page 106.

For details on troubleshooting and limitations for SOA transaction breakdown, see "SOA Transaction Breakdown Troubleshooting and Limitations" on page 156.

This section includes the following topics:

- "Prerequisites" on page 78
- "Samples" on page 79
- "Transactions" on page 79
- "Configuration and Log Files" on page 79

Prerequisites

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

- You have a valid HP Business Availability Center for SOA license.
- You are using HP Business Availability Center version 7.50 or later.
- You are using HP Business Process Monitor version 7.50 or later. If you are using an earlier version of HP Business Process Monitor, the check box to enable SOA data for a transaction monitor is visible and can be selected in End User Management Administration, but no SOA data is sent to HP Business Availability Center from the Business Process Monitor 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 156.

Samples

If SOA breakdown is enabled for a transaction monitor, a performance sample is sent by the Business Process Monitor to HP Business Availability Center 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 Business Process Monitor 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, HP Business Process Monitor 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, HP Business Availability Center.

Configuration and Log Files

For details on the Business Process Monitor 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.

Set up Business Process Monitors – Workflow

This task describes the process required to set up and use Business Process Monitor 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 80
- "Install Business Process Monitor Components" on page 80
- "Create Scripts" on page 80
- "Upload Scripts to the Central Repository Service" on page 81
- "Create Business Process Profiles" on page 81
- "Grant Permissions" on page 81
- "View Business Process Monitor Data in Reports and Dashboard" on page 81

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 Business Process Monitor scripts). For details on how to perform this task, see "Plan Profiles – Workflow" on page 82.

2 Install Business Process Monitor Components

Install Business Process Monitor on machines designated to run scripts recorded with HP script recording tools such as HP Virtual User Generator. You can run multiple Business Process Monitors 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, see the HP Virtual User Generator documentation.

4 Upload Scripts to the Central Repository Service

In the Central Repository Service, organize your uploaded scripts into folders. For details on the Central Repository Service user interface, see "Central Repository Service Main Page" in *Platform Administration*.

Note: Scripts can also be uploaded to the Central Repository Service while creating a profile in End User Management Administration.

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5 Create Business Process Profiles

In End User Management Administration, create business process profiles and transaction monitors using the Business Process Profile wizard. For details on the user interface, see "Business Process Profile Wizard" on page 102.

6 Grant Permissions

Grant permissions so that users can view and modify the business process profile settings. For details on this topic, see "Permissions Overview" in *Platform Administration*.

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

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7 View Business Process Monitor Data in Reports and Dashboard

Once data on the configured business process profiles has been collected, you can view the data in Business Process Monitor reports and in Dashboard.

For details on Business Process Monitor reports, see "Business Process Reports Overview" on page 160.

For details on viewing Business Process Monitor data in Dashboard, see "View Components" in *Using Dashboard*.

Plan Profiles – Workflow

This task describes how to plan Business Process Monitor profiles to most effectively manage application performance. The information described in the steps below can assist you with effective profile planning and should be considered before you create and run profiles.

This task includes the following steps:

- "Prerequisites" on page 82
- "Establish a Baseline" on page 83
- "Monitor Essential Transactions" on page 83
- "Monitor from Different Locations" on page 83

1 Prerequisites

Before you begin profile creation, make sure you:

- start the Business Process Monitor on the host machines designated to run business process profiles – for details, see the *Business Process Monitor Administration* PDF.
- record scripts which are added to create transaction monitors for business process profiles – for details, see the HP Virtual User Generator documentation and "Guidelines for Working with QuickTest Professional" on page 85.
- add the recorded scripts to the Central Repository Service either while saving in your scripting tool or using Platform Administration – for details, see "Central Repository Service Main Page" in *Platform Administration*.
- configure required administration settings, including database connections and permissions – for details, see "Database Administration" and "Permissions Overview" in *Platform Administration*.

2 Establish a Baseline

Measuring your baseline is essential for knowing the normal performance of your application and for providing a comparison for establishing acceptable or expected performance ranges. For details on this topic, see "Baselines" on page 70.

3 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 73.

4 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.

Replicate Profiles and Monitors

This task describes how to replicate configuration settings for profiles and monitors.

To replicate profile and monitor configuration settings:

1. In the monitor tree, right-click the profile or monitor whose configurations you want to replicate. The item's context menu opens.
2. Click **Copy** in the context menu. A message in the information area at the top right of the page indicates whether the copy has been successful.
3. Right-click the item in the monitor tree into which you want to paste the configuration settings and select **Paste** from the context menu.
   - ➤ You can paste a profile directly into the enterprise node or into a container.
   - ➤ You can paste a monitor's configurations only into an existing profile.

The profile or monitor appears in the monitor tree with duplicated configuration settings.

4 To edit the name or any other settings, right-click the object in the monitor tree and select **Edit**. For details on editing business process profiles, see "Edit Business Process Profiles Page" on page 125. For details on editing transaction monitors, see "Edit Transaction Monitor Page" on page 132.

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 End User Management 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.

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 Business Process Monitor. Examples of such environments include: certain Java applications, terminal emulator, home-grown applications written in VB 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 Availability Center. For more information about QuickTest Professional, see the *HP QuickTest Professional User's Guide*.

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

This section includes the following topics:

- "General" on page 86
- "Installing QuickTest Professional" on page 86
- "QuickTest Professional Script Content" on page 87
- "Running QuickTest Professional Scripts" on page 88

General

- Before recording QuickTest Professional scripts, it is recommended to select the **Record and run on these applications** option in the Record and Run Settings dialog box, and to specify the applications against which the script will run. Failure to select this option may result in the failure of Business Process Monitor to run the script. To enable this option, open the script in QuickTest Professional, select **Test** > **Record and Run Settings** > **Windows Applications**, and select the **Record and run on these applications** setting. Make sure the applications against which the script will run are defined.
- When calling values from a parameter file, note the following:
  - DataTable expects the column name as the first parameter, for example DataTable("A") will access value from column A.
  - 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 Business Process Monitor 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's Guide*) on the same machine running the Business Process Monitor that will execute the scripts. It is further recommended to use the same operating system image on all Business Process Monitor machines that will execute the script. If it is not possible to record scripts on the Business Process Monitor machine, make sure to record scripts on a machine whose environment is the same as the Business Process Monitor machines that will run the scripts.
- Make sure to install Business Process Monitor 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 Business Process Monitor. When you install QuickTest Professional you are required to enter license details, but have an option of using QuickTest Professional for a 14 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 Business Process Monitor. 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>"
- You can also add distributed transactions and transactions using manually entered data to scripts. Keep the following points in mind when using distributed transactions.
  - When measuring a distributed transaction over two different Business Process Monitor profiles, the profile with the StartDistributedTransaction statement must be run before the profile with the associated EndDistributedTransaction.
  - When measuring distributed transactions, make sure that you relate the scripts to a single Business Process Monitor instance. Business Process Monitor searches for the end transaction name in all instances, and may close the wrong distributed transaction if it is included in more than one instance.

- When measuring a distributed transaction over two Business Process Monitor profiles, make sure that the timeout value you specify is large enough so that the profile that contains the StartDistributedTransaction step and all the profiles that run before the profile that contains the EndDistributedTransaction step, will finish running in a time that is less than the value of the specified timeout.

- 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 (DataTable, Function Library, Shared Object Repository, Ext. Environment) are not supported unless the external resource can be found from the Business Process Monitor machine (that is, if it was defined using the UNC network path and that UNC network path is also accessible from Business Process Monitor).

Running QuickTest Professional Scripts

- Executing a QuickTest Professional script in a profile (when run by Business Process Monitor) differs from executing it in QuickTest Professional. In Business Process Monitor, 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 Business Process Monitor. 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:

"C:\Program Files\HP\BPM\workspace\agent1\Site1\qtp_script\441\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 Availability Center.

Note: If you change the name of a transaction in a VuGen script, you will no longer see historical data for the transaction in HP Business Availability Center.

This sections includes the following topics:

- "Recommended VuGen Run-Time Settings" on page 90
- "Default Functions at Start of Script" on page 97
- "Recommended VuGen Script Recording Techniques" on page 98

Recommended VuGen Run-Time Settings

The following run-time settings are recommended when creating scripts for HP Business Availability Center 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 Availability Center, 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 Availability Center 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.

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 Availability Center.

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.

Setting	Recommended Value	Remarks
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	Set this in the Multithreading section.
Define each action as a transaction	Disabled	You should manually insert transactions, either during recording or afterward, that reflect the exact business processes for which you want HP Business Availability Center to collect data.
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	Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1; .NET CLR 1.0.3705; .NET CLR 1.1.4322; InfoPath.2; .NET CLR 2.0.50727)	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.
Download non-HTML resources	Enabled	Default setting. This setting is preferable as it simulates real end-user experience.

Setting	Recommended Value	Remarks
Simulate a new user on each iteration	Enabled	Default setting. This setting is applicable to HP Business Availability Center 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 Availability Center only if the number of iterations is set to greater than 1.
DNS Caching	Yes	
HTTP Version	1.1	
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 Business Process Monitor 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 Business Process Monitor 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 Availability Center.
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 Availability Center.
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 Availability Center.
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 Business Availability Center:

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

Note: 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 Availability Center. 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 Availability Center 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 Availability Center 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 Business Availability Center 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.
- You must zip the script folder before uploading to the Central Repository Service in Business Availability Center.

Business Process Monitor Administration User Interface

This section describes:

- Assign Monitors Dialog Box on page 101
- Business Process Profile Wizard on page 102
- Data Collectors Page on page 122
- Edit Business Process Profiles Page on page 125
- Edit Transaction Monitor Page on page 132
- Edit Transaction Page on page 138
- Edit WebTrace Monitors Page on page 141
- New Single URL Monitor Page on page 143
- Profile Schedules Dialog Box on page 147
- Select Related Business Transaction Dialog Box on page 149
- Set Calculation Start Date Dialog Box on page 151
- Set Thresholds Upper Limit Values Dialog Box on page 152
- Suggested Thresholds Dialog Box on page 153
- URL Builder Dialog Box on page 154

Assign Monitors Dialog Box

Description	Enables you to assign multiple monitors to run on selected data collector host locations. The monitor types that can be assigned to a location and that are listed in the Assigned Monitors column in the Data Collectors tab include: ➤ Transaction monitors ➤ WebTrace monitors ➤ Single URL monitors (business process profiles for HP Software-as-a-Service customers only) **To access:** Click a monitor link in the **Assigned Monitors** column in the Assign Data Collectors Page or the Data Collectors Page. **Note:** If no monitors are running on this host, the link is the word **None**.

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

GUI Element (A–Z)	Description
Assign	Click **Assign** to confirm your selections and close the Assign Monitors dialog box.
Assigned Monitors	In the Assign Monitors area, select the monitor you want to remove from the **Assigned Monitors** list, and use the lower arrow to remove the recipient. After removing, the recipient appears in the **Available Monitors** list. You can select multiple recipients using the CTRL key or click the **Remove All** arrow to select all the monitors.
Available Monitors	Select the monitors that you want to assign to run on the selected data collector location or group from the **Available Monitors** list, and use the upper arrow to move your selections to the **Assigned Monitors** list. You can select multiple monitors using the CTRL key or click the **Add All** arrow to select all the monitors.

Business Process Profile Wizard

Description	Enables you to create business process profiles and add transaction monitors to profiles. Optionally, you can also set transaction thresholds, add WebTrace monitors to profiles, select data collectors to run the monitors, and configure data collector settings (group name, schedule, advanced settings). **To access:** ➤ Select **Admin** > **End User Management** > **Monitors** tab > **Contents** tab. In the Monitor tree, highlight the container into which you want to add the profile and click the **New Business Process Profile** button at the top of the page. ➤ Select **Admin** > **End User Management** > **Monitors** tab > **Contents** tab. In the Monitor tree, highlight a business process profile to which you want to add a transaction monitor and click the **New Transaction Monitor** button at the top of the page. The **Add Transaction Monitor Scripts** page of the wizard opens.
Wizard Map	The Business Process Profile Wizard contains: Define Profile Properties Page > Add Transaction Monitor Scripts Page > (Set Transaction Properties Page) > (Add WebTrace Monitors Page) > (Select Data Collectors Page) > (Assign Data Collectors Page) > Summary Page
Useful Links	"Creating Business Process Profiles and Monitors Overview" on page 66 "Navigating and Performing Actions in the Contents Tab and the Monitor Tree" on page 18

Define Profile Properties Page

Description	Enables you to define a business process profile and configure its main settings.
Important Information	➤ You can create an empty profile by clicking Finish and at a later stage add transaction or WebTrace monitors to it. ➤ To create a profile and to continue in the wizard, you must enter the mandatory information required in this page. Mandatory fields are marked with a red asterisk.
Wizard Map	The Business Process Profile Wizard contains: **Define Profile Properties Page** > Add Transaction Monitor Scripts Page > (Set Transaction Properties Page) > (Add WebTrace Monitors Page) > (Select Data Collectors Page) > (Assign Data Collectors Page) > Summary Page

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

GUI Element (A–Z)	Description
Add CIs	Optionally, click **Add CIs** to attach a CI to this profile. You can create these relationships between profiles and any existing, logical CI in the CMDB. This relationship enables the monitor or profile to pass KPI status to the CI to which it is attached. For details on attaching CIs in End User Management Administration, see “Configuration Items and End User Management Monitor Objects” on page 24.
Description	Enter a description for the profile that appears in reports as the tooltip for the profile name.

GUI Element (A–Z)	Description
GMT Offset	Select a **GMT offset—**the time zone, in relation to GMT, that HP Business Availability Center uses to determine when daily aggregation should occur for data collected by this profile. For a reference list of GMT time zones for locations throughout the world, see "GMT Time Zones" in *Reference Information*. **Tip:** The time zone should be set to match the time zone in which the HP Business Availability Center servers and database machine are located. **Example:** if you want Business Availability Center to aggregate data collected by the profile based on Pacific Time, enter -8, since Pacific Time is GMT-8 hours.
Manage Profile Databases	If you want to create a new profile database, click the **Manage Profile Databases** link which takes you to the page in Platform Administration where you can create a new profile database. For details on creating a profile database, see "Database Administration" in *Platform Administration*. **Note to HP Software-as-a-Service customers:** You must select a **Package Name**, rather than a profile database. If no package exists, a message appears at the top of the page with a link to the Customer Policy dialog box where you can create a package. If a package exists and you want to modify it or create a new one, you can use the **Customer Policy** link below the package field to open the Customer Policy dialog box. For details, see "Package Information Page" in *Platform Administration*.

GUI Element (A–Z)	Description
Name	Enter a descriptive name that assists in identifying the profile in the monitor tree, in Dashboard, and in reports. **Note:** Profile names must be entered in the same language that is set for the operating system of the Business Process Monitor on which they are run. **Syntax exceptions:** Allowed characters are **a-z**, **A-Z**, **0-9**, and **~ ! @ # $ % ^ & ( )_ - { } .**
Profile Database Name	Select a **Profile database** for storing this profile's information. The list includes all the profile databases defined for this Business Availability Center installation.

Add Transaction Monitor Scripts Page

Description	Enables you to select, and configure properties for the transaction monitors that you want your data collectors to run.
Important Information	➤ When you add a transaction monitor to an existing profile by highlighting a profile in the monitor tree and clicking the **New Transaction Monitor** button, you open the **Add Transaction Monitor** page of the wizard and add the monitor using this page. ➤ To add a transaction monitor to a business process profile in End User Management Administration, the files comprising the transaction must be zipped. For details on zipping a transaction's files, see "Zip Scripts" on page 84. ➤ If a transaction in an HP Virtual User Generator script is renamed, Business Availability Center considers it as a new transaction. A new BPM Transaction from Location CI is created in the CMDB using the new name, and the CI with the old transaction name is removed after it stops receiving samples. If the CI is included in a Service Level Management agreement, you will not see historical data for it (from before the transaction name change). ➤ The process for selecting a script differs for HP Software-as-a-Service customers. For details on selecting scripts for HP Software-as-a-Service customers, see "Left Pane for HP Software-as-a-Service Customers" on page 108. ➤ Transaction and script names must be entered in the same language that is set for the operating system of the Business Process Monitor on which they are run.

Wizard Map	The Business Process Profile Wizard contains: Define Profile Properties Page > **Add Transaction Monitor Scripts Page** > (Set Transaction Properties Page) > (Add WebTrace Monitors Page) > (Select Data Collectors Page) > (Assign Data Collectors Page) > Summary Page
Useful Links	HP Virtual User Generator documentation "Central Repository Service Main Page" in *Platform Administration*

This section includes the following topics:

- "Left Pane" on page 107
- "Left Pane for HP Software-as-a-Service Customers" on page 108
- "Right Pane" on page 109

Left Pane

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

GUI Element (A–Z)	Description
<Central Repository Service tree>	The top half of the left pane displays a tree hierarchy of the folders in the Central Repository Service. The top level of the tree is called **Root** by default. Expand the folders to display the contained scripts. Click a script to select it and click the right facing arrow located between the two panes to add the selected script to the profile. The added script is listed in the right pane. You can select multiple scripts using the CTRL key.

GUI Element (A–Z)	Description
Central Repository Service	Click the **Central Repository Service** link to access the Central Repository Service where you can create folders, add scripts, control script versions, and view script and version properties. For details on the Central Repository Service, see "Central Repository Service Main Page" in *Platform Administration*.
Script Details	When a script is selected, its details are displayed below the Central Repository Service tree in the bottom half of the pane. You can see the script's name, description, creation date (the date the script was first checked into the Central Repository Service), modification date (the date the script was last checked into the Central Repository Service), and latest version number.

Left Pane for HP Software-as-a-Service Customers

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

GUI Element (A–Z)	Description
<Available scripts>	Displays the existing scripts in the HP Software-as-a-Service Script Repository. The list of scripts includes the script name, the last update time, and the verification status of the script. Select the check box to the left of a script and click the right facing arrow located between the two panes, to add the selected script to the profile. The added script is listed in the right pane. **Note:** If there are no scripts in the HP Software-as-a-Service Script Repository, a message appears with a link to access the repository.

GUI Element (A–Z)	Description
<Filters>	To filter the list of available scripts, click one of the links above the list to display only those scripts beginning with that letter, number, or symbol (Other). To revert to the complete list, click ALL.
Script Repository	Click the Script Repository link to access the HP Software-as-a-Service Script Repository to view details of available scripts or verify unverified scripts. Only those scripts that have passed verification status can be added to a transaction monitor. For details, see "Script Repository Page" in *Platform Administration*.

Right Pane

Important Information	The right pane lists all scripts selected for the profile, in the order that the profile runs them.

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

GUI Element (A–Z)	Description
	Properties button. Select the check box next to the script whose properties you want to edit and click the **Properties** button to open the **Properties** dialog box. In the **Properties** dialog box, you can perform the following actions: ➤ Add a description for the transactions included in the script. ➤ Click the **Add CIs** button to open the **Select Related CIs** dialog box, where you can attach an existing CI to the script. For details on this topic, see "Configuration Items and End User Management Monitor Objects" on page 24.
	Transaction Breakdown Settings button. Select the check box next to the script whose breakdown settings you want to modify and click the **Transaction Breakdown Settings** button to open the **Edit Breakdown Settings** dialog box. For details on the user interface, see "Transaction Breakdown Settings" on page 135.
<check box>	Select the check box next to the script whose position you want to change and click the Up or Down arrow to move the script higher or lower in the script order.
Name	Displays the names of the scripts included in the transaction monitor.
Path	Displays the paths of the scripts included in the profile.
Version	Displays the version number of the scripts included in the profile. You can change the version number by selecting a different version number from the drop-down list. **Default value:** The latest version that was most recently checked into the Central Repository Service.

Set Transaction Properties Page

Description	Enables you to set transaction response times, which 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 Dashboard and in the reports that display transaction performance data. The color-coding enables quick pinpointing of problem areas that need further analysis. You can set transaction response times for an individual transaction, multiple transactions, or all transactions in a profile. You can also configure how HP Business Availability Center 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.
Wizard Map	The Business Process Profile Wizard contains: Define Profile Properties Page > Add Transaction Monitor Scripts Page > (**Set Transaction Properties Page**) > (Add WebTrace Monitors Page) > (Select Data Collectors Page) > (Assign Data Collectors Page) > Summary Page
Useful Links	"Baselines" on page 70

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

GUI Element (A–Z)	Description
<check box>	Select the check box next to the transactions whose thresholds you want to modify. **Note**: If you select multiple transactions, any changes you make modify the thresholds for all the transactions selected.
Business Transaction	Displays the Business Transaction CI that is mapped to a transaction.
Critical	Displays the response time threshold above which a transaction's status is Critical. **Default value:** 12 seconds **Note:** The default color for critical transactions in Dashboard and reports is red.
Detach Business Transaction	Click the **Detach Business Transaction** button to detach the Business Transaction CI that is mapped to a selected transaction. Note: This button is enabled only when you select a single transaction that has a Business Transaction CI mapped to it.
Edit Transactions Thresholds	Click the **Edit Transactions Thresholds** button to open the **Edit Transactions Thresholds** dialog box, where you enter the new transaction thresholds, in second, for the selected transactions.
Ignore outlier data for reports	Select this check box to instruct HP Business Availability Center to ignore outlier transactions (and not include the data in Dashboard or in reports). **Note**: This is a profile-wide setting and applies to all of the transactions within the profile.

GUI Element (A–Z)	Description
Map Business Transaction	Click the **Map Business Transaction** button to open the Select Related Business Transaction dialog box, where you select the Business Transaction CI to map to a selected transaction. For details on the user interface, see "Select Related Business Transaction Dialog Box" on page 149. For details on integrating End User Management with business transactions, see "Map End-User Transactions to TransactionVision Business Transactions" on page 35. **Note:** This button is enabled only when you select a single transaction that does not have a Business Transaction CI mapped to it.
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 Dashboard 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	Displays the response time threshold below which a transaction's status is OK. **Default value:** 8 seconds **Note:** The default color for OK transactions in Dashboard and reports is green.

GUI Element (A–Z)	Description
Outlier	Displays 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 Dashboard 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**.
Transaction	Displays the transaction name.

Add WebTrace Monitors Page

Description	Enables you to configure WebTrace monitors that 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. WebTrace reports provide information on network performance, which helps you analyze application performance issues. For example, by entering the addresses of the servers receiving the HTTP requests recorded in the profile's Business Process transaction monitors, you can later verify whether poor transaction response times are being caused by problems along the network. For details on the WebTrace report, see "WebTrace by Location Report" on page 282. You can define the locations from which you want to run WebTrace, and specify one or more destination Web sites. Business Availability Center executes the WebTrace between the location of the defined data collector instance and the designated destinations.
Wizard Map	The Business Process Profile Wizard contains: Define Profile Properties Page > Add Transaction Monitor Scripts Page > (Set Transaction Properties Page) > (**Add WebTrace Monitors Page**) > (Select Data Collectors Page) > (Assign Data Collectors Page) > Summary Page

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

GUI Element (A–Z)	Description
Add WebTrace Monitor	Click the **Add WebTrace Monitor** button to configure the destination address for a new WebTrace monitor for the profile.
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 and can also include a port number. For example, www.mydomain.com, 127.0.0.1:80, or mysecured.com:443. **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.

Select Data Collectors Page

Description	Enables you to assign the data collector instances on which to run the profile's transaction monitors.
Important Information	By default, once a profile is added and a data collector selected, all the transaction monitors in the profile are scheduled to be run by the data collector. You can modify which data collectors run which monitors in the **Assign Data Collectors** page of the wizard. For details on the user interface, see "Assign Data Collectors Page" on page 118.
Wizard Map	The Business Process Profile Wizard contains: Define Profile Properties Page > Add Transaction Monitor Scripts Page > (Set Transaction Properties Page) > (Add WebTrace Monitors Page) > (**Select Data Collectors Page**) > (Assign Data Collectors Page) > Summary Page

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

GUI Element (A–Z)	Description
Available Data Collectors	The left pane on the page lists the available data collectors that you can select for the profile. For each data collector, the location, host name, and data collector software version are displayed. You select a data collector for the profile by selecting the check box to the left of the data collector and clicking the right arrow located in the middle of the page, between the two panes. The data collector is moved to the **Selected Data Collectors** pane on the right. **Note to HP Software-as-a-Service customers:** You can use the **Package Information** link to view and edit the details of your current package and running data collectors. You can also use the **Customer Private Pops** link to view any data collectors running for only your company. The list of data collectors includes the version number of the data collector software and indicates whether it is privately run for your company (Private Pop).
Selected Data Collectors	The right pane on the page lists the selected data collectors for the profile. For each data collector, the location, host name, data collector software version, and group are displayed. You remove a selected data collector by selecting the check box to the left of the data collector and clicking the left arrow located in the middle of the page, between the two panes. The data collector is moved to the **Available Data Collectors** pane on the left.

Assign Data Collectors Page

Description	Enables you to: ➤ view details for the data collectors selected for the profile. For details on the Select Data Collectors page, see "Select Data Collectors Page" on page 116. ➤ modify the list of monitors each data collector runs. ➤ configure the data collectors' settings.
Important Information	➤ 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 group name, schedule, or advanced properties are not be saved. ➤ **Note to HP Software-as-a-Service customers:** The table on this page also indicates whether the data collector is run privately for your company (a Private Pop).
Wizard Map	The Business Process Profile Wizard contains: Define Profile Properties Page > Add Transaction Monitor Scripts Page > (Set Transaction Properties Page) > (Add WebTrace Monitors Page) > (Select Data Collectors Page) > (**Assign Data Collectors Page**) > Summary Page

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

GUI Element (A–Z)	Description
Advanced Properties	Click the **Advanced Properties** button to open the Advanced Properties dialog box where you set the run mode, step, and time out properties for the business process profile. These properties instruct the Business Process Monitor on how to run the scripts in the profile. ➤ If you select **Stepped** as the run mode option, set the **Step** value in seconds. (If **Stepped** is not selected as the run mode, this setting is disabled.) ➤ Set the **Time Out** value in seconds. This value determines the time limit after which the data collector (Business Process Monitor) running all the monitors added to this profile 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 Business Process Monitor is 15 minutes). If this value is set to -1 (default value), the timeout value on the Business Process Monitor is used. For details on the specific run mode options and setting the step value, see the *Business Process Monitor Administration* PDF.
Assigned Monitors	Lists all the selected profile's monitors currently scheduled to run on the data collector host location. By default, only the first monitor and last monitor appear on screen. Click the link of monitor names to open the **Assign Monitors** dialog box where you can modify the monitors to run on this data collector. For details on the user interface, see "Assign Monitors Dialog Box" on page 101.

GUI Element (A–Z)	Description
Edit Group	Click the **Edit Group** button to open the Data Collector Group dialog box where you enter the name of the group as you want it to appear in reports. If you selected multiple data collector instances, the group name you enter is the group name for all the selected data collector instances. **Tip**: When assigning group names, keep in mind that you can later organize and break down reports on application performance according to the groups you choose. You should therefore assign group names to locations/hosts according to the criteria you are most interested in tracking. **Example:** If you assign different transaction monitors checking different business processes to different locations, you can assign group names related to the business process being emulated from each location. Another example would be to organize based on meaningful groups used by your organization, such as Internet Service Providers (ISPs), network connection, browser type, and department.
Edit Schedule	Click the **Edit Schedule** button to open the Profile Schedules dialog box, where you define a scheduling scheme for the data collector to run the profile. You can define multiple schedules for a profile running on a specific data collector instance. This enables you to run the profile using different schedules at different times. For details on the user interface, see “Profile Schedules Dialog Box” on page 147. **Note**: Defining a scheduling scheme for business process profiles is optional, as HP Business Availability Center automatically assigns a default scheduling scheme to each data collector instance. You can modify these settings to suit the individual needs of your organization.
Group	The group name assigned to the host location on the Business Process Monitor or in End User Management Administration.

GUI Element (A–Z)	Description
Host	Host alias of the data collector instance as defined on the data collector machine.
Location	Location of the data collector instance as defined on the data collector machine.
Schedule	The schedule configured for the profile to run on the selected data collector (only relevant for monitors running on a Business Process Monitor).
Version	Version of the data collector software installed on the data collector machine.

Summary Page

Description	Enables you to view the profile you just created and all the monitors that have been added to it. Click **Back** to make any changes to the profile or monitors. Click **Finish** to save the profile. Updating your new profile may take a few moments, depending on how many monitors you selected and the size of the scripts added as transaction monitors. The **Finish** page opens displaying the status of the profile and/or monitors you created and indicating if there were any errors during creation **Note:** The object icons are the same as those displayed in the monitor tree. This same hierarchy appears in the monitor tree once you finish the wizard.
Wizard Map	The Business Process Profile Wizard contains: Define Profile Properties Page > Add Transaction Monitor Scripts Page > (Set Transaction Properties Page) > (Add WebTrace Monitors Page) > (Select Data Collectors Page) > (Assign Data Collectors Page) > **Summary Page**
Useful Links	“Understanding Monitor Tree Objects” on page 22

Data Collectors Page

Description	Enables you to: ➤ view details for the data collectors selected for the profile. ➤ 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 profile to any, or all, of the host locations configured for the platform. This gives you a complete picture of all the monitors running within the profile and which Business Process Monitor instances, are running which monitors. **To access:** Select **Admin** > **End User Management**. Highlight a business process profile in the monitor tree and click the **Data Collectors** tab.
Important Information	When using the Business Process Profile wizard to create profiles or add transaction monitors, the process of assigning monitors to host locations is one of the steps in the wizard. For details on the user interface, see "Business Process Profile Wizard" on page 102.

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

GUI Element (A–Z)	Description
Advanced Properties	Click the **Advanced Properties** button to open the Advanced Properties dialog box where you set the run mode, step, and time out properties for the business process profile. These properties instruct the Business Process Monitor on how to run the scripts in the profile. ➤ If you select **Stepped** as the run mode option, set the **Step** value in seconds. (If **Stepped** is not selected as the run mode, this setting is disabled.) ➤ Set the **Time Out** value in seconds. This value determines the time limit after which the data collector (Business Process Monitor) running all the monitors added to this profile 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 Business Process Monitor is 15 minutes). If this value is set to -1 (default value), the timeout value on the Business Process Monitor is used. For details on the specific run mode options and setting the step value, see the *Business Process Monitor Administration* PDF.
Assigned Monitors	Lists all the selected profile's monitors currently scheduled to run on the data collector host location. By default, only the first monitor and last monitor appear on screen. Click the link of monitor names to open the **Assign Monitors** dialog box where you can modify the monitors to run on this data collector. For details on the user interface, see "Assign Monitors Dialog Box" on page 101. **Note:** If no monitors are running on a host, the link is the word **None**.

GUI Element (A–Z)	Description
Edit Group	Click the **Edit Group** button to open the Data Collector Group dialog box where you enter the name of the group as you want it to appear in reports. If you selected multiple data collector instances, the group name you enter is the group name for all the selected data collector instances. **Tip**: When assigning group names, keep in mind that you can later organize and break down reports on application performance according to the groups you choose. You should therefore assign group names to locations/hosts according to the criteria you are most interested in tracking. **Example:** If you assign different transaction monitors checking different business processes to different locations, you can assign group names related to the business process being emulated from each location. Another example would be to organize based on meaningful groups used by your organization, such as Internet Service Providers (ISPs), network connection, browser type, and department.
Edit Schedule	Click the **Edit Schedule** button to open the Profile Schedules dialog box, where you define a scheduling scheme for the data collector to run the profile. You can define multiple schedules for a profile running on a specific data collector instance. This enables you to run the profile using different schedules at different times. For details on the user interface, see “Profile Schedules Dialog Box” on page 147. **Note**: Defining a scheduling scheme for business process profiles is optional, as HP Business Availability Center automatically assigns a default scheduling scheme to each data collector instance. You can modify these settings to suit the individual needs of your organization.
Group	The group name assigned to the host location on the Business Process Monitor or in End User Management Administration.

GUI Element (A–Z)	Description
Host	Host alias of the data collector instance as defined on the data collector machine.
Location	Location of the data collector instance as defined on the data collector machine.
Schedule	The schedule configured for the profile to run on the selected data collector (only relevant for monitors running on a Business Process Monitor).
Version	Version of the data collector software installed on the data collector machine.

Edit Business Process Profiles Page

Description	Enables you to make changes to existing profiles, due to organizational changes, changes to your network environment, and so forth. **To access:** Select **Admin** > **End User Management** > **Monitors** tab. Right-click a Business Profile in the monitor tree and click **Edit** in the context menu.
Useful Links	"Creating Business Process Profiles and Monitors Overview" on page 66 "Baselines" on page 70

This section includes the following topics:

- "Main Settings" on page 126
- "Script Order" on page 127
- "Threshold Baselines" on page 128
- "Transaction Threshold Settings" on page 130

Main Settings

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

GUI Element (A–Z)	Description
Downtime/Event Schedule	Click the **Downtime/Event Schedule** link to open the Downtime/Event Schedule dialog box where you create and edit events for the profile. You can define downtime or event schedules for when HP Business Availability Center is automatically instructed not to run the profiles. This enables you to exclude periods of time in which downtime or other events may skew the results of collecting data for reports and in Dashboard status. You may want to base a downtime schedule on a recurring maintenance event or a holiday. For details on creating and managing downtime/event schedules, see "Downtime and Event Scheduling - Overview" in *Platform Administration*. **Note:** You can assign multiple profiles to one downtime/event schedule.
GMT Offset	The time zone, in relation to GMT, that HP Business Availability Center uses to determine when daily aggregation should occur for data. For a reference list of GMT time zones for locations throughout the world, see "GMT Time Zones" in *Reference Information*. **Tip:** The time zone should be set to match the time zone in which the HP Business Availability Center servers and database machine are located. **Example:** If you want HP Business Availability Center to aggregate data collected by the profile based on Pacific Time, enter -8, since Pacific Time is GMT-8 hours.
Profile Database Name	The database name for storing profile information. This setting is defined when creating a new profile and cannot be edited once it is set.

GUI Element (A–Z)	Description
Profile Description	A description of the profile that appears in reports as the tooltip for the profile name. **Note:** If an existing profile's description is edited, the old description appears until the cache is refreshed (maximum 60 minutes).
Profile Name	A descriptive name that identifies the profile in the monitor tree, in Dashboard, and in reports. **Note**: ➤ Profile names must be entered in the same language that is set for the operating system of the Business Process Monitor on which they are run. ➤ After changing a profile name, it may be necessary for users viewing the trend reports for that profile to log in to HP Business Availability Center again. **Syntax exceptions:** Allowed characters are **a-z**, **A-Z**, **0-9**, and **~ ! @ # $ % ^ & ( )_ - { } .**
Status	Displays the status of the business process profile.

Script Order

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

GUI Element (A–Z)	Description
	Use the up/down arrows to change the order of a selected script.
<script>	Select the check box adjacent to the script whose order you want to change.

Threshold Baselines

Description	Enables you to configure HP Business Availability Center to calculate suggested thresholds for transactions based on actual transaction response times over a period of time. You can view and use the suggested thresholds manually, or configure HP Business Availability Center to apply the suggested thresholds automatically. **Note:** By default, HP Business Availability Center analyses transaction data from the previous three months to calculate suggested thresholds.

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

GUI Element (A–Z)	Description
<status bar>	Shows the progress (as a percentage) whenever HP Business Availability Center calculates suggested transaction thresholds.
Activate baseline results for Dashboard and Alerts applications	Select the radio button to configure HP Business Availability Center to update all transaction thresholds automatically using the suggested calculated thresholds, for use in Dashboard and Alerts. **Note**: If you select this option, you can manually update transaction thresholds, or use suggested thresholds, in the **Transaction Threshold Settings** panel, for use in Reports.
Activate baseline results for Dashboard, Alerts, and Reports	Select the radio button to configure HP Business Availability Center to update all transaction thresholds automatically using the suggested calculated thresholds, for use in Dashboard, Alerts, and Reports. **Note:** If you select this option, you are unable to update transaction thresholds manually in the **Transaction Threshold Settings** panel.

GUI Element (A–Z)	Description
Auto modes	Select the radio button to enable the selection of one of the auto modes. **Note:** ➤ Before using one of the Auto modes, you must first select the **Manual** mode and wait for HP Business Availability Center to finish calculating the suggested transaction thresholds. This may take several hours. ➤ When an Auto mode is selected, suggested transaction thresholds are recalculated and automatically updated on a daily basis.
Enable baseline calculations for transaction thresholds	Select the check box to enable baseline calculations for transaction thresholds. **Note:** If you do not select this check box, all the other options in the Threshold Baselines panel are disabled.
Manual mode	Select the radio button to instruct HP Business Availability Center to calculate transaction thresholds, which you can use to update transaction threshold settings manually in the **Transaction Threshold Settings** panel. The progress of calculating the suggested transaction thresholds is displayed as a percentage in the status bar. **Note:** You must wait for the calculation to end before you can use the suggested thresholds or switch to one of the auto modes. This may take a few hours.
Set Calculation Start Date	Click the **Set Calculation Start Date** button to open the **Set Calculation Start Date** dialog box where you select a starting date from which to recalculate the suggested transaction thresholds. For details on the user interface, see "Set Calculation Start Date Dialog Box" on page 151.
Set Upper Limit	Click the **Set Upper Limit** button to open the **Set Thresholds Upper Limit Values** dialog box, where you can enter an upper limit for each transaction in the profile, above which automatic threshold values cannot be set. For details on the user interface, see "Set Thresholds Upper Limit Values Dialog Box" on page 152.

Transaction Threshold Settings

Description	Enables you to set thresholds for transaction response times, which are used to validate service level agreements by creating performance boundaries.
Important Information	➤ This setting can be configured only after a monitor has been added to a profile and only when editing (and not adding) either the profile or the monitor. ➤ To change transaction threshold settings for multiple profiles simultaneously, enter the values in the **OK**, **Critical**, and **Outlier** columns in the **upper table**. ➤ The option to use suggested baseline thresholds is available only when setting transaction thresholds for a profile. It is not available when setting transaction thresholds for a transaction monitor.

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

GUI Element (A–Z)	Description
<check box>	Select the check box beside each transaction whose settings you want to modify. **Note:** To modify thresholds for all the transaction monitors in a profile simultaneously, select the **All** check box in the upper table.
All	Select this check box to change transaction thresholds for all transactions in the profile.
Apply	Click **Apply** to apply the transaction thresholds you entered in the upper table to selected transactions in the lower table.
Critical	In the **Critical** column modify the values (in seconds) as required. The Critical range is between, but not including, the number you enter and infinity.

GUI Element (A–Z)	Description
Ignore outlier data in reports	Select this check box to instruct HP Business Availability Center to ignore outlier transactions (and not include the data in reports). **Note:** This check box is not available when setting transaction thresholds for a transaction monitor.
OK	In the OK column, modify the values (in seconds) as required. The OK range is from zero up to, but not including, the number you enter. You can enter values that are less than a second. For example, you can set an OK range of 0.005 seconds (5 milliseconds).
Outlier	In the Outlier column, modify the outlier value as required. A transaction whose response time exceeds its outlier value is treated as a failed transaction, unless you select the **Ignore outlier data in reports** option, in which case the data is excluded from reports. You can view the number of outlier transactions that occurred during a specific time interval in the Error Summary report. For details on the user interface, see "Error Summary Report" on page 208.
Suggest Thresholds	Click the **Suggest Thresholds** button to open the **Suggested Thresholds** dialog box. For details on the user interface, see "Suggested Thresholds Dialog Box" on page 153. **Note**: ➤ The **Suggest Thresholds** button is displayed and enabled only if threshold baselining has been activated in **Manual mode** or **Auto mode for Dashboard and Alert applications**. ➤ This button is not available when setting transaction thresholds for a transaction monitor.

Edit Transaction Monitor Page

Description	Enables you to edit a Business Process transaction monitor. **To access:** Select **Admin** > **End User Management** > **Monitors** tab. Highlight the appropriate transaction monitor in the monitor tree, and in the **Properties** tab click the **Edit** button.
Important Information	If a transaction in an HP Virtual User Generator script is renamed, Business Availability Center considers it as a new transaction. A new **BPM Transaction from Location** CI is created in the CMDB using the new name, and the CI with the old transaction name is removed after it stops receiving samples. If the CI is included in a Service Level Management agreement, you will not see historical data for it (from before the transaction name change).

This section includes the following topics:

- "Main Settings" on page 133
- "Data Collector Assignment Settings" on page 133
- "Transaction Breakdown Settings" on page 135
- "Transaction Threshold Settings" on page 137
- "Transaction Description Settings" on page 137

Main Settings

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

GUI Element (A–Z)	Description
Central Repository Service	Click on the **Central Repository Service** link to access the Central Repository Service where you can create folders, add scripts, control script versions, and view script and version properties. For details on the Central Repository Service, see "Central Repository Service Main Page" in *Platform Administration*.
Reload script version	If an updated version of a transaction monitor's script exists in the Central Repository Service, a notification appears in red. You can update the version of a transaction monitor script by selecting the **Reload Script Version** check box and selecting the required version from the list. By default, the most recent version appears first.
Scripts	Displays the description, creation date, modification date, version, and path of the script included in the transaction monitor.

Data Collector Assignment Settings

Description	The **Data Collector Assignment Settings** panel enables you to select the Business Process Monitor instances, on which to run this monitor. By default, all the Business Process Monitor instances are listed. **Note to HP Software-as-a-Service customers:** The Data Collector Assignment Settings area lists all the locations in your package. Optionally, you can click the Package Information link and the Customer Private Pops link to view and modify package and location information. For details, see "Package Information Page" in *Platform Administration*.
Important Information	You can assign Business Process Monitor instances at a later stage by editing the profile, but for the transaction monitor to run, at least one instance must be assigned.

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

GUI Element (A–Z)	Description
<**check box**>	Select check boxes next to the Business Process Monitor instances on which to run this monitor.
Group	Displays the group name assigned to the host location on the Business Process Monitor or in End User Management Administration.
Host	Displays the host alias of the Business Process Monitor instance as defined on the Business Process Monitor machine.
Location	Displays the location of the Business Process Monitor instance as defined on the Business Process Monitor machine.
Schedule	Displays the schedule configured for the profile to run on the selected Business Process Monitor.
Version	Displays the version of the Business Process Monitor software installed on the Business Process Monitor machine.

Transaction Breakdown Settings

Useful Links	"Enabling Component Breakdown" on page 74

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

GUI 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 the Transaction Breakdown Reports" on page 162.
Enable diagnostics/TV breakdown	Select **Enable diagnostics/TV breakdown** to see J2EE and .Net data. This data is available in HP Diagnostics and TransactionVision reports only if you have valid HP Diagnostics and TransactionVision licenses. For details, see the *HP Diagnostics Installation and Configuration Guide* and the TransactionVision documentation.
Enable Siebel breakdown	Select the **Enable Siebel breakdown** check box to see Siebel Application Response Measurement (SARM) data in Business Availability Center for Siebel Applications.
Enable SOA breakdown	Select the **Enable SOA breakdown** check box to see SOA data in HP Business Availability Center for SOA. For details on incorporating SOA data from HP Business Process Monitor in HP Business Availability Center 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 77. **Default value:** Enabled **Note:** This check box is visible only when all of the prerequisites are met. For details on this topic, see "Prerequisites" on page 78.

GUI 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, HP Business Availability Center 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 the Breakdown Summary report. If this option is disabled, HP Business Availability Center reports only average error times. Disabling this option decreases the amount of data that is sent from the Business Process Monitors running the transaction breakdown to the Gateway Server and profile database. For details on the Breakdown Summary report, see “Breakdown Summary Report” on page 203. **Note:** You can only select this check box if you have enabled breakdown.

Transaction Threshold Settings

Description	Enables you to set transaction response times, validating service level agreements by creating performance boundaries. For details on the user interface, see "Transaction Threshold Settings" on page 130.
Important Information	➤ This setting can be configured only after a monitor has been added to a profile and only when editing (and not adding) either the profile or the monitor. ➤ To change Transaction Threshold settings for multiple profiles simultaneously, enter the settings in the **OK**, **Critical**, and **Outlier** columns in the **upper table**. ➤ The option to use suggested baseline thresholds is not available when setting transaction thresholds for a transaction monitor.

Transaction Description Settings

Description	The **Transaction Description Settings** panel enables you to configure HP Business Availability Center and Service Level Management reports to include a description of each transaction. Transaction descriptions appear as tooltips when you hold the cursor over the name in the report.
Important Information	➤ You can enter a maximum of 1000 characters. Keep in mind, however, that this description appears in a tooltip. If a user's computer monitor is set to a low resolution, not all of a very long description displays on the screen. The width of the tooltip is determined by the browser. ➤ This setting can be configured only after a monitor has been added to a profile and only when editing (and not adding) the transaction monitor.

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

GUI Element (A–Z)	Description
Description	In the **Description** box, enter a description for a transaction.
Transaction	Lists the transactions included in the transaction monitor.

Edit Transaction Page

Description	Enables you to edit an individual transaction included in a Business Process transaction monitor. **To access:** Select **Admin** > **End User Management** > **Monitors** tab. Right-click the appropriate transaction in the monitor tree, and click **Edit** in the displayed menu.

This section includes the following topics:

- "Main Settings" on page 139
- "Related Business Transaction" on page 140

Main Settings

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

GUI Element (A–Z)	Description
Description	Enter a description for the transaction that appears as a tooltip when you hold the cursor over the transaction name in HP Business Availability Center and Service Level Management reports. **Syntax exceptions:** You can enter a maximum of 1000 characters. Keep in mind, however, that this description appears in a tooltip. If a user's computer monitor is set to a low resolution, not all of a very long description displays on the screen. The width of the tooltip is determined by the browser.
Name	Displays the name of the transaction. **Note:** Transaction names must be entered in the same language that is set for the operating system of the Business Process Monitor on which they are run.
Transaction Thresholds	Enter the following thresholds, in seconds, for the transaction: ➤ **OK.** The response time threshold below which a transaction's status is OK. ➤ **Critical.** The response time threshold above which a transaction's status is Critical. ➤ **Outlier.** 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.

Related Business Transaction

Description	Enables you to map a Business Transaction CI to the transaction so that status information for the transaction is included in the Business Transactions view and in the relevant TransactionVision flow map. For details on integrating End User Management with business transactions, see "Map End-User Transactions to TransactionVision Business Transactions" on page 35. **Note:** You can map only one Business Transaction CI to a Business Process transaction. If you map a Business Transaction CI to a Business Process transaction that already has a Business Transaction CI mapped to it, the new mapping replaces the existing mapping.

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

GUI Element (A–Z)	Description
Detach Business Transaction	Click the **Detach Business Transaction** button to detach the Business Transaction CI that is mapped to the Business Process transaction.
Map Business Transaction	Click the **Map Business Transaction** button to open the **Select Related Business Transaction** dialog box, where you select the Business Transaction CI to map to the Business Process transaction. For details on the user interface, see "Select Related Business Transaction Dialog Box" on page 149.
Related Business Transaction	Displays the name of the Business Transaction CI that is already mapped to the Business Process transaction.

Edit WebTrace Monitors Page

Description	Enables you to add a WebTrace monitor to an existing business process profile. 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** > **Monitors** tab. In the **Contents** tab with the appropriate profile highlighted in the monitor tree, click **New WebTrace**.
Important Information	You can add a WebTrace monitor when creating a new business process profile in the Business Process Profile wizard. For details on the user interface, see "Add WebTrace Monitors Page" on page 115.

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

GUI Element (A–Z)	Description
Data Collectors	In the **Data Collector** area, select the Business Process Monitor instances, on which to run this monitor. By default, all the Business Process Monitor instances are listed. **Note:** ➤ For **HP Software-as-a-Service** customers, locations in your package are listed. Optionally, you can click the Package Information link and the Customer Private Pops link to view and modify package and location information. For details, see "Package Information Page" in *Platform Administration*. ➤ You must select at least one container, group, or instance to run the monitor.
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 and can also include a port number. For example, www.mydomain.com, 127.0.0.1:80, or mysecured.com:443. **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.

New Single URL Monitor Page

Description	Enables you to define a URL to emulate navigation to the specified URL. You then track the response time and availability results in reports. **To access:** Select **Admin** > **End User Management** > **Monitors** tab. Select the **Contents** tab and with the appropriate business process profile highlighted in the monitor tree, click **New Single URL Monitor**.
Important Information	This page applies to HP Software-as-a-Service customers only.

URL Settings

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

GUI Element (A–Z)	Description
Test URL	Click the **Test URL** button to open the URL configured in the **URL to monitor** box in a new window.
Transaction description	Enter a description for the URL. **Note**: This description appears in a tooltip when you hold the cursor over the transaction name in reports, as well as in the Description column in the Performance Update report. **Syntax exceptions:** You can enter a maximum of 1000 characters. Keep in mind, however, that this description appears in a tooltip. If a user's computer monitor is set to a low resolution, not all of a very long description displays on the screen. The width of the tooltip is determined by the browser.
Transaction name	Enter a name for the single URL monitor. This name identifies this monitor in the monitor tree, in Dashboard, and in reports. **Syntax exceptions:** Allowed characters are **a-z**, **A-Z**, **0-9**, and **` ~ ! @ # $ % ^ & * ( )_ - + { } ; <space>**

GUI Element (A–Z)	Description
URL Builder	Click the **URL Builder** button to open the **URL Builder** dialog box in which you define each of the elements of the URL in separate boxes. For details on the user interface, see "URL Builder Dialog Box" on page 154.
URL to monitor	In the **URL to monitor** box, type the URL that you want HP Business Availability Center to access. Include the protocol, host, and optionally include the port, URL path, and parameters.
Use secure logon	If the URL you specify requires authentication, in the Authentication area, select the **Use secure logon** check box, and specify the required **Login name** and **Login password**.

Data Collectors Assignment Settings

Description	In the **Data Collectors Assignment Settings** panel, select the data collector instances on which to run this monitor. By default, all the locations of the data collector type in your customer package are listed. Optionally, you can click the Package Information link and the Customer Private Pops link to view and modify package and location information. For details, see "Package Information Page" in *Platform Administration*. **Note:** You must select at least one data collector instance to run the monitor.

Text Validation Settings

Description	You can configure a text check as a way of verifying that the configured URL reaches the correct page.

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

GUI Element (A–Z)	Description
<exists/does not exist>	Specify whether the text should exist or not exist for HP Business Availability Center to consider the URL successful.
Enter text to be searched for	Enter the required text string and from the drop-down list specify whether HP Business Availability Center 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 Availability Center 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.
Use Text Check	Select the check box to enable text validation.

Run-Time Settings

Description	In the Run-Time Settings panel, select from the drop-down list the modem emulation setting that best reflects the type of connection used by your customer base. In this way, the data that HP Business Availability Center collects more closely reflects the actual user experience of your customers.

Threshold Settings

Description	In the Threshold Settings panel, specify the **OK** and **Critical** transaction threshold ranges and an outlier value. For details on the user interface, see "Transaction Threshold Settings" on page 130.

Transaction Breakdown Settings

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

GUI Element (A–Z)	Description
Enable Breakdown	Select **Enable breakdowns** to generate transaction breakdown data when running the monitor.
Enable diagnostics/TV breakdown	Select **Enable diagnostics/TV breakdown** to see J2EE and .Net data. This data is available in HP Diagnostics and TransactionVision reports only if you have valid HP Diagnostics and TransactionVision licenses. For details, see the *HP Diagnostics Installation and Configuration Guide* and the TransactionVision documentation.
Perform component breakdown	Select **Perform component breakdown** to save complete page component breakdown data for a sampling of transaction instances. By default, HP Business Availability Center 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.
Report additional error information	Select the **Report additional error information** check box to include date, time, location, and error messages for failed transactions in the Breakdown Summary report. If this option is disabled, HP Business Availability Center reports only average error times. Disabling this option decreases the amount of data that is sent from the Business Process Monitors running the transaction breakdown to the Gateway Server and profile database. For details on the Breakdown Summary report, see “Breakdown Summary Report” on page 203. **Note:** You can only select this check box if you have enabled breakdown.

Profile Schedules Dialog Box

Description	Enables you to set a schedule for running business process profiles. **To access:** Click the **Edit Schedule** button on the **Assign Data Collectors** page of the **Business Process Profile** wizard.
Useful Links	"Profile Page" in the *Business Process Monitor Administration* PDF.

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

GUI Element (A-Z)	Description
Frequency and Recurrence Range	Select a predefined frequency and recurrence range from the drop-down list, or create a custom frequency and recurrence range by configuring the following properties: ➤ Frequency for running the profile ➤ Days of the week on which to run the profile ➤ Hours in the day during which to run the profile **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**.
New Schedule	Click the **New Schedule** button to create a schedule. **Note**: When setting multiple schedules on a profile, keep in mind that if the schedules overlap at any time, the profile is run according to both schedules. The exception is if the profile is still running when a second schedule is set to start; in which case, the iteration of that profile is not run and the data collector skips that scheduled iteration.

GUI Element (A-Z)	Description
Start Offset	Set the **Start Offset** option to delay the scheduled running of the profile. 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 "Profile Page" in the *Business Process Monitor Administration* PDF. Select one of the following options: ➤ **BPM default.** Uses the start offset automatically assigned in the Business Process Monitor for each profile that has this setting. ➤ **User defined.** Set the amount of seconds the Business Process Monitor should offset the running of this profile. ➤ If you define the start offset value as 0, then no offset is applied for the profile and the profile run starts at the time specified in the profile schedule. ➤ If you define the start offset as -1, or do not enter a value, then the Business Process Monitor that runs the profile allocates a start offset, as described above. ➤ If you enter a positive value, the profile is run that many seconds later than the schedule configured for the profile. For example, if the profile is scheduled to run every hour, beginning at noon and you enter 5 seconds as the user-defined start offset, the profile begins running at 12:00 and 5 seconds, and continuing running every hour, at the hour plus 5 seconds.

GUI Element (A-Z)	Description
Time Zone	Select the time zone option on which the data collector instance bases its scheduling from one of the following: ➤ **Data collector time** 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** to have the data collector instance base its scheduling on the time zone you set. Specify a time zone in relation to GMT (for a reference list of GMT time zones for locations throughout the world, see "GMT Time Zones" in *Reference Information*). **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. **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.

Select Related Business Transaction Dialog Box

Description	Enables you to select a Business Transaction CI to be mapped to a Business Process or Real User Monitor transaction. **To access:** Click the **Map Business Transaction** button when creating or editing a Business Process or Real User Monitor transaction.
Important Information	You can attach only one Business Transaction CI to a Business Process or Real User Monitor transaction.

Included in Tasks	"Map End-User Transactions to TransactionVision Business Transactions" on page 35
Useful Links	"Set Transaction Properties Page" on page 111 "Edit Transaction Page" on page 138 "New/Edit Transaction Page" on page 387 "Business Transactions View for TransactionVision" in *Using Dashboard*

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

GUI Element (A-Z)	Description
	Click to display context menu options for the currently selected CI.
<CI list>	Displays the Business Transaction CIs in the displayed view that can be mapped to the transaction. Click a CI in the list to select it. **Context menu:** One or more of the following menu options may be displayed for a CI: ➤ **Properties.** Opens a dialog box displaying properties for the selected CI. ➤ **Show Related CIs.** Moves to Search mode and displays a list of the CIs that have a relationship to the selected CI.
Browse	The default mode for the Select Related Business Transaction dialog box, enabling you to select a CI from the displayed list.
Search	Click **Search** to move to Search mode, where you can search for Business Transaction CIs. For details on using the Search functionality, see "Search for CIs in Search Mode" in *Model Management*.
View	Displays the view for the Business Transaction CIs.

Set Calculation Start Date Dialog Box

Description	Enables you to select a starting date from which to recalculate baseline threshold values for the transactions in a business process profile. Click the date link to open a calendar where you select the required starting date. **To access:** Click the **Set Calculation Start Date** button in the **Threshold Baselines** panel when editing a business process profile.
Important Information	➤ The start date displayed in the Set Calculation dialog box is the start date that was last configured. The actual start date of the three month period used for calculating baseline threshold values may differ from the date displayed as HP Business Availability Center uses a rolling date for the daily calculation. For details on this topic, see "Calculating Baseline Thresholds" on page 71. ➤ The calculation start date must be within the last three months. ➤ The new date is used in the next threshold calculation cycle. Calculations are made on a daily basis at 1 A.M. according to your system time zone.
Useful Links	"Baselines" on page 70 "Edit Business Process Profiles Page" on page 125

Set Thresholds Upper Limit Values Dialog Box

Description	Enables you to configure upper limits for transactions in a business process profile, above which transaction thresholds cannot be updated by automatic baselining. **To access:** Click the **Set Upper Limit** button in the **Threshold Baselines** panel when editing a business process profile.
Useful Links	"Baselines" on page 70 "Edit Business Process Profiles Page" on page 125

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

GUI Element (A-Z)	Description
Apply	Click the **Apply** button to apply the upper limit value configured in the top row to selected transactions.
Transaction	All the transactions in the profile are listed. Select the check box next to a transaction to include it when updating the upper threshold limit for multiple transactions simultaneously.
Upper Limit Value	Displays the current upper limit threshold value for each transaction. Set a new upper limit value for an individual transaction, or enter a value in the top row and click the **Apply** button to set the value for selected, multiple transactions.

Suggested Thresholds Dialog Box

Description	Enables you to select suggested baseline transaction thresholds calculated by HP Business Availability Center, when baselining is configured for a profile in **Manual mode** or **Auto mode for Dashboard and Alert applications**. **To access:** Click the **Suggest Thresholds** button in the Transaction Threshold Settings panel.

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

GUI Element (A–Z)	Description
Critical	Lists the current and, where available, suggested Critical transaction threshold values for each transaction in the profile.
Minor	Lists the current and, where available, suggested Minor transaction threshold values for each transaction in the profile.
OK <button>	Click the **OK** button to copy the suggested thresholds for the selected transactions, to the threshold values for the transactions in the **Transaction Threshold Settings** panel. The copied threshold values are displayed in a bold, blue font until you save the edited profile.
OK <column>	Lists the current and, where available, suggested OK transaction threshold values for each transaction in the profile.
Transaction	Select the check box next to the transactions you want to update with suggested thresholds. **Note:** Only transactions with a suggested threshold that is different from the current threshold are enabled.

URL Builder Dialog Box

Description	Enables you to configure a URL for a Single URL monitor for a Business Profile by defining the individual elements of the URL. **To access:** Click the **URL Builder** button in the **New Single URL Monitor** page.
Useful Links	"New Single URL Monitor Page" on page 143

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

GUI Element (A-Z)	Description
Add New Parameter	Click the **Add New Parameter** button to configure a new parameter name and value for the URL.
Host	Enter the URL host, which is the name of the machine on which the file, or resource, that you wish to access via the URL resides.
Port	Enter the port number used to connect to the URL host machine. **Default value:** 80 **Note:** When port 80 is used, it is not included in the URL string that is created.
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).
URL	Displays the URL that is created from the individual parts that you configure.
URL Path	Enter the URL path to the file, or resource, that you wish to access via the URL.

Troubleshooting and Limitations

This chapter includes troubleshooting and limitations for Business Process Monitor Administration in End User Management Administration.

Adding Transaction Monitor Scripts to the Central Repository Service

If a transaction monitor's script is not in the Central Repository Service, the transaction monitor's properties cannot be edited until that script is added to the repository. A note indicating this appears in the Contents tab within the table listing the profile's transaction monitors.

You can add a transaction monitor's script to the Central Repository Service from within End User Management Administration. When you attempt to edit a transaction monitor whose script is not in the Central Repository Service, a message opens enabling you to add the script to the repository.

Note: When upgrading from a previous version of Business Availability Center that did not include a Central Repository Service, this is the same procedure to follow when the profiles and transaction monitors have been upgraded, but the scripts are not in the Central Repository Service.

To add a transaction monitor's script to the Central Repository Service:

1. Edit the transaction monitor by clicking its **Edit** button in the Contents tab or by selecting **Edit** in the transaction monitor's menu (right-click the transaction monitor in the monitor tree). A warning message opens.
2. Click **OK** in the warning message. The **Select Folder for Script Upload** page opens.
3. In the **Repository** pane of the Select Folder for Script Upload page, select the folder into which you want to upload the transaction monitor's script.
4. Click **OK**.

Optionally, you can click the **Central Repository Service** link at the top of the Select Folder for Script Upload page to access the Central Repository Service and create a new folder into which to upload the script. For details on working in the Central Repository Service, see "Central Repository Service Main Page" in *Platform 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.
- HP Business Process Monitor 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.
- HP Business Process Monitor 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 HP Business Process Monitor 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 End User Management Administration, but no SOA data is sent to HP Business Availability Center from the Business Process Monitor 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 Business Process Monitor script error codes, see the *LoadRunner Troubleshooting Guide* in the LoadRunner documentation.

Using Different Languages for Profile, Transaction, and Script Names

Profile, transaction, and script names must be entered in the same language that is set for the operation system of the Business Process Monitor on which they are run.

4

Business Process Monitor Reports

This chapter provides information on Business Process Monitor reports.

This chapter includes:

Concepts

- Business Process Reports Overview on page 160
- Understanding the Transaction Breakdown Reports on page 162
- Snapshot on Error on page 177
- Analyzing the Breakdown Over Time Report on page 179
- Correlating Transaction Breakdown Summary Data with Other HP Business Availability Center Reports on page 182
- Summary Reports Overview on page 183
- Network Reports and Tools Overview on page 184
- Analyzing the WebTrace by Location Report on page 185
- Analyzing the Page Component Breakdown Report on page 185
- Viewing Page Component Breakdown Data in other Contexts on page 187

Tasks

- Configure Business Process Reports on page 188
- Modify the Table in Which Errors Appear on page 189
- Enable Snapshot on Error When Recording Scripts on page 191

Reference

- Business Process Reports User Interface on page 192

Troubleshooting and Limitations on page 290

Business Process Reports Overview

Business Process reports provide you with an in-depth view of the health of your monitored environment. You access Business Process reports from the Business Process tab in the End User Management application.

The following are the main Business Process reports:

Triage Raw Data

The Triage Raw Data report displays performance and availability raw data for a Business Process Monitor transaction. For details on the user interface, see "Triage Raw Data Report" on page 276.

Availability Over Time

Displays the percentage of successful transactions performed by all hosts in a profile—organized by transaction, location, or group—over time. For details on the user interface, see "Availability Over Time Report" on page 194.

Response Time Over Time

Displays the average response times (in seconds) of completed transactions—organized by transaction, location, or group—over time. For details on the user interface, see "Response Time Over Time Report" on page 249.

Transaction Analysis

Provides an in-depth picture of the performance of transactions. For details on the user interface, see "Transaction Analysis Report" on page 260.

Error Summary

Provides a detailed list—organized by error type—of errors that occurred during a profile run, over the specified time period. For details on the user interface, see "Error Summary Report" on page 208.

Location Analysis

Provides an in-depth picture of the performance of transactions, organized per defined location. For details on the user interface, see "Location Analysis Report" on page 219.

Breakdown Over Time

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. For details on the user interface, see "Breakdown Over Time Report" on page 198.

Breakdown Summary

Enables you to assess whether poor transaction response times are being caused by network or server problems, or by client delays. For details on the user interface, see "Breakdown Summary Report" on page 203.

Min./Max. Response Time

Displays the minimum, average, and maximum response time (in seconds) of completed transactions—organized by transaction, location, or group. For details on the user interface, see "Min./Max. Response Time Report" on page 222.

Response Time by Percentile

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, in 10% increments. For details on the user interface, see "Response Time by Percentile Report" on page 245.

Understanding the Transaction Breakdown Reports

The transaction breakdown reports help 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. Transaction Breakdown reports display Business Process Monitor data collected by scripts recorded using the Web (HTTP/HTML) protocol, or specific non-Web based TCP protocols.

For details on the transaction breakdown reports, see "Breakdown Over Time Report" on page 198 and "Breakdown Summary Report" on page 203. The Triage report also includes a transaction breakdown. For details on the Triage report, see "Triage Report" on page 269.

This section includes the following topics:

- "Understanding Web Based Transaction Breakdown Reports" on page 162
- "Understanding Non-Web Based TCP Transaction Breakdown Reports" on page 168

Understanding Web Based Transaction Breakdown Reports

The Web based protocols for which Business Process Monitor can perform transaction breakdown are configured in the **BdSupportedProtocols** setting in the **agent1.cfg** file on the Business Process Monitor 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 Business Process Monitor 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 Business Process Monitors running scripts recorded in **wininet** mode in HP Virtual User Generator.

This section includes the following topics:

➤ "Understanding How HP Business Availability Center Breaks Down Transaction Response Times" on page 163

➤ "Understanding Transaction Breakdown Categories" on page 163

➤ "Understanding Download Time" on page 167

Understanding How HP Business Availability Center Breaks Down Transaction Response Times

When HP Business Availability Center runs a Business Process Monitor script and measures response time for a specific transaction, HP Business Availability Center collects breakdown data—information about network/server activity during the transaction—for each component of every Web page accessed in the transaction.

Because HP Business Availability Center 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.

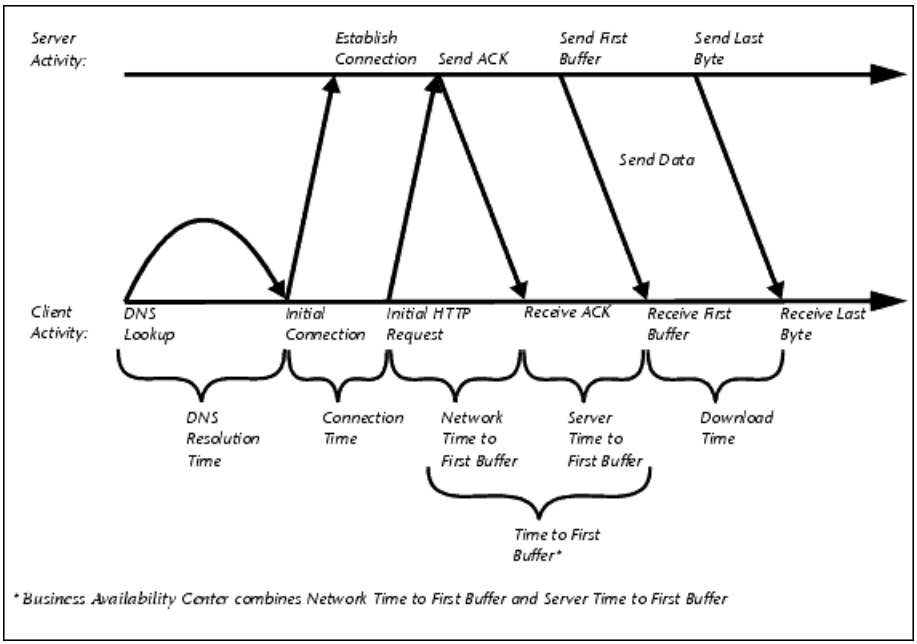
HP Business Availability Center uses a weighted algorithm to display the breakdown data that it collects. Every breakdown category for every element of the Web page is taken into consideration, and weight is given to the element according to its value relative to the other elements in the concurrent 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 reports display 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 appears in the chart after connection time.

The diagram below illustrates the relationship between the report'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 report'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 167.
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 Business Process Monitor 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 Business Process Monitor 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 Business Process Monitor can perform transaction breakdown are configured in the **AdvancedTcpBdSupportedProtocols** setting in the **agent1.cfg** file on the Business Process Monitor 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 Business Process Monitor 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 includes the following topics:

- "Understanding How HP Business Availability Center Breaks Down Transaction Response Times" on page 169
- "Understanding Transaction Breakdown Categories for Non-Web Based (TCP) Transactions" on page 169
- "Understanding Time to First Buffer and Download Time for Non-Web Based (TCP) Transactions" on page 174

➤ "Understanding Breakdown Report Data for Non-Web Based (TCP) Transactions" on page 174

➤ "Notes and Limitations for Non-Web Based (TCP) Protocols" on page 175

Understanding How HP Business Availability Center Breaks Down Transaction Response Times

When HP Business Availability Center runs a Business Process Monitor script and measures response time for a specific transaction, HP Business Availability Center 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.

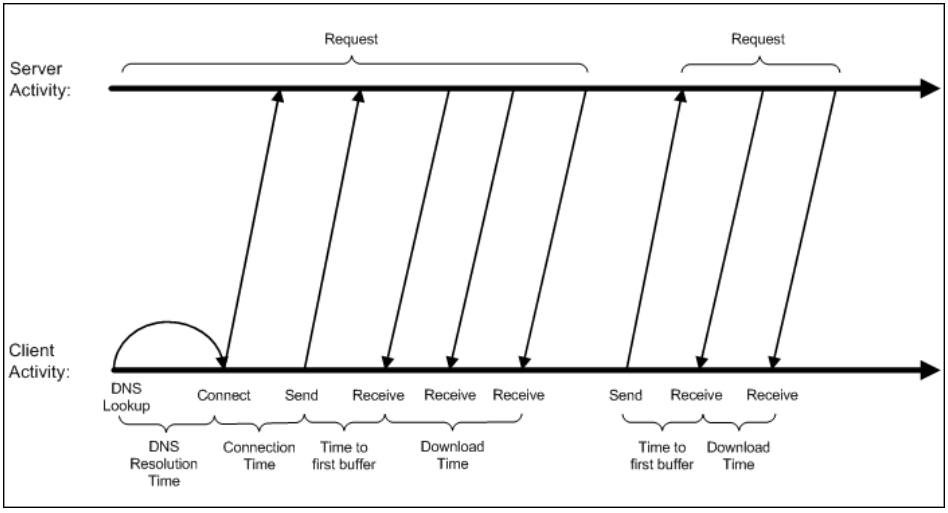
HP Business Availability Center uses a weighted algorithm to display the breakdown data that it collects. Every breakdown category for every element of the connection requests is taken into consideration, and weight is given to the element according to its value relative to the other elements in the 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 173.



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 requests'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 174. **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 Business Process Monitor 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

Snapshot on Error

When recording scripts with HP Virtual User Generator or QuickTest Professional (QTP), you can enable the Snapshot on Error option. For details on how to perform this task, see "Enable Snapshot on Error When Recording Scripts" on page 191. Once enabled, during a script run HP Business Availability Center saves a snapshot of a page as it appears when an error occurs during the script run.

HP Business Availability Center 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 Failed Transaction report. 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 HP Business Availability Center. 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 Failed Transaction report, see "Failed Transactions Report" on page 212.

Note: When HP Business Availability Center 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 Report

The Breakdown Over Time report 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 Breakdown Over Time report, see "Breakdown Over Time Report" on page 198.

For details on the breakdown categories used in the report, see "Understanding the Transaction Breakdown Reports" on page 162.

This section contains the following topics:

➤ "Working with Breakdown Over Time Report Data" on page 179

➤ "Correlating Breakdown Over Time Report Data with Other HP Business Availability Center Reports" on page 181

Working with Breakdown Over Time Report Data

The Breakdown Over Time report's color-coded graph enables you to quickly differentiate between retry time, DNS resolution time, connection time, SSL handshaking time (if relevant), network time to first buffer, server time to first buffer, download time, and client time.

You can cross-reference data for a specific transaction from the Breakdown Summary report with Breakdown Over Time report data (use active filters to isolate the specific transaction) 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 Breakdown Summary report 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 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 report 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 generate a Breakdown Summary report for the same transaction and time period, and 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. For details on drilling down in the Breakdown Summary report, see the next section.

Correlating Breakdown Over Time Report Data with Other HP Business Availability Center Reports

You can cross-reference transaction breakdown data with data in other HP Business Availability Center 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 details on this concept, see "System Availability Management 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, Server Time to First Buffer, or Download segments to open the WebTrace by Location 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 Over Time report, see "WebTrace by Location Report" on page 282. For details on configuring WebTrace monitors, see "Edit WebTrace Monitors Page" on page 141.
- To trace the cause of retry time, generate the Breakdown Summary report for the same time range, and click the red **X** to open the Failed Transactions table, which details transaction errors for the defined time range. For details on the user interface, see "Failed Transactions Report" on page 212.

Note: To view errors in the Failed Transactions window, you must have enabled transaction breakdown error reporting in the profile (for the transaction monitor containing the transaction with errors). For details on the user interface, see "Transaction Breakdown Settings" on page 135.

- 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*.

Correlating Transaction Breakdown Summary Data with Other HP Business Availability Center Reports

You can cross-reference transaction breakdown data with data in other HP Business Availability Center reports. For example:

- using the Min./Max. Response Time 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 Breakdown Summary 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, Server Time to First Buffer, or Download segments to open the WebTrace by Location 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 Over Time report, see "WebTrace by Location Report" on page 282. For details on configuring WebTrace addresses, see "Edit WebTrace Monitors Page" on page 141.
- 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*.
- to trace the cause of retry time, click the **Retry Time** segment to open the Failed Transactions table, which details transaction errors for the defined time range. For details, see "Failed Transactions Report" on page 212.

Summary Reports Overview

Summary reports include data collected by Business Process Monitor and Real User Monitor data collectors, and provide response time and availability data from profile, transaction, and location perspectives. You access summary reports from the Summary Reports tab in the End User Management application.

The following summary reports are available:

Multi-Profile Summary Report

Provides an overall snapshot of application performance for multiple business process profiles. For details on the user interface, see "Multi-Profile Summary Report" on page 225.

Single Profile Summary Report

Provides a quick snapshot of application performance for a specific business process profile. For details on the user interface, see "Single Profile Summary Report" on page 254.

Performance Matrix Report

Displays a distribution of average transaction response times—organized by transaction, location, or group—over a specified period of time. For details on the user interface, see "Performance Matrix Report" on page 238.

Triage Report

Displays transaction data for Business Process Monitor profiles for the past day or for 24 hours, organized by location. For details on the user interface, see "Triage Report" on page 269.

Network Reports and Tools Overview

Network reports and tools enable you to gain an in-depth view of the network health of your monitored environment. You access network reports and tools from the Network and Tools tab in the End User Management application.

The following network reports and tools are available:

WebTrace by Location Report

Displays reports that enable you to analyze network performance by providing traceroute information to specified destinations. For details on the user interface, see "WebTrace by Location Report" on page 282.

Network Analysis Report

Displays reports that enable you to analyze network performance between configured host locations and specified destinations. For details on the user interface, see "Network Analysis Report" on page 230.

Page Component Breakdown Report

Displays an on-demand breakdown of download time, by component, for each element of a specified Web page. For details on the user interface, see "Page Component Breakdown Report" on page 232.

Instant Diagnostics

(For HP Software-as-a-Service customers only) Provides tools that enable gathering of additional information on network and server performance. For details on the user interface, see "Instant Diagnostics Page" on page 217.

Analyzing the WebTrace by Location Report

The WebTrace by Location 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 WebTrace by Location 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 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 the average number of hops from the sample, and the total number of retries and unreachables. 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.

For details on the WebTrace by Location report, see “WebTrace by Location Report” on page 282.

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. Furthermore, 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 Response Time 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 "Page Component Breakdown Report" on page 232.

Viewing Page Component Breakdown Data in other Contexts

In addition to generating the Page Component Breakdown report from the Network and Tools tab in the End User Management application, you can generate page component breakdown data in the following contexts:

- If page component breakdown data collection is enabled for a specific transaction monitor, HP Business Availability Center 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 Breakdown Summary report. For details on enabling page component breakdown data collection, see "Transaction Breakdown Settings" on page 135. For details on viewing page component breakdown data in the Breakdown Summary report, see "Breakdown Summary Report" on page 203.
- A Page Component Breakdown report can be generated on demand from the Business Process Monitor page within the Business Process Monitor Admin. For details, see "Running an On-Demand Page Component Breakdown" in the *Business Process Monitor Administration* PDF.
- If page component breakdown data collection is enabled for a specific transaction monitor, a Page Component Breakdown report is generated when invoking a task from the transaction monitor Task page within Business Process Monitor Admin. For details, see "Viewing Task Reports" in the *Business Process Monitor Administration* PDF.

Configure Business Process Reports

You can configure some aspects of the Business Process reports.

Note: All the steps in the task are optional and can be performed in any order.

This task includes the following steps:

- "Configure Transaction Ordering" on page 188
- "Configure Transaction Coloring" on page 188
- "Configure Report Filters" on page 188

1 Configure Transaction Ordering

You can specify the order in which you want transactions that are part of a profile to appear in reports. For details on the user interface, see "Transaction Ordering Page" on page 268.

2 Configure Transaction Coloring

You can modify the colors used to represent transactions in the following business reports: Availability Over Time, Response Time Over Time, sections of Transaction Analysis, and Response Time by Percentile. For details on the user interface, see "Transaction Coloring Page" on page 267.

3 Configure Report Filters

You can use report filters to exclude specific transactions, locations, and/or groups from all reports for the current and future profile sessions. You configure report filters per profile. For details on the user interface, see "Report Filters Page" on page 243.

Individual users can configure report filters only for themselves. Administrators can configure global report filters that affect all users. Any transaction, location, or group that is filtered with the global-level report filter is unavailable at the user level (and is disabled on the Report Filters page). For details on specifying global-level report filters, see "Configure Report Filters Globally" in *Platform Administration*.

Note: Previously defined filters still appear in user-defined reports (custom and trend) that were created before configuring the filter. To update user-defined reports, remove and re-add the components containing the profiles for which filters have been set, and save the report. For details, see "Custom Report Wizard" in *Reports*.

Modify the Table in Which Errors Appear

This task describes how to change the table in which errors appear in the Error Summary report. By default, errors appear in the General Errors table. You can change this configuration so that the errors are moved to one of the other error tables. For details on the Error Summary report, see "Error Summary Report" on page 208.

To modify the table in which errors appear:

1. Locate the following file on the Gateway Server: **<HP Business Availability Center root directory>\AppServer\resources\ TransactionError.properties**
2. Locate the error message in this file that you want to move to the Content or HTTP Errors table.
3. Copy the value at the beginning of the row. For example, to add the error "The requested image not found" to the Content Errors table, locate:

```
-27987=The requested image not found
```

Copy **-27987**.

4 Locate the following file on the Gateway Server: **<HP Business Availability Center root directory>\conf\settings\diagnostics.xml**.

5 Search for the string:

```
# The two following settings define contents of sections "Context Errors" and "HTTP Errors"
```

6 To list the error in the Content Errors table, locate the value list for the Context Errors setting.

7 To list the error in the HTTP Errors table, locate the value list for the HTTP Errors setting.

8 Paste the error code that you copied from the **TransactionError.properties** file into the value list, separating entries with commas. For example, if you copied **-27987** to the Context Errors setting, the value list appears as follows:

```
<value type="string">
    -27987,-27979,-27730,-27729,-27195,-27190,-27187,-27127
  </value>
```

9 Save the **diagnostics.xml** file.

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 the **Run** tab.
2. In the **Save step screen capture to results** box, select **On errors**.
3. Click **OK** to close the Options dialog box.

Business Process Reports User Interface

This section describes:

- Active Filters Dialog Box on page 193
- Availability Over Time Report on page 194
- Breakdown Over Time Report on page 198
- Breakdown Summary Report on page 203
- Error Summary Report on page 208
- Failed Transactions Report on page 212
- Hop Time Over Time Report on page 215
- Instant Diagnostics Page on page 217
- Instant Diagnostics Location Page on page 218
- Location Analysis Report on page 219
- Min./Max. Response Time Report on page 222
- Multi-Profile Summary Report on page 225
- Network Analysis Report on page 230
- Page Component Breakdown Report on page 232
- Performance Matrix Report on page 238
- Profiles Dialog Box on page 243
- Report Filters Page on page 243
- Response Time by Percentile Report on page 245
- Response Time Over Time Report on page 249
- Routing Details Window on page 252
- Single Profile Summary Report on page 254
- Transaction Analysis Report on page 260
- Transaction Breakdown Raw Data Report on page 262
- Transaction Coloring Page on page 267

➤ Transaction Ordering Page on page 268
➤ Triage Report on page 269
➤ Triage Raw Data Report on page 276
➤ WebTrace by Location Report on page 282
➤ WebTrace Measurements Report on page 285
➤ WebTrace Over Time Report on page 287

Active Filters Dialog Box

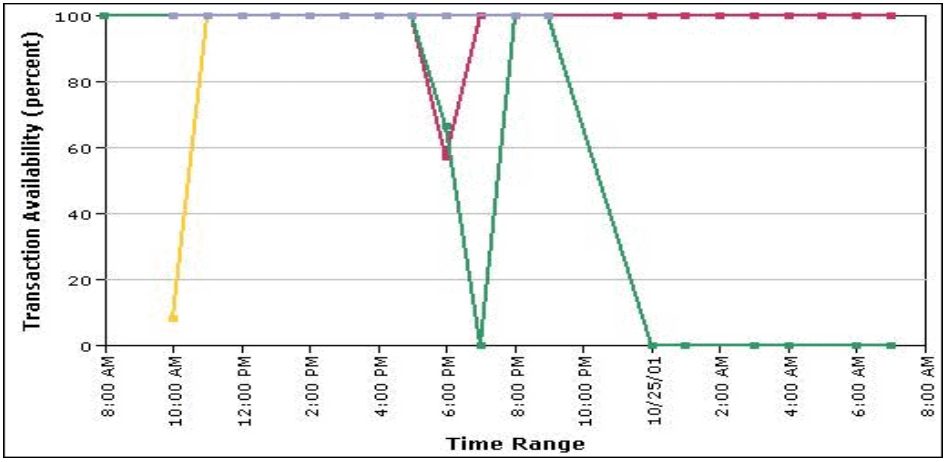
Description	Displays the transactions, locations, and groups of the selected profile, and enables you to choose filters for the information to be displayed. **To access:** Click the **Active Filters** link on the report page.
Important Information	➤ The availability of the tabs in the Active Filters dialog box depends on the specific report you are generating. ➤ In each available tab, choose the components you want by selecting the check box next to the component name. ➤ Click the **Restore Default Settings** link at the top of the report to regenerate the report unfiltered. ➤ If the HP Business Availability Center databases are installed on an Oracle Server, wildcard expressions used in active filters are case sensitive. On a Microsoft SQL Server, wildcard expressions used in active filters are case insensitive. For further details on the HP Business Availability Center databases, see the *HP Business Availability Center Database Guide* PDF.

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

GUI Element (A-Z)	Description
Advanced Tab	Lists options for which you can filter the selected report, including: ➤ Worst transactions and worst locations. ➤ Worst locations for worst transactions. ➤ Worst transactions for worst locations.
Groups Tab	Lists the groups of host machines running Business Process Monitors associated with the selected profile.
Locations Tab	Lists the locations of host machines running Business Process Monitors associated with the selected profile.
Transactions Tab	Lists the transactions associated with the selected profile. **Note:** In the Triage Raw Data report, you can choose one transaction only. For details on the Triage Raw Data report, see “Triage Raw Data Report” on page 276.

Availability Over Time Report

The following is an example of the Availability Over Time report.



Description	Displays the percentage of successful transactions performed by all hosts in a profile—organized by transaction, location, or group—over time. The Availability Over Time report helps you identify service availability problems and pinpoint their source. By breaking down the report by transaction, location, or group across different time frames, you can identify exactly where and when transaction failure rate is significant. For example, you determine that a transaction regularly fails during a particular time of day, which may indicate a problem with the transaction during periods of high Internet traffic. **To access:** Select **Applications** > **End User Management** > **Business Process** tab > **Availability Over Time** report
Important Information	➤ HP Business Availability Center can display up to 100 transactions simultaneously. If a profile has more than 100 transactions, HP Business Availability Center automatically selects the first 100 transactions listed on the Transaction Ordering page. To select different transactions to view, modify the active filters. To change the order in which transactions appear, you modify their order in the Transaction Ordering page. For details, see "Configure Business Process Reports" on page 188. ➤ You can view the report in either graph or table format.

This section includes the following topics:

➤ "Report Settings" on page 196

➤ "Report Content as Graph" on page 196

➤ "Report Content as Table" on page 197

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.
View By	Select how you want the data to be grouped—by transaction, location, or group.

Report Content as Graph

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

GUI Element (A–Z)	Description
<Data points>	Indicate the percentage of successful transactions for a profile's hosts for each point over the course of the defined time period. Click a data point to display data for a specific transaction, location, or group in a more focused time frame. **Tooltip:** The transaction name, percentage of available transactions, and applicable time range.
<Legend>	Describes the color coding used to represent transactions, locations or groups. Click a transaction, location, or group in the legend to display data for that transaction, location, or group only.

GUI Element (A–Z)	Description
<Time> (x-axis)	Displays the time division units for the time range that you defined when generating the report.
Transaction Availability (percent) (y-axis)	Displays the percentage of availability for transactions.

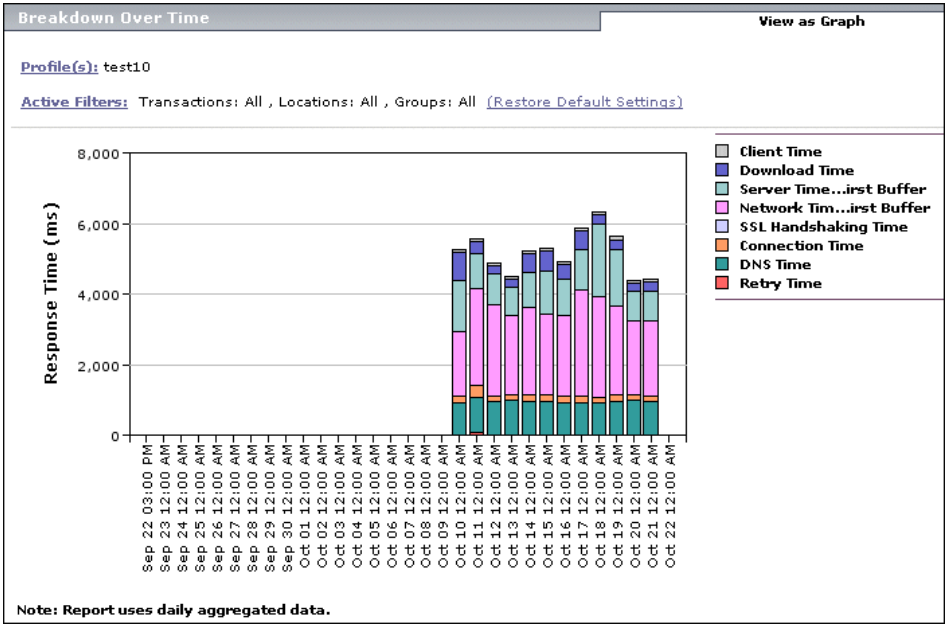
Report Content as Table

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

GUI Element (A–Z)	Description
<Columns>	Each column represents a time division unit for the time range that you defined when generating the report. Click a time division unit to display data for that time only.
<Data>	Displays the percentage of available transactions for a profile's host for each transaction, location or group at each time division unit.
<Rows>	There is a row for each transaction, location or group, depending on the way you choose to view the data. Click a transaction, location or group name to display data for that transaction, location or group only.

Breakdown Over Time Report

The following is an example of the Breakdown Over Time report.



Description	Displays a color-coded graph showing the average transaction breakdown category response times (in milliseconds) of a profile's transactions over time. For details on the breakdown categories used in the report, see "Understanding the Transaction Breakdown Reports" on page 162. The Breakdown Over Time report enables you to see whether poor transaction response times are 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. **To access:** Select **Applications** > **End User Management** > **Business Process** tab > **Breakdown Over Time** report
Important Information	You can view the report in either graph or table format.
Useful Links	"Analyzing the Breakdown Over Time Report" on page 179

This section includes the following topics:

- "Report Settings" on page 200
- "Report Content as Graph" on page 201
- "Report Content as Table" on page 202

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.

Report Content as Graph

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

GUI Element (A–Z)	Description
<Bars>	Indicate the average response time (in milliseconds) of transaction breakdown categories for each point over the course of the defined time period. Click the following segments in the breakdown bar to open additional reports: ➤ **DNS Time**, **Connection Time**, or **Network Time to First Buffer**. Opens the WebTrace by Location report. For details on the user interface, see "WebTrace by Location Report" on page 282. ➤ **Server Time to First Buffer**, **Time to First Buffer**, or **Download**. Opens 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* **Tooltip:** The average response time for the transaction breakdown category, the total average response time for all transaction breakdown categories, and the applicable time range.
<Legend>	Describes the color coding used to represent transaction breakdown categories.
<Time> (x-axis)	Displays the time division units for the time range that you defined when generating the report.
Response Time (y-axis)	Displays the average response time in milliseconds.

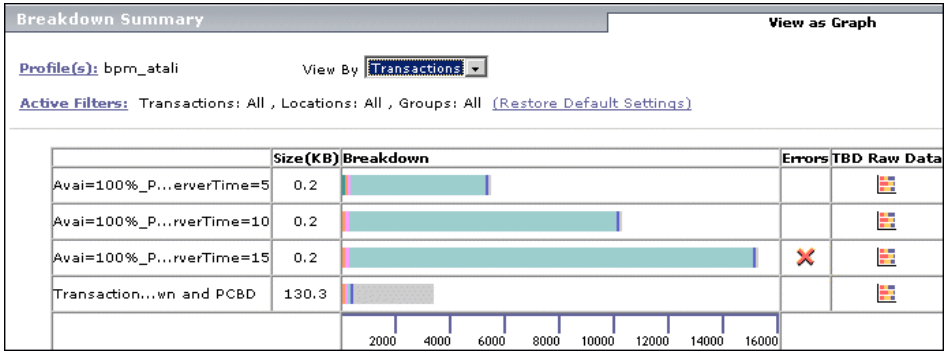
Report Content as Table

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

GUI Element (A–Z)	Description
<**Columns**>	Each column represents a time division unit for the time range that you defined when generating the report. Click a time division unit to display data in a more focused time frame.
<**Data**>	Displays the average response time (in milliseconds) of the transaction breakdown categories for each point over the course of the defined time period. Click any cell in the following rows to open additional reports: ➤ **DNS**, **Connection**, **Client**, or **Network Time to First Buffer**. Opens the Webtrace by Location report. For details on the user interface, see "WebTrace by Location Report" on page 282. ➤ **Server Time to First Buffer** or **Download**. Opens 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*.
<**Rows**>	There is a row for each transaction category.

Breakdown Summary Report

The following is an example of the Breakdown Summary report.



Description	Displays a color-coded graph that breaks down 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 the Transaction Breakdown Reports" on page 162. The report further displays, for the selected time frame, the size (in KB) of all pages in the transaction and in the table format, also shows the average time it takes for each transaction to be completed. You can obtain further insight into the cause of transaction problems by correlating Breakdown Summary report data with other HP Business Availability Center reports. For details on this topic, see "Correlating Transaction Breakdown Summary Data with Other HP Business Availability Center Reports" on page 182. By looking at the size and time measurements you can calculate the download rate, which can help you assess whether the transaction is too large or too slow. **To access:** Select **Applications** > **End User Management** > **Business Process** tab > **Breakdown Summary** report

Important Information	You can view the report in either graph or table format.
Useful Links	"Correlating Transaction Breakdown Summary Data with Other HP Business Availability Center Reports" on page 182

This section includes the following topics:

- "Report Settings" on page 204
- "Report Content as Graph" on page 205
- "Report Content as Table" on page 207

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.
View By	Select how you want the data to be grouped—by transaction, location, or group.

Report Content as Graph

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

GUI Element (A–Z)	Description
<**Legend**>	Describes the color coding used to represent transaction breakdown categories.
<**Rows**>	There is a row for each transaction, location, or group, depending on how you choose to view the data.
<**X-axis**>	Displays the transaction times in milliseconds.
Breakdown	Each color coded segment of the bar represents a different category of the transaction, as described in the legend. Click the following segments in the breakdown bar to open additional reports: ➤ **Retry Time.** Opens the Failed Transactions report. For details on the user interface, see "Failed Transactions Report" on page 212. ➤ **DNS Time**, **Connection Time**, or **Network Time to First Buffer.** Opens the WebTrace by Location report. For details on the user interface, see "WebTrace by Location Report" on page 282. ➤ **Server Time to First Buffer**, **Time to First Buffer**, or **Download.** Opens 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*. Tooltip: Hold the cursor over a segment to see the category name and the average response time, in milliseconds, for that category.

GUI Element (A–Z)	Description
Errors	If errors occurred while downloading some of the page components, the report displays a red X in the Errors column. Click the red X to open the Failed Transactions report, which details page component download errors for the defined time range. For details on the user interface, see "Failed Transactions Report" on page 212. **Tooltip:** The number of errors that occurred. **Note:** To view errors that occurred while downloading page components in the Failed Transactions report, you must have enabled transaction breakdown error reporting in the profile (for the transaction monitor containing the transaction with errors). For details on the user interface, see "Transaction Breakdown Settings" on page 135.
Size (KB)	The size (in KB) of all pages in the transaction.
TBD Raw Data	If you enabled Page Component Breakdown for the transaction monitor when creating the profile, and if page component breakdown data exists for the selected time range, the report displays an icon in the TBD Raw Data column (TBD = transaction breakdown). Click the icon to drill down to the Transaction Breakdown Raw Data report, showing a summary of every instance of the transaction that occurred during the selected time range. For details on the user interface, see "Transaction Breakdown Raw Data Report" on page 262. For details on enabling Page Component Breakdown and setting the page component breakdown data sampling rate, see "Enabling Component Breakdown" on page 74.

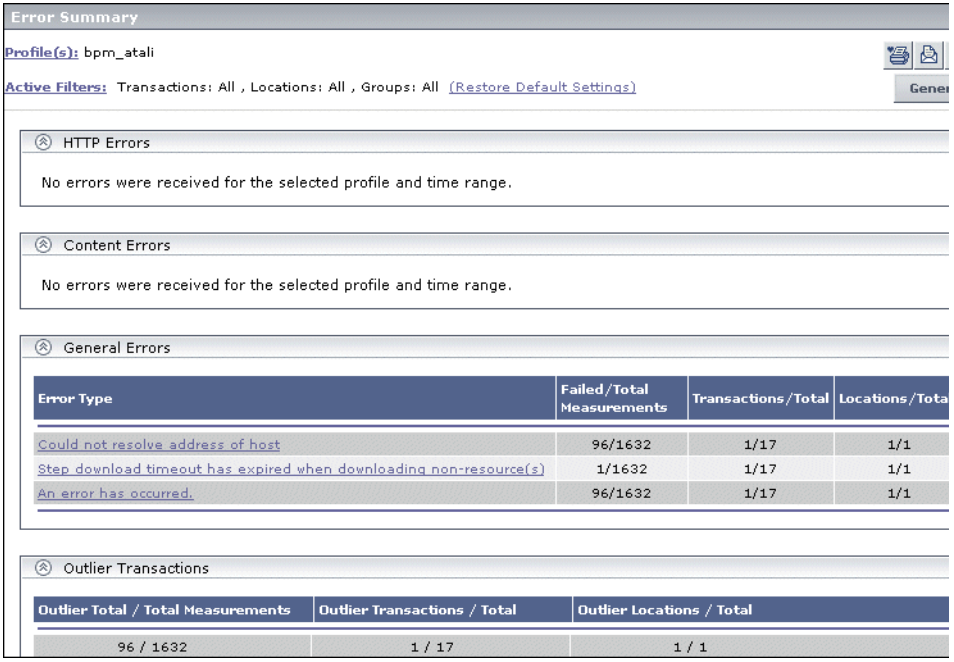
Report Content as Table

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

GUI Element (A–Z)	Description
	Click the **Up** or **Down Arrow** button to go the previous or next page of data in the report.
<**Columns**>	There is a column for each of the transaction breakdown categories, as well as a column that shows the size (in KB) of all pages in the transaction and a column that shows the total average response time of the transaction.
<**Data**>	Displays the average response time (in milliseconds) of the transaction breakdown categories for each transaction, or the transactions included in the location or group depending on how you view to choose the data. Click any cell in the following columns to open additional reports: ➤ **Retry Time.** Opens the Failed Transactions report. For details on the user interface, see "Failed Transactions Report" on page 212. ➤ **DNS Time**, **Connection Time**, or **Network Time to First Buffer.** Opens the Webtrace by Location report. For details on the user interface, see "WebTrace by Location Report" on page 282. ➤ **Server Time to First Buffer**, **Time to First Buffer**, or **Download.** Opens 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*.
<**Rows**>	There is a row for each transaction, location, or group, depending on how you choose to view the data.

Error Summary Report

The following is an example of the Error Summary report.



Description	Displays detailed tables—organized by error type—of errors that occurred during a profile run, over the specified time period. Since not all errors cause transactions to fail, the Error Summary report includes errors for transactions that completed successfully as well as transactions that failed. The report also lists outlier transactions. **To access:** Select **Applications** > **End User Management** > **Business Process** tab > **Error Summary** report
Important Information	➤ The Error Summary report includes the following tables: ➤ **HTTP Errors.** Web server errors (for example, Error 404). These errors occur when the Web server indicates that it cannot respond to requests sent by the data collector. ➤ **Content Errors.** Errors in the content of the response generated for a request sent by a data collector (for example, an expected text or image that is not found). ➤ **General Errors.** All other error types. ➤ **Outlier Transactions.** Information about the number of transactions that exceed their outlier value during a profile run. HP Business Availability Center classifies transactions as outliers if they are not completed within a specified time range. For details on setting outlier values in a profile's properties, see "Transaction Threshold Settings" on page 130. ➤ You can instruct HP Business Availability Center to display errors in either the HTTP Errors or Content Errors table, that by default appear in the General Errors table. For details on how to perform this task, see "Modify the Table in Which Errors Appear" on page 189.

This section includes the following topics:

- "Report Settings" on page 210
- "Report Content" on page 210
- "Outlier Transactions Table Content" on page 211

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.

Report Content

The following elements are included in the HTTP Errors, Content Errors, and General Errors tables (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
Error Type	A description or code of the error that occurred during script execution. Click the link to generate the Failed Transactions report. For details on the user interface, see "Failed Transactions Report" on page 212. **Note:** The error code **-17999** represents user-defined errors—errors defined in HP Virtual User Generator using the **lr_error_message** function.
Failed/Total Measurements	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.

GUI Element (A–Z)	Description
Locations/Total	The number of locations from which errors occurred, out of the total number of locations from which scripts ran.
Transactions/Total	The number of defined transactions that caused the error, out of the total number of transactions defined in the profile.

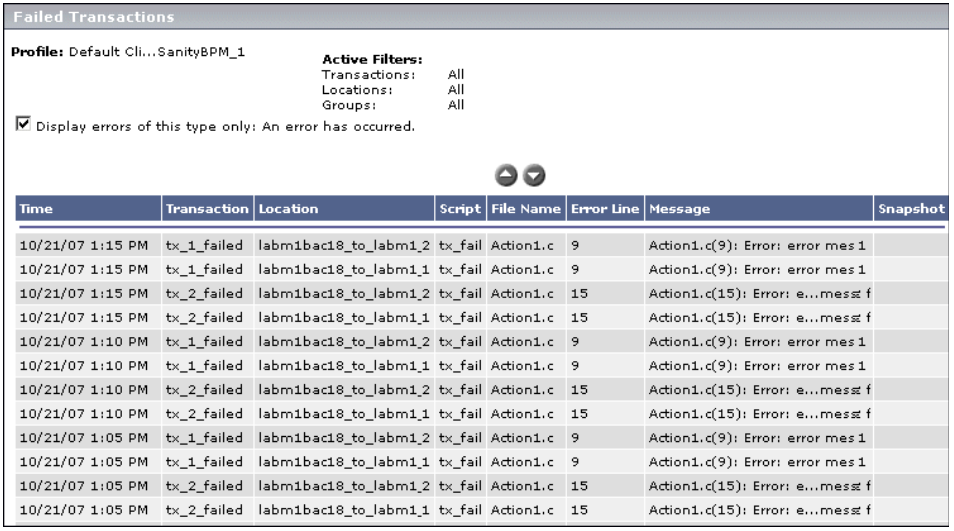
Outlier Transactions Table Content

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

GUI Element (A–Z)	Description
Outlier Locations/Total	The number of locations from which transactions exceeded their outlier value, out of the total number of locations from which scripts ran.
Outlier Total/Total Measurements	The number of outlier transaction instances, out of the total number of transaction instances that occurred during the specified time period.
Outlier Transactions/Total	The number of defined transactions that exceeded their outlier value, out of the total number of transactions defined in the profile.

Failed Transactions Report

The following is an example of the Failed Transactions report.



Failed Transactions

Profile: Default Cli...SanityBPM_1

Active Filters:
Transactions: All
Locations: All
Groups: All

Display errors of this type only: An error has occurred.

Time	Transaction	Location	Script	File Name	Error Line	Message	Snapshot
10/21/07 1:15 PM	tx_1_failed	labm1bac18_to_labm1_2	tx_fail	Action1.c	9	Action1.c(9): Error: error mes 1	
10/21/07 1:15 PM	tx_1_failed	labm1bac18_to_labm1_1	tx_fail	Action1.c	9	Action1.c(9): Error: error mes 1	
10/21/07 1:15 PM	tx_2_failed	labm1bac18_to_labm1_2	tx_fail	Action1.c	15	Action1.c(15): Error: e...messt f	
10/21/07 1:15 PM	tx_2_failed	labm1bac18_to_labm1_1	tx_fail	Action1.c	15	Action1.c(15): Error: e...messt f	
10/21/07 1:10 PM	tx_1_failed	labm1bac18_to_labm1_2	tx_fail	Action1.c	9	Action1.c(9): Error: error mes 1	
10/21/07 1:10 PM	tx_1_failed	labm1bac18_to_labm1_1	tx_fail	Action1.c	9	Action1.c(9): Error: error mes 1	
10/21/07 1:10 PM	tx_2_failed	labm1bac18_to_labm1_2	tx_fail	Action1.c	15	Action1.c(15): Error: e...messt f	
10/21/07 1:10 PM	tx_2_failed	labm1bac18_to_labm1_1	tx_fail	Action1.c	15	Action1.c(15): Error: e...messt f	
10/21/07 1:05 PM	tx_1_failed	labm1bac18_to_labm1_2	tx_fail	Action1.c	9	Action1.c(9): Error: error mes 1	
10/21/07 1:05 PM	tx_1_failed	labm1bac18_to_labm1_1	tx_fail	Action1.c	9	Action1.c(9): Error: error mes 1	
10/21/07 1:05 PM	tx_2_failed	labm1bac18_to_labm1_2	tx_fail	Action1.c	15	Action1.c(15): Error: e...messt f	
10/21/07 1:05 PM	tx_2_failed	labm1bac18_to_labm1_1	tx_fail	Action1.c	15	Action1.c(15): Error: e...messt f	

Description	Displays details about errors that occur during a script run. You also access the Snapshot on Error feature from the Failed Transaction report. **To access:** ➤ Click an **Error Type** link in the Error Summary report. ➤ Click a transaction, time, or cell in the Performance Matrix in the Transaction Analysis report. ➤ Click a location, time, or cell in the Performance Matrix in the Location Analysis report. ➤ Click the red **X** in the Errors column in the Breakdown Summary report.

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.

Report Content

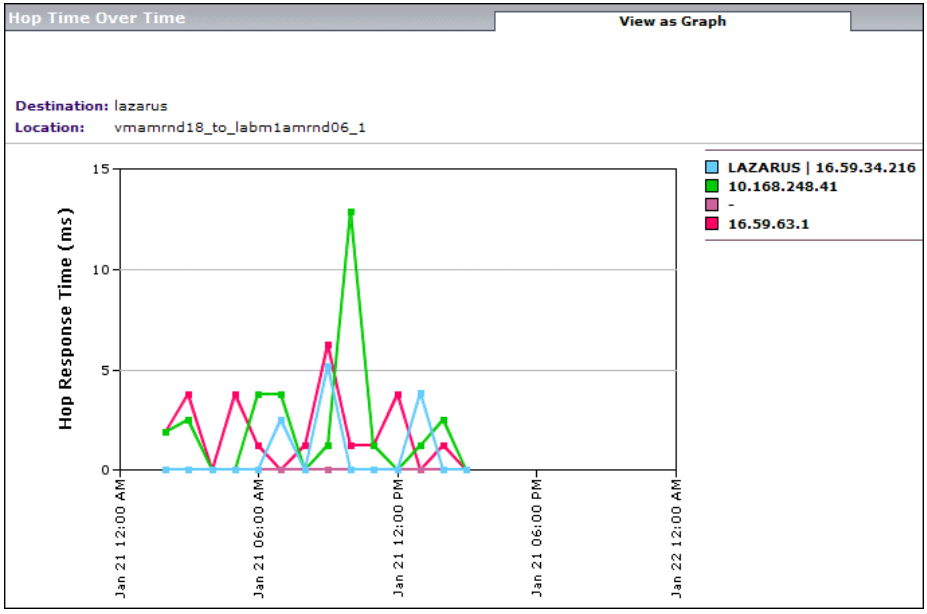
The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
	Click the **Up** or **Down Arrow** button to go the previous or next page of data in the report.
<Display errors of this type only check box>	Select to display errors of the specified type (corresponding to the error type that was chosen in the Error Summary report). Clear to display all error types. **Note:** Once this option is cleared it cannot be reselected. To view a filtered report again, you must close the window and click a link in the Error Summary report again.
Error Line	The line in the file referenced in the File Name column at which the error occurred. **Note:** This column is not displayed when the Failed Transactions report uses aggregated data. For details on data aggregation in HP Business Availability Center, see "Data Aggregation" in *Reference Information*.
File Name	The name of the file in the script directory containing the script steps that were running when the error occurred. **Note:** This column is not displayed when the Failed Transactions report uses aggregated data. For details on data aggregation in HP Business Availability Center, see "Data Aggregation" in *Reference Information*.

GUI Element (A–Z)	Description
Location	The location at which the error occurred.
Message	The error message that HP Business Availability Center 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), HP Business Availability Center displays the user message.
Script	The name of the script containing the transaction for which the error occurred.
Snapshot	Click the View Snapshot button to open a window containing a snapshot of the application, as it would have been seen by a real user at the time of the error. Click the Download Snapshot button to download the snapshot, in zipped format. For details on these topics, see "Snapshot on Error" on page 177. **Note:** This column is not displayed when the Failed Transactions report uses aggregated data. For details on data aggregation in HP Business Availability Center, see "Data Aggregation" in *Reference Information*.
Time	The time and date at which the error occurred. **Note:** If the report uses aggregated data, HP Business Availability Center displays the time as a link. Click the link to drill down to the time interval information until the raw error data is displayed, which includes Snapshot on Error information, if available. For details on Snapshot on Error, see "Snapshot on Error" on page 177.
Transaction	The transaction for which the error occurred.

Hop Time Over Time Report

The following is an example of the Hop Time Over Time report.



Description	Displays average hop time, for each hop, over the selected time frame **To access:** Click a link the **Avg. No. of Hops** column in the **WebTrace by Location** report.
Important Information	You can view this report in either graph or table format.

View as Graph

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

GUI Element (A-Z)	Description
<Data points>	Represent the average response time, in milliseconds, for a hop at a given point of time. **Tooltip:** The hop's IP address and the average response time.
<Legend>	Describes the color coding used in the graph.
<Time> (x-axis)	Displays the time division units for the time range for which the report was generated.
Hop Response Time (ms) (y-axis>	Displays the average response time, in milliseconds.

View as Table

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

GUI Element (A-Z)	Description
<Data cells>	Show the average response time, in milliseconds, for a hop at a given point of time.
<Hop IP addresses>	There is a row for each hop IP address.
<Time division units>	There is a column for each time division unit in the selected time frame.

Instant Diagnostics Page

Description	Enables you to use Instant Diagnostics tools to obtain additional information on network and server performance. **To access:** Click a location in the Instant Diagnostics Location page. For details on the Instant Diagnostics Location page, see “Instant Diagnostics Location Page” on page 218.
Important Information	This page is available to HP Software-as-a-Service customers only.

This section includes the following topics:

- “Application Diagnostic Tools” on page 217
- “Advanced Tools” on page 218

Application Diagnostic Tools

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

GUI Element (A-Z)	Description
Check FTP Server	Checks whether a specified FTP file can be retrieved by sending a file retrieval request to the specified FTP server from the selected location. You also provide FTP server connection parameters.
DNS Lookup	Checks whether the specified DNS server can resolve the specified domain name to an IP address.
Ping	Checks whether the specified domain or IP address is available by pinging it from the selected location.

GUI Element (A-Z)	Description
Traceroute	Performs a standard traceroute from the selected location to the specified domain or IP address.
WebTrace	Performs a WebTrace from the selected location to the specified domain or IP address. For details on WebTrace, see "Running WebTrace" in the *Business Process Monitor Administration* PDF.

Advanced Tools

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

GUI Element (A-Z)	Description
Check News Server	Checks whether a News Server is operational by sending informational requests to the server. You provide the server name and other optional parameters.
LDAP Authentication	Performs a user authentication on an LDAP server. You provide LDAP server connection parameters and a LDAP query.

Instant Diagnostics Location Page

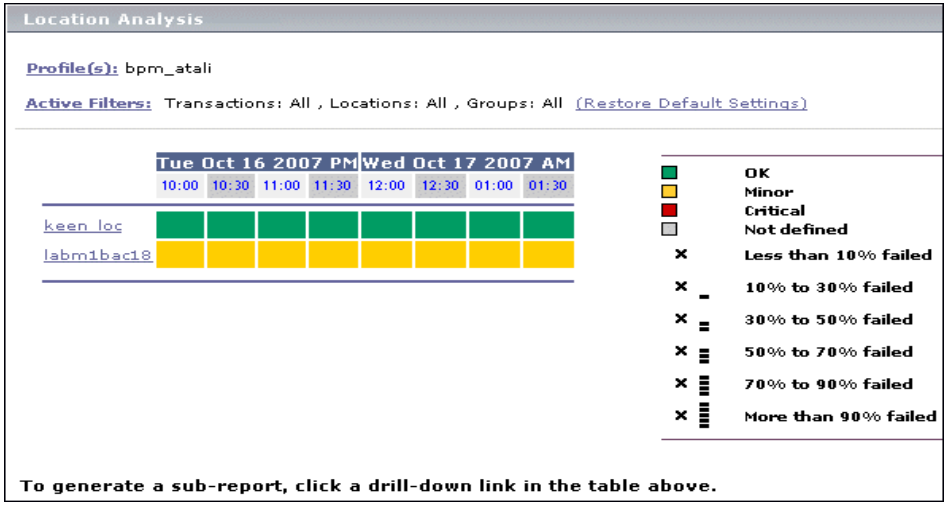
Description	Enables you to select the location from which you want the Instant Diagnostic tools to run. The available locations depend on the locations defined in your HP Software-as-a-Service package. **To access:** Select **Applications** > **End User Management** > **Network and Tools** tab > **Instant Diagnostics**
Important Information	This page is available to HP Software-as-a-Service customers only.

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

GUI Element (A-Z)	Description
<Location list>	Lists the available, filtered locations. Click a location from the list to open the **Instant Diagnostic** page for the location. For details on the Instant Diagnostics page, see "Instant Diagnostics Page" on page 217.
<Predefined filter options>	Select **All** to set the filter to list all locations, or select a letter to set the filter to list only locations that begin with the selected letter.
Filter	Click the **Filter** button to display only the locations that match the filter.
Filters	Enter a filter or select a predefined filter option. You can use the asterisk wildcard (*) to denote any combination of characters.

Location Analysis Report

The following is an example of the Location Analysis report.



Description	Displays an in-depth picture of the performance of locations. The report enables you to understand, for the selected profile and defined time frame: ➤ the average response times of your transactions over time for each location in the profile ➤ how well your locations performed relative to the set transaction thresholds **To access:** Select **Applications** > **End User Management** > **Business Process** tab > **Location Analysis** report
Important Information	When you generate the Location Analysis report initially, the Performance Matrix is displayed. For details on the user interface, see "Performance Matrix Report" on page 238. To analyze data for a specific time period or location, click a location, date, or cell within the main report. End User Management generates the sub-reports. For details on the sub-reports, see "Sub-Reports" on page 221.

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.

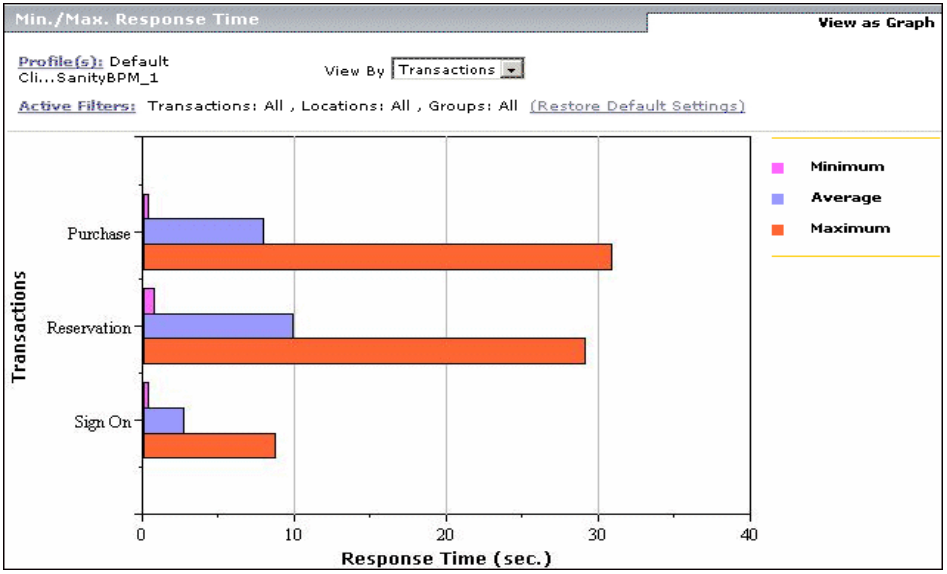
Sub-Reports

The following sub-reports are generated when you click a transaction, time, or cell in the Performance Matrix in the Transaction Analysis report:

Report Name	Description
Average Response Times Over Time	Displays, for the selected locations, average response times of successful transactions, over time. For details on the user interface, see "Response Time Over Time Report" on page 249.
Overall Location Performance	Displays, for each location, the number and percentage of transaction instances whose response time falls into the OK, Minor, and Critical threshold ranges. In addition, displays the number and percentage of transaction instances that failed and how many of the failed instances are outliers. For details on the user interface, see "Location Performance" on page 228.
Error Details	Displays a detailed list of script errors that occurred while the selected business process profile ran during the specified time period. For details on the user interface, see "Failed Transactions Report" on page 212.

Min./Max. Response Time Report

The following is an example of the Min./Max. Response Time report.



Description	Displays the minimum, average, and maximum response time (in seconds) of completed transactions—organized by transaction, location, or group—for the selected time frame. The Min./Max. Response Time report helps you identify the best- and worst-case response time scenarios, relative to average response time. Maximum response time is a particularly important measurement, as slow response times translate to a poor end-user experience. By breaking down the report by transaction, location, or group across different time frames, you can identify exactly where and when maximum transaction response time is too slow, relative to the average. For example, you may determine that a specific transaction, being run in a group emulating Mozilla browsers, always returns a response time well above the average. This may indicate a problem with the HTML code that only affects users running Mozilla. **To access:** Select **Applications** > **End User Management** > **Business Process** tab > **Min./Max. Response Time** report
Important Information	You can view the report in either graph or table format.

This section includes the following topics:

- "Report Settings" on page 224
- "Report Content as Graph" on page 224
- "Report Content as Table" on page 225

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.
View By	Select how you want the data to be grouped—by transaction, location, or group.

Report Content as Graph

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

GUI Element (A–Z)	Description
<Bars>	Display the minimum, average, and maximum response times (in seconds) by transaction, location, or group, depending on how you choose to view the data. Click any bar chart in the report to focus on the corresponding transaction, location, or group. **Tooltip:** The number of passed transactions and the average response time.
<Legend>	Describes the color coding used in the graph.
<Y-axis>	Displays transaction, locations, or group names depending on how you choose to view the data.
Response Time (sec.) (x-axis)	The response time, in seconds.

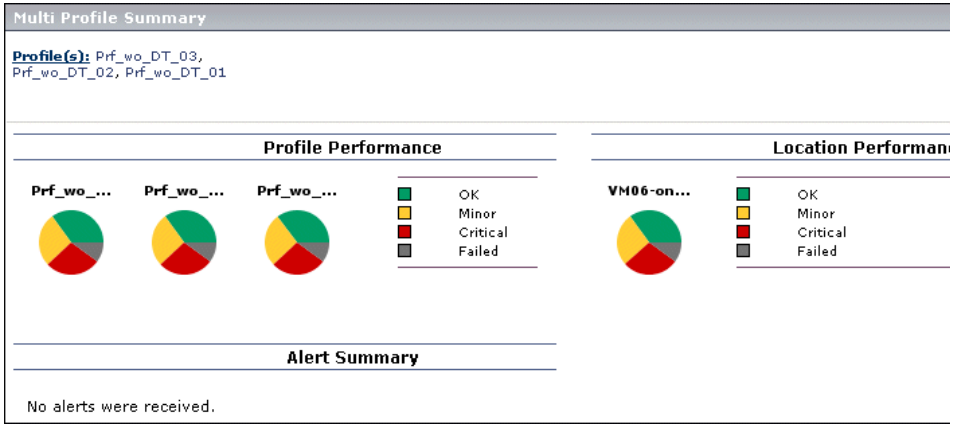
Report Content as Table

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

GUI Element (A–Z)	Description
<Transaction, location, or group name>	The transaction, location, or group names, depending on how you choose to view the data. Click any name in the column to focus on the corresponding transaction, location, or group.
Avg. Response Time (Sec)	The average response time (in seconds) for each transaction, location, or group.
Max. Response Time (Sec)	The maximum response time (in seconds) for each transaction, location, or group.
Min. Response Time (Sec)	The minimum response time (in seconds) for each transaction, location, or group.
No. of Transactions	The total number of counted transactions for each transaction, location, or group.

Multi-Profile Summary Report

The following is an example of the Multi-Profile Summary report.



Description	Displays an overall snapshot of application performance for multiple business process profiles. **To access:** Select **Applications** > **End User Management** > **Summary Reports** tab > **Multi Profile Summary**
Important Information	➤ HP Business Availability Center does not display aggregated and raw data simultaneously in the Multi-Profile Summary report. ➤ HP Business Availability Center can display profiles concurrently only if they have the same outlier value settings. Outlier settings for each profile are listed in the report page, before report generation. Make sure to select a set of profiles that have the same settings for outlier values. For details on modifying outlier value settings for a profile, see "Transaction Threshold Settings" on page 130. ➤ Attempting to generate a Multi-Profile Summary report for a large number of profiles that are stored in multiple databases can significantly affect report generation time. If the time required to generate the report is greater than the browser timeout setting, the report is not be generated.

This section includes the following topics:

➤ "Report Settings" on page 227

➤ "Profile Performance" on page 227

➤ "Location Performance" on page 228

➤ "Alert Summary" on page 229

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.

Profile Performance

Description	Displays a quick snapshot of the worst-performing profiles from among the business process profiles you select. The chart displays—for the defined time frame—up to three profiles in which transactions most often fail or have response times in the Minor and Critical ranges.

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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the pie charts.
<Pie charts>	Each pie chart represents a different profile. Each slice of a pie chart represents a threshold range (OK, Minor, Critical, or Failed). To generate the Transaction Analysis report for a profile, click a pie chart. For details on the user interface, see "Transaction Analysis Report" on page 260. **Tooltip:** Hold the cursor over a slice of a pie chart to display the severity level, as well as the percentage and number of transactions for the slice. For the slice representing the Failed threshold range, the number of outlier transactions is also displayed. **Note:** Outlier data appears in a tooltip if **Ignore outlier data in reports** is cleared in the profile's settings for transaction thresholds. For details on the user interface, see "Transaction Threshold Settings" on page 130.

Location Performance

Description	Displays a quick snapshot of the worst-performing locations for the selected business process profiles, in terms of transaction response time. The chart displays—for the selected profiles and defined time frame—up to three locations from which transactions most often fail or have response times in the Minor and Critical ranges.

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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the pie charts.
<Pie charts>	Each pie chart represents a different location. Each slice of a pie chart represents a threshold range (OK, Minor, Critical, or Failed). **Tooltip:** Hold the cursor over a slice of a pie chart to display the severity level, as well as the percentage and number of transactions for the slice. For the slice representing the Failed threshold range, the number of outlier transactions is also displayed. **Note:** Outlier data appears in a tooltip if **Ignore outlier data in reports** is cleared in the profile's settings for transaction thresholds. For details on the user interface, see "Transaction Threshold Settings" on page 130.

Alert Summary

Description	Displays a quick snapshot of the total number of alert notices sent during the defined time period, for all selected profiles, grouped by their severity level (Unknown, OK, Warning, Minor, Major, and Critical).

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

GUI Element (A–Z)	Description
<Horizontal bars>	Each bar represents a different severity level and displays the number of alert notices with the relevant severity level that were sent during the defined time period. **Tooltip:** The exact number of alerts.
<Severity levels> (y-axis)	The names of the alerts severity levels.
Alerts (x-axis)	The number of alerts.

Network Analysis Report

Description	Displays an in-depth picture of network performance for a business process profile, if you defined a WebTrace monitor for the profile. The report enables you to understand, for the selected profile and defined time frame: ➤ average route time over time between configured host locations and specified destinations ➤ errors over time ➤ hop time over time between configured host locations and specified destinations The report is based on WebTrace data. For details on WebTrace, see "Analyzing the WebTrace by Location Report" on page 185. For details on configuring WebTrace monitors, see "Edit WebTrace Monitors Page" on page 141. **To access:** Select **Applications** > **End User Management** > **Network and Tools** tab > **Network Analysis**
Important Information	When you generate the Network Analysis report initially, the WebTrace by Location report is displayed. For details on the user interface, see "WebTrace by Location Report" on page 282. To analyze data for a specific location, click a location name link in the WebTrace by Location report. End User Management generates the sub-reports. For details on the sub-reports, see "Sub-Reports" on page 231.

Report Settings

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

GUI Element (A-Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.

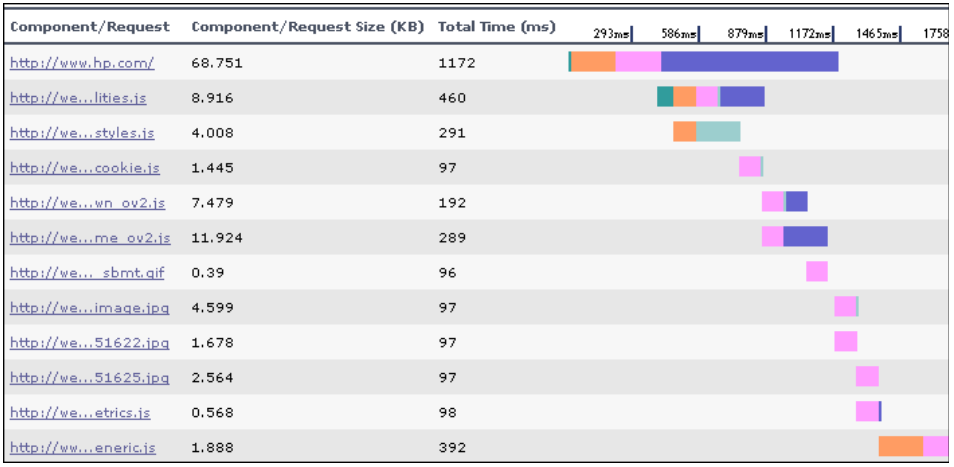
Sub-Reports

The following sub-reports are generated when you click a location name link in the WebTrace by Location report:

Report Name	Description
Route Time Graph	Displays the average route time across the network over the selected time frame. For details on the user interface, see "Route Time Graph" on page 288.
Errors over Time Graph	Displays the number of errors that occurred over the selected time frame. For details on the user interface, see "Errors Graph" on page 288.
Hop Time over Time	Displays average hop time over the selected time frame. For details on the user interface, see "Hop Time Over Time Report" on page 215.

Page Component Breakdown Report

The following is an example of the Page Component Breakdown report.



Description	Displays an on-demand component breakdown of any Web page. You use the Page Component Breakdown 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 Page Component Breakdown 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** > **Network and Tools** tab > **Page Component Breakdown**

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).
Useful Links	"Analyzing the Page Component Breakdown Report" on page 185 "Viewing Page Component Breakdown Data in other Contexts" on page 187 For details on the breakdown categories used in the Page Component Breakdown report, as well as the differences between Web based and TCP based transactions, see "Understanding the Transaction Breakdown Reports" on page 162.

Report Settings

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

GUI Element (A-Z)	Description
Authentication	If you are accessing a secure site, click the **Authentication** button to open the **Authentication** dialog box where you enter the user name and password required to access the site.
Location	Select the location from which you want the report to be generated. Each listed location represents a specific Business Process Monitor instance, displayed using the syntax: location_name (host_name). **Note:** ➤ By default, the Page Component Breakdown report can be generated from all configured Business Process Monitor locations running Business Process Monitor version 4.5.2 or later. ➤ For HP Software-as-a-Service customers, the available locations for Page Component Breakdown depend on the locations defined in your HP Software-as-a-Service package. ➤ The system administrator can hide the host name values so that only the location name is displayed in the report. To hide the location name, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Applications**, select **End User/System Availability Management**, and locate the **Display Host Name in Page Component Breakdown Report** entry in the **End User/System Availability Management – Display** table. Modify the value to **false**.
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

View as Graph

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

GUI Element (A-Z)	Description
<**Bars**>	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 the Transaction Breakdown Reports" on page 162. **Tooltip:** ➤ Hold the cursor over a color-coded portion of any bar in the graph to view the relevant category name and time. ➤ Hold the cursor over the white space to the left of a component/request's colored bar to view the component/request's offset time (that is, the time that passes from the start time of the first component/request until the start time of the specific component/request). **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 Business Process Monitor 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.
<**Legend**>	Describes the color coding used in the graph.

GUI 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.
Component/Request Size (KB)	Displays the total size, in kilobytes, of the component or request.
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).

View as Table

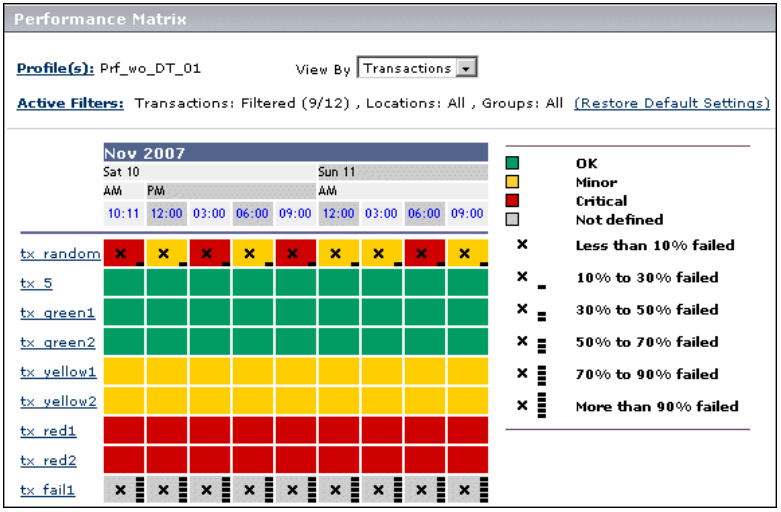
The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI 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.
Component/Request Size (KB)	Displays the total size, in kilobytes, of the component or request.
Connection Time (ms)	Displays a component/request's connection time in milliseconds.
DNS Time (ms)	Displays a component/request's DNS time in milliseconds.

GUI Element (A-Z)	Description
Download Time (ms)	Displays a component/request's download time in milliseconds.
Error Message	Displays error information, if relevant.
Network Time to First Buffer (ms)	Displays a component/request's network time to first buffer in milliseconds.
Offset Time (ms)	Displays the component/request's offset time in milliseconds (that is, the time that passes from the start time of the first component/request until the start time of the specific component/request).
Retry Time (ms)	Displays a component's retry time in milliseconds. **Note:** Retry time is not applicable for TCP based breakdown data.
Server Time to First Buffer (ms)	Displays a component/request's server time to first buffer in milliseconds.
SSL Handshaking Time (ms)	Displays a component's SSL handshaking time in milliseconds. **Note:** SLL handshaking time is not applicable for TCP based breakdown data.
Time to First Buffer (ms)	Displays a component/request's time to first buffer in milliseconds.
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).

Performance Matrix Report

The following is an example of the Performance Matrix report.



Description	Displays a distribution of average transaction response times—organized by transaction, location, or group—over a specified period of time. The Performance Matrix report helps you pinpoint and characterize specific problem areas related to average transaction response time and transaction availability. By breaking down the table by transaction, location, or group across different time frames, you can identify exactly 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. When grouped by transactions, the Performance Matrix 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. **To access:** Select **Applications** > **End User Management** > **Summary Reports** tab > **Performance Matrix**

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.

GUI Element (A–Z)	Description
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.
View By	Select how you want the data to be grouped—by transaction, location, or group. **Note:** Color coding of data cells in the report is available only when the report is grouped by transactions.

Report Content

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

GUI Element (A–Z)	Description
<Columns>	Each column represents a time division unit for the time range that you defined when generating the report. Click a time division unit to display data for that time only. **Note:** Depending on the tracking period selected in the View box, clicking the range title displays the report with a smaller time range. For example, in a report with a day tracking period, clicking the range title displays the report with a two-hour tracking period.

GUI Element (A–Z)	Description
<Data>	In the transaction view, the report's color-coding corresponds to that of the transaction threshold settings—green for OK, yellow for Minor, and red for Critical. In all views, 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 242. HP Business Availability Center classifies transactions as outliers if they do not complete within a specified time range. For details on setting transaction thresholds and outlier values in End User Management Administration, see "Transaction Threshold Settings" on page 130. **Tooltip:** ➤ Place the pointer over any colored cell in the table to view details about the average response time of all completed transactions performed by hosts during the time period of the cell. ➤ Place the pointer over a cell with a black X to view details on the number of failed transactions, the number of outlier transactions, and the average response time of completed transactions, for the time period of the cell. ➤ Place the pointer over a grey cell. A tooltip indicating that there are no transactions scheduled for this time frame is displayed.
<Legend>	Describes the color coding used to represent the status of the average transaction times for a transaction, location, or group.
<Rows>	There is a row for each transaction, location or group, depending on the way you choose to view the data. Click a transaction, location or group name to display data for that transaction, location or group only.

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.

Profiles Dialog Box

Description	Enables you to select the profile for which to generate a Business Process or Summary report. Select a profile from the list displayed. For the Multi-Profile Summary report, select up to ten profiles. **To access:** Click the **Profile(s)** link at the top of a report.
Important Information	The first time you log into HP Business Availability Center, the first profile in the list (which is sorted alphabetically) is displayed. For the Multi-Profile Summary report, all profiles are displayed. When you log in on subsequent occasions, HP Business Availability Center displays the last profile (or profiles, in the Multi-Profile Summary report) that you selected.

Report Filters Page

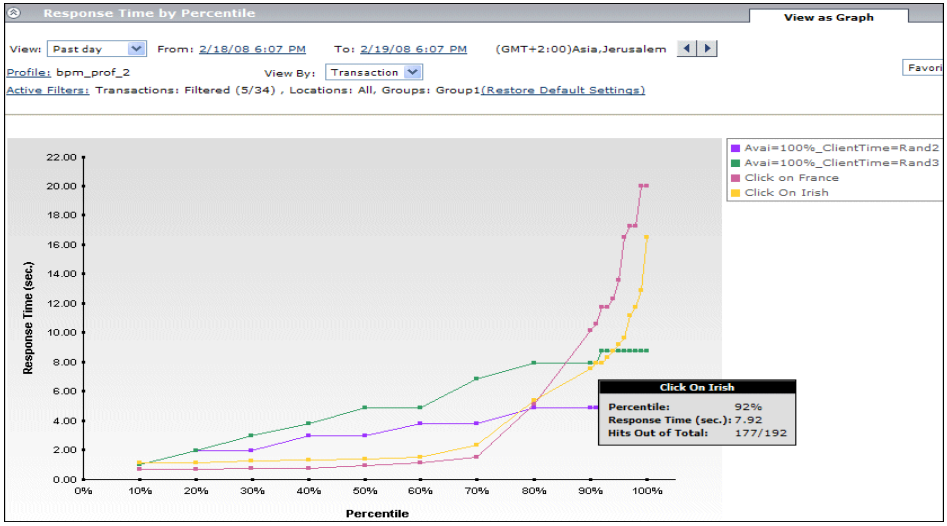
Description	Enables you to filter reports to exclude specific transactions, locations, and/or groups from all reports for the current and future profile sessions. **To access:** Select **Admin** > **End User Management** > **Reports** tab > **Report Filters**
Included in Tasks	"Configure Business Process Reports" on page 188

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

GUI Element (A-Z)	Description
Groups	Displays the groups for the selected profile. Select the check box next to a group name to exclude it from reports, or clear the check box to include the group in reports.
Locations	Displays the locations for the selected profile. Select the check box next to a location name to exclude it from reports, or clear the check box to include the location in reports.
Select profile	Select the profile whose transactions you want to order, from the drop-down list.
Transactions	Displays the transactions for the selected profile. Select the check box next to a transaction name to exclude it from reports, or clear the check box to include the transaction in reports.

Response Time by Percentile Report

The following is an example of the Response Time by Percentile report.



Description	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. The 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, location, or group across different time frames, you can identify exactly where and when transaction response times are too slow. **To access:** Select **Applications** > **End User Management** > **Business Process** tab > **Response Time by Percentile** report
Important Information	➤ To improve the report's performance, displayed transaction response times are up to five percent less than real transaction response times. ➤ You can view the report in either graph or table format. ➤ You can include the Response Time by Percentile report in a custom report. For details on custom reports, see “Custom Report Wizard” in *Reports*.

This section includes the following topics:

➤ "Report Settings" on page 247

➤ "Report Content as Graph" on page 248

➤ "Report Content as Table" on page 248

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.
View By	Select how you want the data to be grouped—by transaction, location, or group.

Report Content as Graph

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

GUI Element (A–Z)	Description
<Data points>	Each data point shows the percentage of transactions whose response time was less than or equal to the response time for the corresponding percentile group. **Tooltip:** The name of the transaction, location or group, as well as the percentage of transactions, the response time for the percentile group, and the number of transaction hits for the percentile group out of the total number of transaction hits.
<Legend>	Describes the color coding used in the graph to represent transactions, locations, or groups, depending on how you choose to view the data.
Percentile (x-axis)	Displays the percentiles, in 10% increments.
Response Time (y-axis)	Displays the response time, in seconds.

Report Content as Table

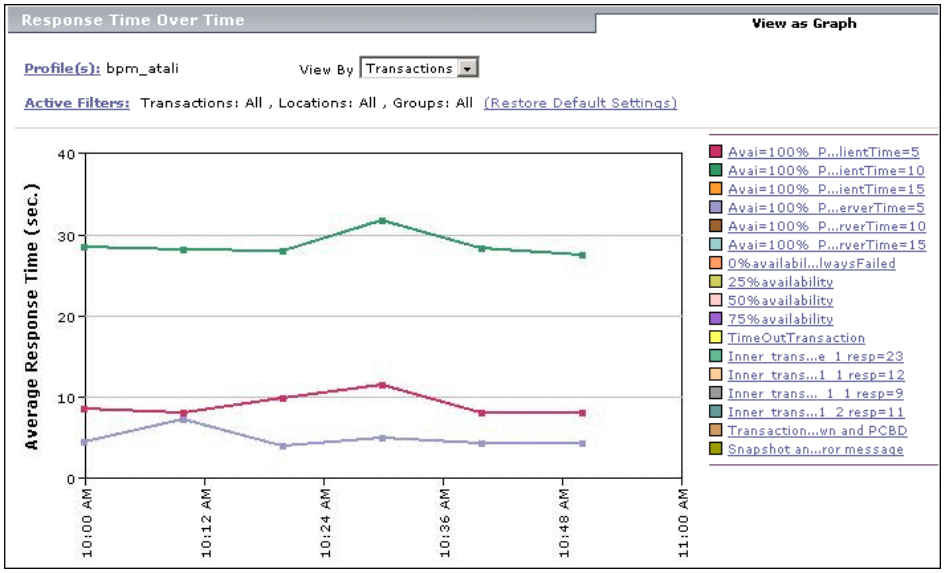
The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
Hits Out of Total	Displays the number of transaction hits for the percentile group, out of the total number of transaction hits.
Percentile	Displays the percentiles, in descending order, in 1% increments from the 100th percentile to the 90th percentile and in 10% increments from the 90th percentile to the 10th percentile.

GUI Element (A–Z)	Description
Response Time	Displays the response time, in seconds, for the percentile group.
Transaction, Location or Group	Displays the transaction, location, or group name according to how you choose to view the data. **Note:** Each transaction, location, or group included in the report is displayed on a separate page in the table.

Response Time Over Time Report

The following is an example of the Response Time Over Time report.



Description	Displays the average response times (in seconds) of completed transactions—organized by transaction, location, or group—over time. The Response Time Over Time report helps you identify response time problems and pinpoint their source. By breaking down the report by transaction, location, or group across different time frames, you can identify exactly where and when average transaction response times are too slow. For example, you might determine that a specific transaction's average response time is always higher on a certain day of the week, but only from a particular location. This might indicate a problem with the Internet Service Provider for that location during high Internet traffic periods. **To access:** Select **Applications** > **End User Management** > **Business Process** tab > **Response Time Over Time** report
Important Information	➤ HP Business Availability Center can display up to 100 transactions simultaneously. If a profile has more than 100 transactions, HP Business Availability Center automatically selects the first 100 transactions listed on the Transaction Ordering page. To select different transactions to view, modify the active filters. To change the order in which transactions appear, you modify their order in the Transaction Ordering page. For details, see "Configure Business Process Reports" on page 188. ➤ You can view the report in either graph or table format.

This section includes the following topics:

➤ "Report Settings" on page 251

➤ "Report Content as Graph" on page 251

➤ "Report Content as Table" on page 252

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.
View By	Select how you want the data to be grouped—by transaction, location, or group.

Report Content as Graph

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

GUI Element (A–Z)	Description
<Data points>	Indicate the average response time (in seconds) of completed transactions for a profile's hosts for each point over the course of the defined time period. Click a data point to display data for a specific transaction, location, or group in a more focused time frame. **Tooltip:** The transaction, location, or group name, average response time, and applicable time range.
<Legend>	Describes the color coding used to represent transactions, locations or groups. Click a transaction, location, or group in the legend to display data for that transaction, location, or group only.
<Time> (x-axis)	Displays the time division units for the time range that you defined when generating the report.
Average Response Time (y-axis)	Displays the average response time in seconds.

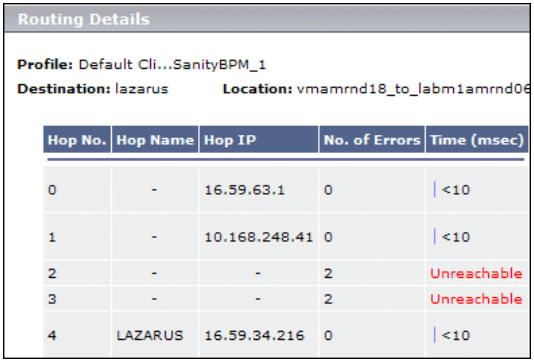
Report Content as Table

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

GUI Element (A–Z)	Description
<Columns>	Each column represents a time division unit for the time range that you defined when generating the report. Click a time division unit to display data for that time only.
<Data>	Displays the average response time (in seconds) of completed transactions for a profile's hosts—for each transaction, location or group—for each point over the course of the defined time period.
<Rows>	There is a row for each transaction, location or group, depending on the way you choose to view the data. Click a transaction, location or group name to display data for that transaction, location or group only.

Routing Details Window

The following is an example of the Routing Details window.



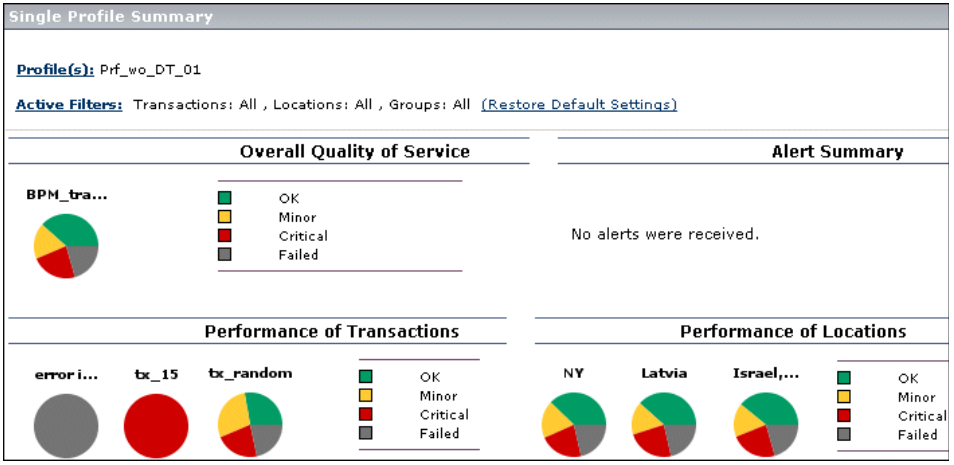
Description	Displays a detailed breakdown of a specific traceroute run. **To access:** Click a time measurement in the WebTrace Measurements report.

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

GUI Element (A-Z)	Description
Hop IP	The IP address of the intermediate server.
Hop Name	The name of the intermediate server.
Hop No.	The order in which the hops occur.
No. of Errors	The number of errors associated with a specific hop IP.
Time (msec)	The time, in milliseconds, from the source to the specific hop.

Single Profile Summary Report

The following is an example of the Single Profile Summary report.



Description	Displays a quick snapshot of application performance for a specific business process profile. **To access:** Select **Applications** > **End User Management** > **Summary Reports** tab > **Single Profile Summary**

This section includes the following topics:

- "Report Settings" on page 255
- "Overall Quality of Service" on page 255
- "Alert Summary" on page 256
- "Performance of Transactions" on page 257
- "Performance of Locations" on page 258

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.

Overall Quality of Service

Description	Displays a quick snapshot of the quality of service of your monitored application, in terms of transaction response time.

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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the pie chart.
<Pie chart>	Displays—for the selected profile and time frame—the percentages of transactions that fall in the OK, Minor, Critical, and Failed threshold ranges. To generate the Transaction Analysis report for the profile, click the pie chart. For details on the user interface, see "Transaction Analysis Report" on page 260. **Tooltip:** Hold the cursor over a slice of a pie chart to display the severity level, as well as the percentage and number of transactions for the slice. For the slice representing the Failed threshold range, the number of outlier transactions is also displayed. **Note:** Outlier data appears in a tooltip if **Ignore outlier data in reports** is cleared in the profile's settings for transaction thresholds. For details on the user interface, see "Transaction Threshold Settings" on page 130.

Alert Summary

Description	Displays a quick snapshot of the total number of alert notices sent during the defined time period, for the selected profile, grouped by their severity level (Unknown, OK, Warning, Minor, Major, and Critical).

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

GUI Element (A–Z)	Description
<Horizontal bars>	Each bar represents a different severity level and displays the number of alert notices with the relevant severity level that were sent during the defined time period. **Tooltip:** The exact number of alerts.
<Severity levels> (y-axis)	The names of the alerts severity levels.
Alerts (x-axis)	The number of alerts.

Performance of Transactions

Description	Displays a quick snapshot of the worst-performing transactions in the profile. The chart displays—for the selected profile and time frame—up to three transactions that most often failed or had response times in the Critical and Minor ranges.

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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the pie charts.
<Pie charts>	Each pie chart represents a different transaction. Each slice of a pie chart represents a threshold range (OK, Minor, Critical, or Failed). To generate the Transaction Analysis report for a transaction, click the relevant pie chart. For details on the user interface, see "Transaction Analysis Report" on page 260. **Tooltip:** Hold the cursor over a slice of a pie chart to display the severity level, as well as the percentage and number of transactions for the slice. For the slice representing the Failed threshold range, the number of outlier transactions is also displayed. **Note:** Outlier data appears in a tooltip if **Ignore outlier data in reports** is cleared in the profile's settings for transaction thresholds. For details on the user interface, see "Transaction Threshold Settings" on page 130.

Performance of Locations

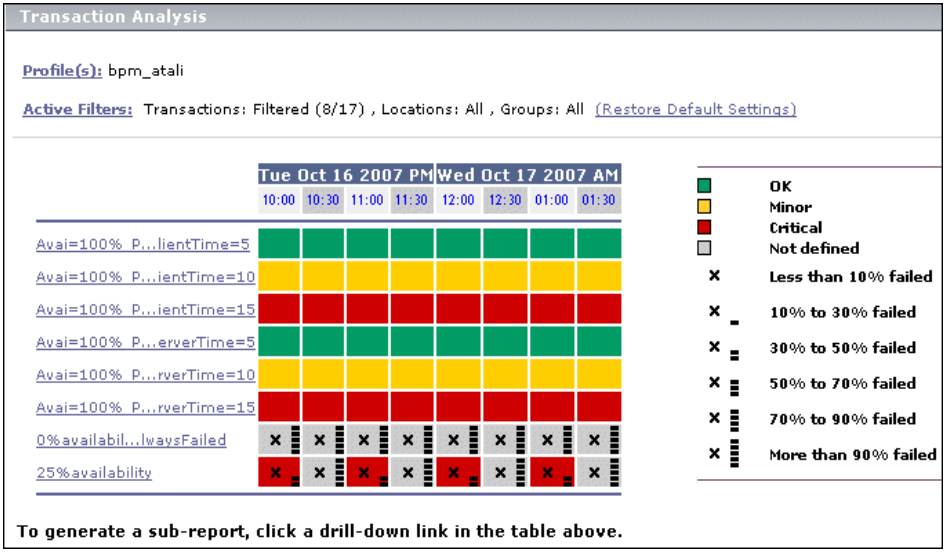
Description	Displays a quick snapshot of the worst-performing locations in the profile. The chart displays—for the selected profile and time frame—up to three locations from which transactions most often failed or had response times in the Critical and Minor range.

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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the pie charts.
<Pie charts>	Each pie chart represents a different location. Each slice of a pie chart represents a threshold range (OK, Minor, Critical, or Failed). To generate the Location Analysis report for a location, click the relevant pie chart. For details on the user interface, see "Location Analysis Report" on page 219. Tooltip: Hold the cursor over a slice of a pie chart to display the severity level, as well as the percentage and number of transactions for the slice. For the slice representing the Failed threshold range, the number of outlier transactions is also displayed. **Note:** Outlier data appears in a tooltip if **Ignore outlier data in reports** is cleared in the profile's settings for transaction thresholds. For details on the user interface, see "Transaction Threshold Settings" on page 130.

Transaction Analysis Report

The following is an example of the Transaction Analysis report.



Description	Displays an in-depth picture of the performance of transactions. The report enables you to understand, for the selected profile and defined time frame: ➤ the average response times of your transactions over time ➤ whether poor transaction response times are being caused by network or server problems, or by client delays ➤ the availability level of your transactions ➤ how well your transactions performed relative to set transaction thresholds **To access:** Select **Applications** > **End User Management** > **Business Process** tab > **Transaction Analysis** report

Important Information	When you generate the Transaction Analysis report initially, the Performance Matrix is displayed. For details on the user interface, see "Performance Matrix Report" on page 238. To analyze data for a specific time period or transaction, click a transaction, date, or cell within the main report. End User Management generates the sub-reports. For details on the sub-reports, see "Sub-Reports" on page 261.

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.

Sub-Reports

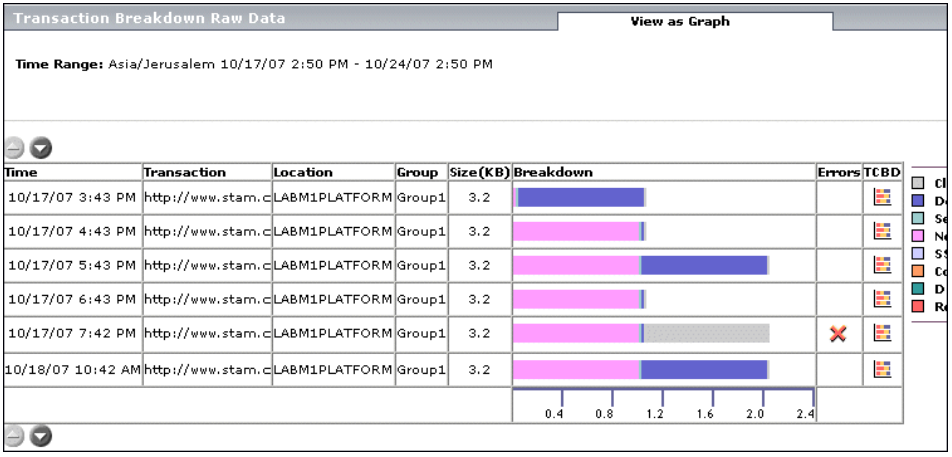
The following sub-reports are generated when you click a transaction, time, or cell in the Performance Matrix in the Transaction Analysis report:

Report Name	Description
Average Response Times Over Time	Displays average response times of successful transactions, over time. For details on the user interface, see "Response Time Over Time Report" on page 249.
Transaction Breakdown Over Time	Displays a breakdown of average transaction response times, over time. For details on the user interface, see "Breakdown Over Time Report" on page 198.

Report Name	Description
Service Availability Over Time	Displays the percentage of successful transactions performed by all hosts in a profile, over time. For details on the user interface, see "Availability Over Time Report" on page 194.
Overall Transaction Performance	Displays, for each transaction, the number and percentage of transaction instances whose response time falls into the OK, Minor, and Major threshold ranges. In addition, displays the number and percentage of transaction instances that failed and how many of the failed instances are outliers. For details on the user interface, see "Overall Quality of Service" on page 255.
Error Details	Displays a detailed list of transaction file errors that occurred while the selected business process profile ran during the specified time period. For details on the user interface, see "Failed Transactions Report" on page 212.

Transaction Breakdown Raw Data Report

The following is an example of the Transaction Breakdown Raw Data report.



Description	Displays a summary of every instance of the transaction that occurred during the selected time range. **To access:** Click the icon in the **TBD Raw Data** column of the **Breakdown Summary** report.
Important Information	You can view the report in either graph or table format.

This section includes the following topics:

- "Report Settings" on page 263
- "Report Content as Graph" on page 263
- "Report Content as Table" on page 265

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.

Report Content as Graph

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

GUI Element (A–Z)	Description
	Click the **Up** or **Down Arrow** button to go the previous or next page of data in the report.
<Legend>	Describes the color coding used to represent the transaction breakdown categories.

GUI Element (A–Z)	Description
Breakdown	Each color coded segment of the bar represents a different category of the transaction, as described in the legend. Click the following segments in the breakdown bar to open additional reports: ➤ **Retry Time.** Opens the Failed Transactions report. For details on the user interface, see "Failed Transactions Report" on page 212. ➤ **DNS Time**, **Connection Time**, or **Network Time to First Buffer.** Opens the Webtrace by Location report. For details on the user interface, see "WebTrace by Location Report" on page 282. ➤ **Server Time to First Buffer**, **Time to First Buffer**, or **Download.** Opens 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*. **Tooltip:** Hold the cursor over a segment to see the category name and the average response time, in milliseconds, for that category.
Errors	If errors occurred while downloading some of the page components, the report displays a red X in the Errors column. Click the red X to open the Failed Transactions report, which details page component download errors for the defined time range. For details on the user interface, see "Failed Transactions Report" on page 212. Note: To view errors that occurred while downloading page components in the Failed Transactions report, you must have enabled transaction breakdown error reporting in the profile (for the transaction monitor containing the transaction with errors). For details on the user interface, see "Transaction Breakdown Settings" on page 135.
Group	The group for the transaction.
Location	The location of the transaction.
SIze (KB)	The size (in KB) of all pages in the transaction.

GUI Element (A–Z)	Description
TCBD	Click the TCBD icon to drill down further to the Component Breakdown report for a specific transaction instance. The Component Breakdown report breaks down the transaction by page component, enabling you to analyze whether slow response times are being caused by a particular component of your Web page (for example, an image that is too large). For details on the user interface, see "Page Component Breakdown Report" on page 232. Note: HP Business Availability Center only saves complete Component Breakdown data for a sample of transaction instances (by default, one out of every four).
Time	The time of the transaction instance.
Transaction	The name of the transaction.

Report Content as Table

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

GUI Element (A–Z)	Description
	Click the **Up** or **Down Arrow** button to go the previous or next page of data in the report.
<Columns>	There is a column for each of the transaction breakdown categories, as well as a column that shows the size (in KB) of all pages in the transaction and a column that shows the total average response time of the transaction.

GUI Element (A–Z)	Description
<**Data**>	Displays the average response time (in milliseconds) of the transaction breakdown categories for each transaction, or the transactions included in the location or group depending on how you view to choose the data. Click any cell in the following columns to open additional reports: ➤ **Retry Time.** Opens the Failed Transactions report. For details on the user interface, see "Failed Transactions Report" on page 212. ➤ **DNS Time**, **Connection Time**, **or Network Time to First Buffer.** Opens the Webtrace by Location report. For details on the user interface, see "WebTrace by Location Report" on page 282. ➤ **Server Time to First Buffer**, **Time to First Buffer**, or **Download.** Opens 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*.
<**Rows**>	There is a row for each transaction, location, or group, depending on how you choose to view the data.

Transaction Coloring Page

Description	Enables you to modify the colors used to represent transactions in the Availability Over Time, Response Time Over Time, sections of Transaction Analysis, and Response Time by Percentile reports. **To access:** Select **Admin** > **End User Management** > **Reports** tab > **Transaction Coloring**
Included in Tasks	"Configure Business Process Reports" on page 188

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

GUI Element (A-Z)	Description
	Color Picker button. Click to open the Color Picker where you select a color for a transaction.
Color	Displays the current color for a transaction.
Name	Displays the transactions for the selected profile.
Select profile	Select the profile whose transactions you want to color, from the drop-down list.

Transaction Ordering Page

Description	Enables you to specify the order in which transactions that are part of a profile appear in reports. **To access:** Select **Admin** > **End User Management** > **Reports** tab > **Transaction Ordering**
Included in Tasks	"Configure Business Process Reports" on page 188

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

GUI Element (A-Z)	Description
	Up and Down Arrow buttons. Click to change the order of a selected transaction.
<Transactions>	Displays the transactions for the selected profile.
Revert to original order	Click **Revert to original order** to order the transactions in their original order, before you made any changes.
Select profile	Select the profile whose transactions you want to order, from the drop-down list.
Sort by name	Click **Sort by name** to order the transactions alphabetically.

Triage Report

Description	Displays transaction data for Business Process Monitor profiles, organized by location, for the past day or for any selected 24 hours. Data in the Triage report is organized by transactions and locations and includes a transaction breakdown graph and an error summary table. The report also includes information about the health of the transaction scripts running at the various locations (Script Health) and about the health of each collector sorted by location (Collector Health). Collector Health gives you an overall status when triaging end user problems, but can also be used when investigating current collector health. You would use this report to verify the reasons for a problem in a certain profile. You can access the Triage report from the Dashboard console or directly through the End User Management application. From this report, you can drill down to the Triage Raw Data report. For details on the Triage Raw Data report, see "Triage Raw Data Report" on page 276. **To access:** ➤ Select **Applications** > **End User Management** > **Summary Reports** tab > **Triage Report**. The Triage report displays data for the transactions and locations of the first profile on the list. (Click the **Profile** link to view the list of profiles.) ➤ In Dashboard, right-click a Business Process Group or Business Process Step type CI and select **Go to Report** > **Triage report** from the context menu. The Triage report displays data for the profile, transaction, and location of the specific CI. For details on Dashboard menu options, see "Menu Options" in *Using Dashboard*.

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 End User Management does store transaction history. ➤ Once you have generated a Triage report with a specific profile and specific filters, End User Management displays the report with these parameters upon subsequent visits to the report, during the same Web session. ➤ When the Triage report is requested, HP Business Availability Center checks when the collector ping time and data time were last reported. By default, HP Business Availability Center 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. You can change this setting in the Infrastructure Settings Manager. To change the last pint 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**

This section includes the following topics:

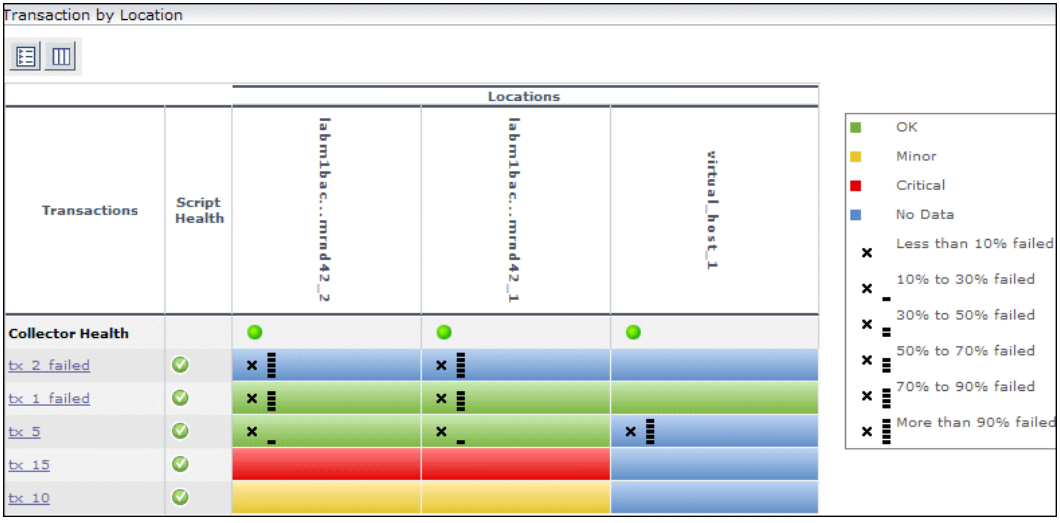
- "Report Settings" on page 271
- "Transaction by Location" on page 271
- "Transaction Breakdown" on page 273
- "Error Summary" on page 275

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.

Transaction by Location

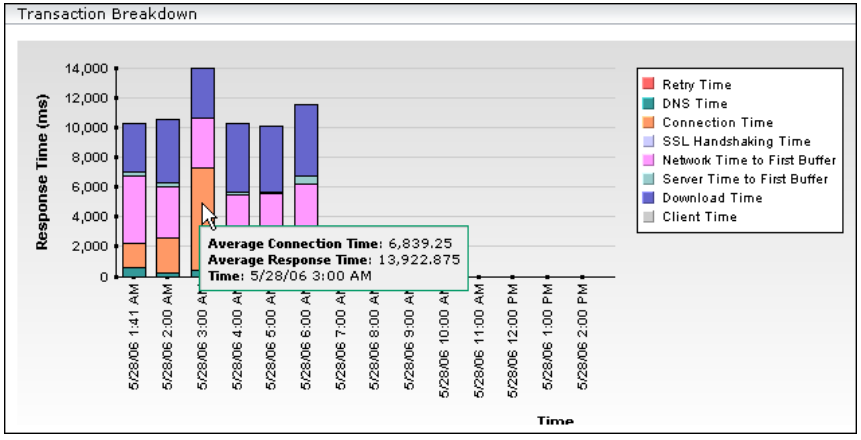


The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Data cells>	The data cells are colored to display the status and thresholds for a specific transaction at a specific location. The statuses and thresholds are described in the legend. To drill down and view the raw data upon which the report is calculated, click a cell. The Triage Raw Data report shows data for the transaction and location whose results are shown in the cell you clicked. For details on the user interface, see "Triage Raw Data Report" on page 276. **Tooltip:** ➤ **Colored cells.** Statistics about completed transactions, average response time of each transaction, the status of the transaction at that location, and transaction availability. ➤ **Cells with a black X.** Details on the number of failed transactions as well as status and availability.
<Legend>	Describes the colors and symbols used to represent statuses and threshold ranges for the transaction results. Also shows outlier ranges.
Collector Health	An icon that shows the health of each collector sorted by location. A yellow icon signifies that a Business Process Monitor host has problems. A green icon signifies that there are no problems. **Tooltip:** The host machine name, last ping time, and last data time of the problematic host machines.
Locations	A column for each location included in the report is displayed.

GUI Element (A–Z)	Description
Script Health	An icon that shows whether transactions have finished successfully. When a script in a profile 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 HP Business Availability Center 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. **Tooltip:** The location at which the script ran with errors, the host machine name, and the number of errors (sorted by location).
Transactions	A row for each transaction included in the report is displayed. Click a transaction name to display the Triage Raw Data report for the transaction in a new window. For details on the user interface, see "Triage Raw Data Report" on page 276.

Transaction Breakdown



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

GUI Element (A–Z)	Description
<**Bars**>	Each bar shows the average response time for all the transactions displayed in the Transaction by Location table for a given time period, broken down into categories. The categories are described in the legend. On a time scale of 24 hours, bars are displayed for each hour. On a time scale of less than two hours, bars are displayed for every five minutes. You can drill down to the following reports for a transaction by clicking the appropriate segment of a bar: ➤ **HP Diagnostics.** Click the **Server Time to First Buffer** or the **Download Time** segments for the transaction. 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*. ➤ **TransactionVision's Transaction Tracking report.** Click the **Server Time to First Buffer** or the **Download Time** segments for the transaction. The drill down is only enabled if you have deployed TransactionVision in HP Business Availability Center. For details on working with TransactionVision see the TransactionVision documentation. ➤ **WebTrace by Location report.** Click any of the segments for the transaction, except for the **Retry Time**, **Connection Time**, **Server Time to First Buffer**, or **Download Time** segments. For details on the user interface, see "WebTrace by Location Report" on page 282. **Tooltip:** The average time for the specific category, the average response time for the entire bar, and the time period for which the bar is displayed.
<**Legend**>	Describes the color coding used to represent the breakdown categories that comprise the bars.

GUI Element (A–Z)	Description
Response Time (y-axis)	Displays the response time in milliseconds.
Time (x-axis)	Displays the time division units for the time range that you defined when generating the report.

Error Summary

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

GUI Element (A–Z)	Description
	Drill Down to Error Log button. Click to view the Error Log report for a specific error ID. For details on the Error Log report, see "Triage Raw Data Report" on page 276.
Error ID	The error ID number. For details on the way Business Process Monitor reports errors, see "Error Summary Report" on page 208.
Error Occurrences	The number of times the error occurred, in the total number of transaction instances that occurred during the specified time period.
Example of Error Message	The description of the first error included in the group of errors with the same error ID, is displayed.
Locations/Total	The number of locations from which errors occurred, out of the total number of locations from which scripts ran. **Tooltip:** The location name.
Transactions/Total	The number of defined transactions that caused the error, out of the total number of transactions defined in the profile. **Tooltip:** The transaction name.

Triage Raw Data Report

Description	Displays performance and availability raw data for a Business Process Monitor transaction. **To access:** ➤ Select **Applications** > **End User Management** > **Business Process** tab > **Triage Raw Data** report ➤ In the Triage report, click a transaction in the Transaction by Location area.
Important Information	➤ By default, the Triage Raw Data report displays data for the first transaction and its locations, for the first profile in the list. ➤ When accessed from the Triage report, the Triage Raw Data report displays, by default, data for the transactions and locations selected in the Triage report. ➤ You can create a custom report from a Triage Raw Data report. For details on custom reports, see "Custom Report Wizard" in *Reports*.

This section includes the following topics:

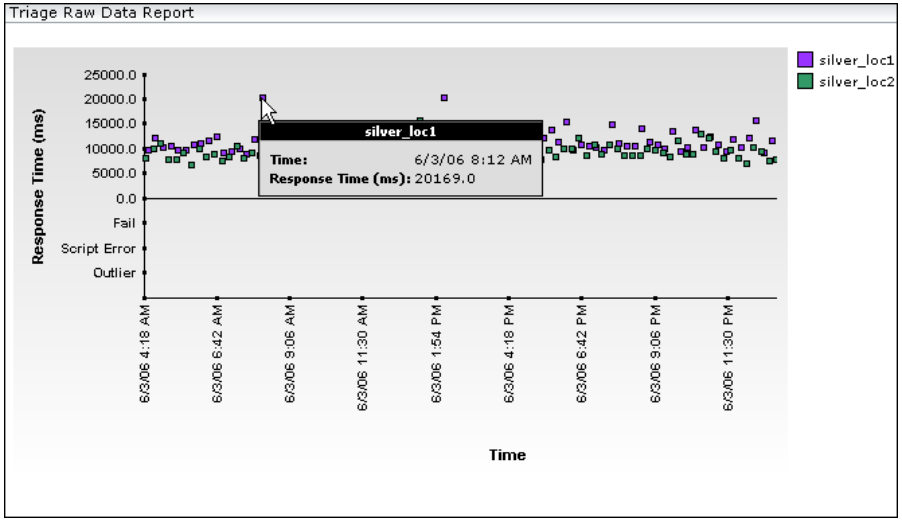
➤ "Report Settings" on page 277
➤ "Triage Raw Data" on page 277
➤ "Transaction Breakdown" on page 279
➤ "Error Log" on page 281

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	For details on the user interface, see "Active Filters Dialog Box" on page 193.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.

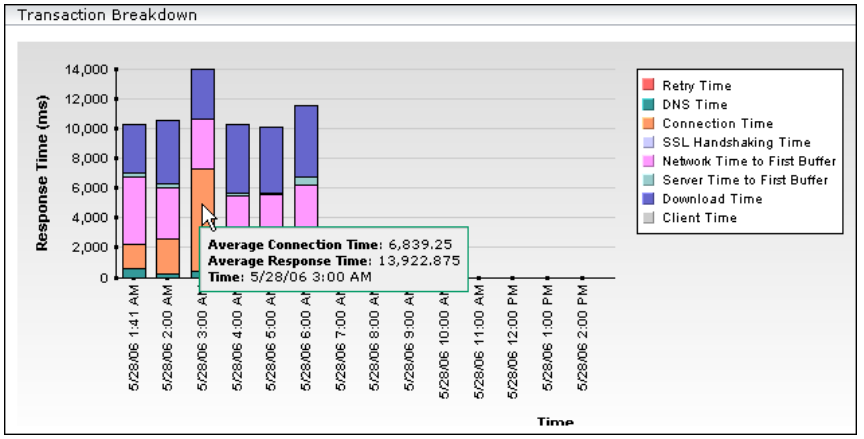
Triage Raw Data



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

GUI Element (A–Z)	Description
<Data points>	Indicate the response times of a transaction at a specific location for each point over the course of the defined time period. **Tooltip:** The time and the response time.
<Legend>	Describes the color coding used to represent locations.
Fail	Displays the number of failed transactions.
Outlier	Displays outlier data.
Response Time (y-axis)	Displays the response time in milliseconds.
Script Error	Displays the number of script errors.
Time (x-axis)	Displays the time division units for the time range that you defined when generating the report.

Transaction Breakdown



Useful Links	"Understanding the Transaction Breakdown Reports" on page 162

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

GUI Element (A–Z)	Description
<Bars>	Display the average response time for all the transactions included in the Triage Raw Data area for a specific time, broken down by category. You can drill down to the following reports for a transaction by clicking the appropriate segment of a bar: ➤ **HP Diagnostics.** Click the **Server Time to First Buffer** or the **Download Time** segments for the transaction. 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*. ➤ **TransactionVision's Transaction Tracking report.** Click the **Server Time to First Buffer** or the **Download Time** segments for the transaction. The drill down is only enabled if you have deployed TransactionVision in HP Business Availability Center. For details on working with TransactionVision, see the TransactionVision documentation. ➤ **WebTrace by Location report.** Click any of the segments for the transaction, except for the **Retry Time**, **Connection Time**, **Server Time to First Buffer**, or **Download Time** segments. For details on the user interface, see "WebTrace by Location Report" on page 282. **Tooltip:** Average category time, average response time, and time.
<Legend>	Describes the color coding used to represent transaction breakdown categories.
Response Time (y-axis)	Displays the response time in milliseconds.
Time (x-axis)	Displays the time division units for the time range that you defined when generating the report.

Error Log

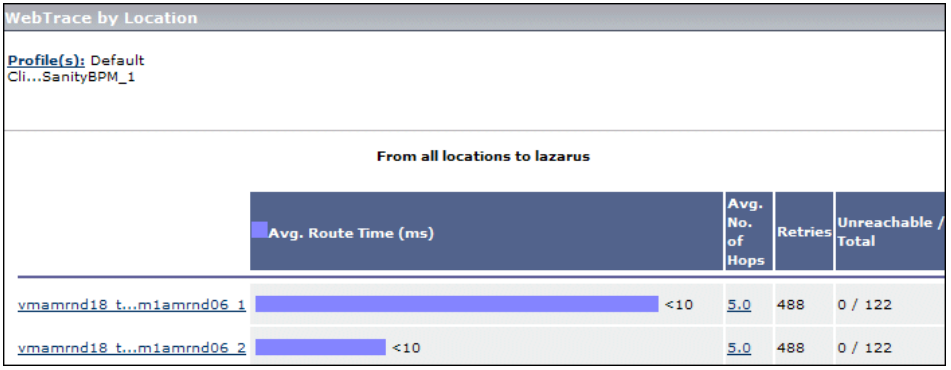
The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
	View Snapshot Button. Click to open a snapshot of the error in a new browser window. For details on this topic, see "Snapshot on Error" on page 177. **Note:** This button is enabled if the original Business Process Monitor script is configured to save snapshots. For details, see "Advanced Configuration Options" in the *Business Process Monitor Administration* PDF.
	Download Snapshot Button. Click to download a copy of the snapshot to a .zip file. For details on this topic, see "Snapshot on Error" on page 177. **Note:** This button is enabled if the original Business Process Monitor script is configured to save snapshots. For details, see "Advanced Configuration Options" in the *Business Process Monitor Administration* PDF.
Category	Categories can be HTTP, General, Content, and Script.
Error Line	The line in the file referenced in the **File Name** column at which the error occurred.
Error Message	The error message that HP Business Availability Center generates at the time of the error. **Tooltip:** The complete error message, in the event that the error message is only partially displayed in the report. **Note:** For user-defined errors (error type -17999), HP Business Availability Center displays the user message.
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.

GUI Element (A–Z)	Description
Script	The name of the script in which an error occurred.
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.
Type	A description or code of the error that occurred during script execution.

WebTrace by Location Report

The following is an example of the Webtrace by Location report.



Description	Displays typical traceroute information from configured host locations to specified destinations, enabling you to analyze network performance. You can drill down to view routing details and hop time over time. For each server destination defined in the profile, the WebTrace by Location 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 or locations to run WebTrace. HP Business Availability Center runs WebTrace according to the schedule set in the profile for running transaction monitors. When you generate the WebTrace by Location 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:** Select **Applications** > **End User Management** > **Network and Tools** tab > **WebTrace by Location**
Important Information	Business Process Monitor uses WebTrace data. WebTrace records the route through the Internet from your host machines to the destination Web servers specified in the business process profile. Unlike standard traceroute programs, WebTrace uses a unique technology that enables it to cross firewalls.
Useful Links	"Analyzing the WebTrace by Location Report" on page 185

Report Settings

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

GUI Element (A-Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Profile(s)	For details on the user interface, see "Profiles Dialog Box" on page 243.

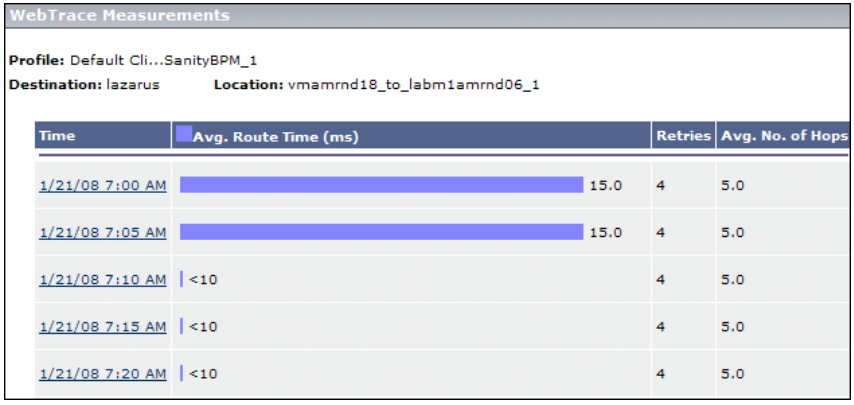
Report Content

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

GUI Element (A-Z)	Description
<Host name>	The host name from which WebTrace was run. There is a row for each host name from which WebTrace was run to the destination. Click a host name to display the **WebTrace Over Time** report for that host. For details on the WebTrace Over Time report, see "WebTrace Over Time Report" on page 287.
Avg. No. of Hops	The average number of intermediate servers the data packet encounters before it reaches its destination. Click a link in this column to open the Hop Time Over Time report in a new window. For details on the Hop Time Over Time report, see "Hop Time Over Time Report" on page 215.
Avg. Route Time (ms)	The average time it takes for a packet of data to be sent from the host machine to the destination Web site.
Retries	The number of times a data packet tries, but fails, to reach its destination due to timeout, network difficulty, and so on.
Unreachable/Total	The number of times the destination was unreachable out of the total number of measurements.

WebTrace Measurements Report

The following is an example of the Webtrace Measurements report.



Description	Displays WebTrace data with increased time granularity. **To access:** Click a bar or data point in the WebTrace Over Time report.

Report Settings

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

GUI Element (A-Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.

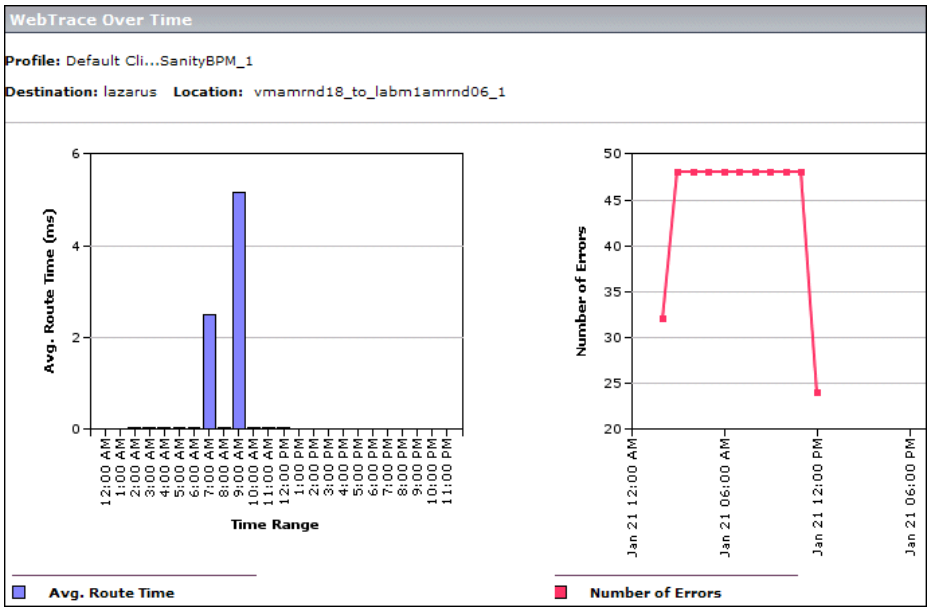
Report Content

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

GUI Element (A-Z)	Description
Avg. No. of Hops	The average number of intermediate servers the data packet encounters before it reaches its destination.
Avg. Route Time (ms)	The average time it takes for a packet of data to be sent from the host machine to the destination Web site.
Retries	The number of times a data packet tries, but fails, to reach its destination due to timeout, network difficulty, and so on.
Time	Displays the time division units for the time range for which the report was generated. Click a specific time measurement to open the **Routing Details** window, which displays a detailed breakdown of the specific traceroute run. For details on the Routing Details window, see “Routing Details Window” on page 252.

WebTrace Over Time Report

The following is an example of the Webtrace Over Time report.



Description	Displays additional route time and hop information that helps you determine at exactly which point along the network path bottlenecks are occurring. **To access:** Click a host name in the WebTrace by Location report.

Report Settings

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

GUI Element (A-Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.

Route Time Graph

Description	Displays the host's average route time data with increased time granularity.

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

GUI Element (A-Z)	Description
<Bars>	Denote the host's average route time at a given point of time. Click a bar to view the **WebTrace Measurements** report, which displays the WebTrace data with increased time granularity. For details on the WebTrace Measurements report, see "WebTrace Measurements Report" on page 285. **Tooltip:** The average route time and number of errors.
<Legend>	Describes the color coding used in the graph.
Avg. Route Time (ms) (y-axis)	Displays the average route time in milliseconds.
Time Range (x-axis)	Displays the time division units for the time range for which the report was generated.

Errors Graph

Description	Displays the number of errors that occurred over the defined time range.

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

GUI Element (A-Z)	Description
<**Data points**>	Denote the number of errors that occurred at a given point of time. Click a data point to view the **WebTrace Measurements** report, which displays the WebTrace data with increased time granularity. For details on the WebTrace Measurements report, see "WebTrace Measurements Report" on page 285. **Tooltip:** The number of errors.
<**Legend**>	Describes the color coding used in the graph.
Number of Errors (y-axis)	Displays the number of errors.
Time Range (x-axis)	Displays the time division units for the time range for which the report was generated.

Troubleshooting and Limitations

This chapter includes troubleshooting and limitations for Business Process Monitor reports.

Filters Are Not Saved When Moving From One Report to Another

In End User Management, when you move from one Business Process Monitor or Summary report to another, in some instances filter settings are saved and used in the new report, while in other instances they are not.

The following table lists two groups of reports. When you move from one report to another within the same group the filter settings are saved, but if you move to a report in the other group the filter settings are not saved.

GROUP I	GROUP II
Business Process Monitor Reports	
Availability Over Time Breakdown Over Time Breakdown Summary Error Summary Location Analysis Min./Max. Response Time Response Time Over Time Transaction Analysis	Response Time by Percentile Triage Raw Data
Summary Reports	
Performance Matrix Single Profile Summary Multi Profile Summary	Triage Raw Data

Part III

Real User Monitor

5

Real User Monitor Administration

This chapter provides information on Real User Monitor Administration in End User Management.

This chapter includes:

Concepts

- Real User Monitor Overview on page 294
- Frame Unification on page 295
- Application Templates on page 297
- Using the URL Builder on page 298
- URL Wildcards on page 300
- Correlating Collected Data with Configured Pages on page 301
- Correlation Algorithm for Multiple URL Matches of Business Critical Pages on page 305
- Snapshot Settings on page 307
- User Name Translation on page 311
- Session Property Search Settings on page 311
- About Real User Monitor Views on page 314

Tasks

- Set up Real User Monitors – Workflow on page 315

Reference

- Transaction Matching on page 319
- KPIs Used for Real User Monitor CIs on page 323

➤ Real User Applications View on page 324
➤ Real User End Users View on page 328
➤ Real User Locations View on page 330
➤ Real User Servers View on page 333
➤ All RUM Monitors View on page 334
➤ Real User Monitor Administration User Interface on page 335

Real User Monitor Overview

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

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

You use End User Management Administration to:

➤ **Add a Real User Monitor engine.** This includes configuring the engine, general settings, probes, global HTTP error events, server names, and host aliases.

➤ **Define applications to be monitored.** This includes configuring applications, application events, pages, page events, and transactions.

➤ **Create end-user groups.**

You use the monitor tree to navigate through containers and elements in the tree structure and drill down to monitor and other configuration settings. For details on the different hierarchy elements, see "Monitor Tree Elements" on page 42.

While there are several ways to perform actions and edit object properties, the method described in this document is that of highlighting an object in the monitor tree and right-clicking it to access a menu of options valid for that object. For details on the different ways to perform actions and edit object properties, see "Navigating and Performing Actions in the Contents Tab and the Monitor Tree" on page 18.

You can customize your view of the enterprise tree to list only those elements with which you are working. For details, see "Setting Views" on page 20.

In addition, End User Management Administration enables you to change configurations across multiple profiles and monitors using **Global Replace**. For details, see "Global Replace" on page 21.

Frame Unification

By default, Real User Monitor 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 Real User Monitor 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 includes the following topics:

➤ "Unifying Frames for an Application" on page 296

➤ "Unifying Frames for a Page in a Transaction" on page 297

Unifying Frames for an Application

You enable frame unification for Web applications when you create or edit an application in End User Management Administration (for details, see "New/Edit Web or SOAP Application Page" on page 396). In the Session Details report and the Session Viewer, 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 616 and for details on the Session Viewer, see "Session Viewer Page" on page 621.

Note:

➤ Real User Monitor 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 page and the Session Viewer, 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 End User Management Administration (for details, see "New/Edit Transaction Page" on page 387). You must also enable frame unification for the application in which the transaction is defined. In the 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 Transaction Summary report, see "Transaction Summary Report" on page 679.

Application Templates

In HP Business Availability Center, you configure applications to be monitored by HP Real User Monitor. HP Business Availability Center provides predefined templates for various, known applications (for example, Siebel, Oracle DB, and Citrix), which include the most common, recommended configuration settings for that application. You can edit the settings and save the new application with the name of your choice.

To create a new application from a template, select **Admin** > **End User Management**, right-click **Applications** for the Real User Monitor in the Monitor tree, and select **New Application** > **Add from Template** from the context menus. The available templates are displayed in the **RUM Application Templates** page. Click the required template to open it in the relevant **New Application** page (Web, SOAP, TCP request-response, or TCP streaming) where you edit the settings and save the application.

For details on configuring Web (HTTP) and SOAP applications, see "New/Edit Web or SOAP Application Page" on page 396. For details on configuring TCP applications, see "New/Edit TCP Application Page" on page 377.

Using the URL Builder

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

To specify a URL, you enter the URL in the **URL** box in the upper area of the URL Builder dialog box and click the **Apply** button. 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 wish 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 wish 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.

Once the URL is broken down into its parts, you cannot edit the URL directly in the **URL** box in the upper area of the URL Builder dialog box, but do so by editing the composite parts in the lower area of the URL Builder dialog box. 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.

When configuring a URL, you can use the asterisk (*****) wildcard. For details, see “URL Wildcards” on page 300.

Note: The URL cannot exceed 1000 characters and cannot include the # sign followed by an asterisk (#*).

When you have finished defining the URL, you can encode it into UTF-8 format and save it, or save it without any encoding. By saving a URL without UTF-8 encoding, you can define a URL that is externally encoded by a different encoding scheme. URL matching is affected by the encoding of recorded and configured URLs. For recorded and configured URLs to match, they must have the same encoding.

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%20monitor

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 be 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 300), Real User Monitor uses other guiding principles, or rules in correlating recorded URLs collected by the probes with the URLs you configure in End User Management Administration. You can reconfigure some of the default correlation rules according to which Real User Monitor operates in the Real User Monitor Engine. For details, see "URL Correlation Parameters" in the *Real User Monitor Administration* PDF.

This sections describes:

- "Correlating Session ID Parameters" on page 301
- "Correlating URL Suffixes" on page 303
- "Correlation and Case-Sensitivity" on page 303
- "Correlating Parameters Without Values" on page 304
- "Correlating URLs Containing Bookmarks" on page 304
- "Correlating URLs Without URL Paths" on page 304
- "Correlating URLs Ending with a Directory" on page 304
- "Correlating Ports" on page 304
- "Correlating URLs Containing Basic Authentication" on page 305
- "Correlating Parameters" on page 305

Correlating Session ID Parameters

By default, Real User Monitor 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, Real User Monitor treats URLs with non-identical session ID parameter values as separate entities when calculating global statistics such as Most Popular Pages.

You can instruct Real User Monitor 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 Real User Monitor 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**, Real User Monitor 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 Real User Monitor 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 transactions that do not contain a session ID in either a header cookie or the URL, cannot be correlated as individual sessions. Vugen and Business Process Monitors should be configured to include a session ID in a header cookie, or the URL, in transactions.
- If the interval between Business Process Monitor samples is greater than the session time-out configured for the Real User Monitor engine in End User Management 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, Real User Monitor 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 Real User Monitor to consider other suffixes as being the same as the root URL, or to instruct Real User Monitor to consider all URL suffixes as being different from the root URL, you can set the **adaptIndexurl** and **urlIndexStrings** parameters in the Real User Monitor engine (for details, see "URL Correlation Parameters" in the *Real User Monitor Administration* PDF).

Correlation and Case-Sensitivity

By default, Real User Monitor 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 Real User Monitor to use case-sensitive URL correlation (for all but the host and protocol parts of a URL) by setting the **adaptCaseSensitive** parameter in the Real User Monitor engine (for details, see "URL Correlation Parameters" in the *Real User Monitor Administration* PDF).

Correlating Parameters Without Values

Real User Monitor 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

Real User Monitor 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

Real User Monitor 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

Real User Monitor 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

Real User Monitor 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, Real User Monitor 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 Real User Monitor to consider basic authentication when performing URL correlation by setting the **basicAuthentication** parameter in the Real User Monitor engine (for details, see "URL Correlation Parameters" in the *Real User Monitor Administration* PDF).

Correlating Parameters

By default, Real User Monitor 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 Real User Monitor uses to determine with which URL definition a recorded URL is correlated, if several URL definitions match the recorded URL.

Whereas in previous versions of Real User Monitor a recorded URL could be correlated with several configured pages—if the URL matched several page definitions—in the current version of Real User Monitor a URL can be correlated with only one configured page.

If a recorded URL matches several URL definitions, Real User Monitor determines which configured page to correlate with the recorded URL based on the placement of the asterisk (*) wildcard character in the configured URL. URLs comprise up to five parts, separated by delimiters (for details of the different parts, see "Using the URL Builder" on page 298). Real User Monitor 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, Real User Monitor 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 two URLs—http://www.hp.com/cgi-bin/search/search.cgi?* and http://www.hp.com/cgi*—and the URL http://www.hp.com/cgi-bin/search/search.cgi?country_code=corp&keyword=real+user+monitor is recorded, 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 Real User Monitor 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 two URLS—http://www.hp.com/cgi* and http://www.hp.com/cgi-bin*—and the URL http://www.hp.com/cgi-bin/search/search.cgi?country_code=corp&keyword=real+user+monitor is recorded, the recorded URL is correlated with http://www.hp.com/cgi-bin*.

Snapshot Settings

When configuring Real User Monitor in End User Management, there are a number of different settings that determine if and how snapshots of pages are taken. The following table describes the various options and the fields that must be enabled for each one:

Snapshot Option	Description	Real User Monitor Engine	Application Setting	Text Pattern and SOAP Fault Event (per application) or Global HTTP Error Event (in Engine Settings)
Save snapshot on event	Saves a snapshot of the page (or a configured number of pages back) on which a configured text event, global HTTP error, or SOAP fault occurs.	**Snapshot on event** check box in the **Data Reporting Settings** pane in **General Settings**. If this option is enabled, you can configure the number of pages back (including the event page itself) of which snapshots are saved for text events and global HTTP errors. For SOAP faults, only one page is saved.	➤ **Snapshot on event** check box in the **Snapshot Collection Settings** pane. ➤ **Collect application clickstream** check box in the **Main Settings** pane.	**Create snapshot on event** check box in the **Main Settings** pane.

Snapshot Option	Description	Real User Monitor Engine	Application Setting	Text Pattern and SOAP Fault Event (per application) or Global HTTP Error Event (in Engine Settings)
Save session snapshots	Saves snapshots of all the pages from the beginning of a session, up to and including the page on which a configured text pattern event, or global HTTP error, occurs. **Note:** This setting is applicable to Web (HTTP) applications only.	N/A	➤ **Session snapshot on event** check box in the **Snapshot Collection Settings** pane. ➤ **Collect application clickstream** check box in the **Main Settings** pane.	**Save session snapshots** check box in the **Main Settings** pane.

Snapshot Option	Description	Real User Monitor Engine	Application Setting	Text Pattern and SOAP Fault Event (per application) or Global HTTP Error Event (in Engine Settings)
Snapshot on transaction detection	Enables you to configure a transaction snapshot collection schedule. Transaction snapshots can be viewed when displaying session details in the Session Analyzer report, and are used to include the monitored real-user transactions in a VuGen script generated from the Business Process Distribution report. **Note:** This setting is applicable to Web (HTTP) applications only.	N/A	➤ **Snapshot on transaction detection** check box in the **Snapshot Collection Settings** pane. ➤ **Collect application clickstream** check box in the **Main Settings** pane.	N/A

Snapshot Option	Description	Real User Monitor Engine	Application Setting	Text Pattern and SOAP Fault Event (per application) or Global HTTP Error Event (in Engine Settings)
Save request snapshot	Enables you to configure whether snapshots are made of both requests and responses, or of responses only. By default, this setting is enabled for both requests and responses. **Note:** This setting is applicable to SOAP applications only.	N/A	➤ **Save request snapshot** check box in the **Snapshot Collection Settings** pane. ➤ **Session snapshot on event** check box in the **Snapshot Collection Settings** pane.	**Save session snapshots** check box in the **Main Settings** pane.

Note:

- Saving all the pages from the beginning of a session enables more accurate frames unification, thus improving session replay, but may adversely affect Real User Monitor probe performance.
- If both **Session snapshot on event** and **Snapshot on event** are enabled, **Session snapshot on event** is used.

User Name Translation

When configuring a Web or SOAP application to be monitored in End User Management Administration, you can select a user name translation file if you want Real User Monitor 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 **<Real User Monitor 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" on page 402.

Session Property Search Settings

When you configure a session property to be tagged for an application by Real User Monitor, you specify whether Real User Monitor should search a page's content, header, or get/post parameters, as well as the expressions that enclose the string you want Real User Monitor to extract as the session property value. You use the session property tags to filter sessions included in the Session Analyzer Report (for details, see "Session Analyzer Report" on page 612) and can see the session property values when viewing session details (for details, see "Session Details Report" on page 616).

You configure a session property in the Session Property Dialog Box (for details, see "Session Property Dialog Box" on page 419) and use the following fields to configure the page area to be searched and the expressions enclosing the string to be extracted:

- **Search in.** The area of the page in which Real User Monitor searches for the expressions enclosing the string to be extracted.
- **Field/Tag/Parameter.** A specific header field, html tag, or get/post parameter within the specified area to be searched.
- **<From expression>.** The expression that precedes the string to be extracted.
- **<To expression>.** The expression that follows the string to be extracted.

Note: Click the **Advanced Criteria** button in the Session Property Dialog Box (for details, see "Session Property Dialog Box" on page 419) to open the **Advanced Finding and Retrieving** dialog box, where you can enter a regular expression that represents the string for Real User Monitor to find to tag the session, and configure the data to retrieve as the session property value.

The following table lists the options that can be used in the **Search in** field, the corresponding fields, tags and parameters that are valid for each option, and the resulting string that is extracted according to the configured from and to expressions:

Note: The extracted string is limited to 50 characters.

Search in	Field/Tag/ Parameter	Both To and From expressions configured	Only To expression configured	Only From expression configured	Neither To nor From expressions configured
get/post parameters	**All** This field is disabled and by default, the entire get/post parameter string is searched.	Returns the get/post parameters string, starting after the first occurrence of the **From** expression and ending with the first occurrence of the **To** expression.	Returns the get/post parameters string, starting from the beginning of the string and ending with the first occurrence of the **To** expression.	Returns the get/post parameters string that starts after the first occurrence of the **From** expression until the end of the get/post parameters string.	Returns the entire get/post parameters string.

Search in	Field/Tag/ Parameter	Both To and From expressions configured	Only To expression configured	Only From expression configured	Neither To nor From expressions configured
header	Enter the specific header field to be searched. **Note:** This field is mandatory.	Returns the content of the specific header field, starting from first occurrence of the **From** expression and ending with the first occurrence of the **To** expression.	Returns the content of the specific header field, ending with the first occurrence of the **To** expression.	Returns the entire content of the specific header field, starting from first occurrence of **From** expression.	Returns the entire content of the specific header field.
content	Enter the name of the html tag to search for in the page content. **Note:** The default value of **All** enables you to search the entire content instead of a specific html tag.	Returns the content of the first html tag that contains both the **To** and **From** expressions, starting after the first occurrence of the **From** expression and ending with the first occurrence of the **To** expression.	Returns the content of the first html tag that contains the **To** expression, starting from the beginning of the tag and ending with the first occurrence of the **To** expression.	Returns the content of the first html tag that contains the **From** expression, starting after the first occurrence of the **From** expression until the end of the tag.	Returns the entire contents of all matching html tags.

About Real User Monitor Views

The Real User Monitor views present real-time performance, availability, and other data for your network and servers, collected by Real User Monitor by monitoring real traffic generated by end users. The data enables you to analyze the business impact of detected performance issues related to end users, and helps you to identify the cause of delays. From the views, you can access various Real User Monitor reports, where you can analyze the collected data to isolate the root cause of detected problems.

For information on Real User Monitor functionality, see the *Real User Monitor Administration* PDF.

The CIs and relationships for the incoming Real User Monitor samples are created by the Real User Monitor source adapter (described in "Real User Monitor Source Adapter Details" in *Model Management*). The hierarchical structure for each Real User Monitor view is determined by the TQL for the view (described in "Working with Views in IT Universe Manager" in *Model Management*).

The views include information about applications, containers, pages, end users, servers, user sessions, and so forth.

The Real User Monitor views are:

- "Real User Applications View" on page 324
- "Real User End Users View" on page 328
- "Real User Locations View" on page 330
- "Real User Servers View" on page 333
- "All RUM Monitors View" on page 334

Note: You can also see Real User Monitor applications data in the All RUM Monitors View and the End User Monitors View. For an explanation of the data in these views, see "Real User Applications View" on page 324.

Tip: If you are not using Real User Monitor in your HP Business Availability Center system, then it is recommended that you deactivate the Real User Monitor views. For more information, see "View Manager Window" in *Model Management*.

Set up Real User Monitors – Workflow

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

This task includes the following steps:

- "Install Real User Monitor Components" on page 315
- "Add the New Real User Monitor Engine" on page 316
- "Configure Additional Engine Settings" on page 316
- "Define Applications" on page 316
- "Create End-User Groups" on page 317
- "Grant Permissions" on page 317
- "View Real User Monitor Data in Reports and Dashboard" on page 318

1 Install Real User Monitor Components

Install the Real User Monitor engine, probe, and MySQL database. Use the Real User Monitor Engine Web Console to administer connection parameters between Real User Monitor and HP Business Availability Center and for other engine administration tasks.

For details, see the *Real User Monitor Administration* PDF.

2 Add the New Real User Monitor Engine

In End User Management Administration, add the new Real User Monitor engine and configure the engine and probe settings. For details on the user interface, see "New/Edit Real User Monitor Engine Page" on page 367.

3 Configure Additional Engine Settings

In End User Management Administration, configure the following engine settings, as required:

- **General settings.** For details on the user interface, see "Edit General Settings Page" on page 338.
- **Probes.** For details on the user interface, see "New/Edit Probe Page" on page 365.
- **Global HTTP error events.** For details on the user interface, see "New/Edit Global HTTP Error Event Page" on page 354.
- **Server names.** For details on the user interface, see "New/Edit Server Name Page" on page 372.
- **Host aliases.** For details on the user interface, see "New/Edit Host Alias Page" on page 357.

4 Define Applications

In End User Management Administration, define the applications, pages, transactions, and events to be monitored by the Real User Monitor. You can define the following:

- **Web and SOAP applications.** For details on the user interface, see "New/Edit Web or SOAP Application Page" on page 396.
- **TCP applications.** For details on the user interface, see "New/Edit TCP Application Page" on page 377.
- **Pages.** For details on the user interface, see "New/Edit Page" on page 359.
- **Transactions.** For details on the user interface, see "New/Edit Transaction Page" on page 387.

- **Events.** You can define the following events:
  - **Error Page events.** For details on the user interface, see "New/Edit Error Page Event Page" on page 353.
  - **Page Size events.** For detail on the user interfaces, see "New/Edit Page Size Event Page" on page 363.
  - **Session Pages events.** For details on the user interface, see "New/Edit Session Pages Event Page" on page 373.
  - **Session Unavailable Pages events.** For details on the user interface, see "New/Edit Session Unavailable Pages Event Page" on page 375.
  - **SOAP Fault events.** For details on the user interface, see "Edit SOAP Fault Event Page" on page 347.

Note: You cannot create SOAP Fault events, but can edit the default ones that are automatically created when you configure a SOAP application.

  - **Text Pattern events.** For details on the user interface, see "New/Edit Text Pattern Event Page" on page 383.

5 Create End-User Groups

In End User Management Administration, create the end-user groups to be monitored by the Real User Monitor. For details on the user interface, see "New/Edit End-User Group Page" on page 349.

6 Grant Permissions

Grant permissions so that users can view and modify the Real User Monitor engine settings. For details on this topic, see "Permissions Overview" in *Platform Administration*.

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

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7 View Real User Monitor Data in Reports and Dashboard

Once data on the configured applications, pages, transactions, events, and end-user groups has been collected and aggregated, you can view the data in Real User Monitor reports and in Dashboard.

For details on Real User Monitor reports, see "Real User Monitor Reports Overview" on page 426.

For details on the Real User Monitor views in Dashboard, see "About Real User Monitor Views" on page 314.

Transaction Matching

When you configure a transaction, there are a number of settings that determine how a transaction is matched by Real User Monitor. For details on the user interface, see "New/Edit Transaction Page" on page 387.

Transaction Settings

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

Setting	Description	Options	Default
After first page, ignore page order	Configures Real User Monitor 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.	
Include other pages in transaction measurements	Configures Real User Monitor 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.	**Selected.** Includes all the pages accessed in a transaction, between the first and last configured pages.	Not selected
		Not selected. Includes only the configured pages.	

Setting	Description	Options	Default
Include Unified Frames	Configures Real User Monitor 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 Transaction Summary report.	**Selected.** Includes descendent pages in the transaction match and transaction measurements.	Not selected
		Not selected. Includes only the configured page without a breakdown of its parts.	
Measure first/last page instance	Configures Real User Monitor 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.	First page
		Last page. Uses the last instance of a configured page, before the first instance of the next configured page, for transaction matching.	

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	After first page, ignore page order	Include other 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
Page-1 (with descendants)		✔	First	**P1**, P1, P2, P3, P4, P5, P6, P1, P7, P8, P9, P10, P11, P12

Configured Page Sequence	After first page, ignore page order	Include other pages	Measure first/last page instance	Transaction Match (in bold)
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

KPIs Used for Real User Monitor CIs

The following KPIs are used for the CIs in the Real User Monitor views:

- **Availability.** Displays information on the average availability of a page, transaction, or session, for an application monitored by Real User Monitor.
- **Bandwidth.** Displays the amount of traffic (in megabytes) between the server and end users accessing the server (for traffic in both directions). If an application's traffic includes both HTTP/S and TCP traffic, only the TCP measurement is displayed.
- **Component Availability.** Displays information on the percentage of Web (HTTP) application resources without server errors for a monitored server. This KPI is not applicable for TCP applications.
- **Latency.** Displays information on the average round-trip time for packets travelling between the end users and the server monitored by Real User Monitor.

- **Network.** Displays the percentage of network availability for servers and end users for TCP applications and Web (HTTP) applications with TCP enabled.
- **Performance.** Displays information on the average download time of a page or transaction, or the percentage of sessions with no page performance problems, for an application monitored by Real User Monitor.
- **Volume.** Displays information on traffic volume, such as: page hits, transaction runs, amount of sessions, errors, events.

For more details about the KPIs, see "KPI Repository" in *Using Dashboard*.

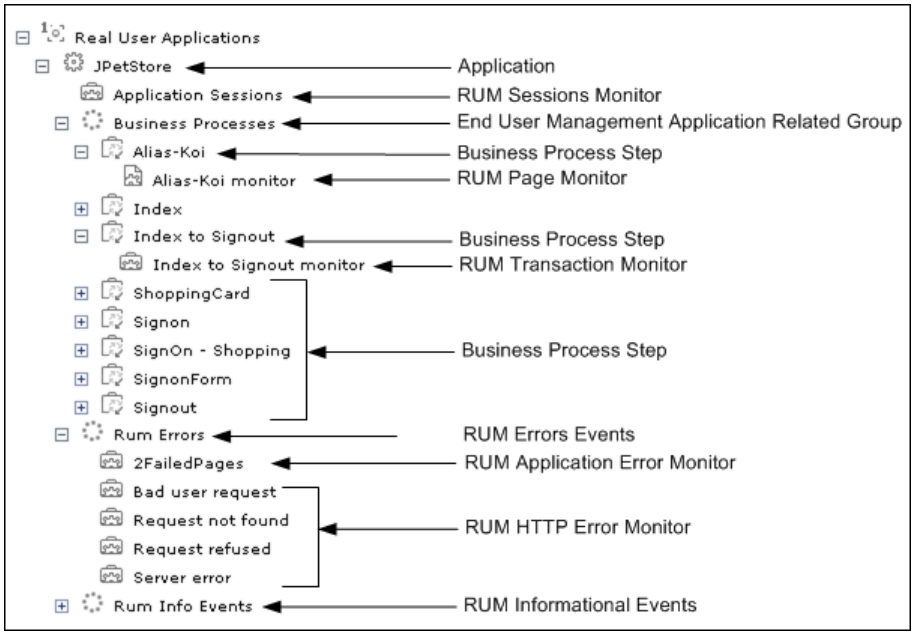
Real User Applications View

The **Real User Applications** view displays data on the pages and transactions accessed in the applications monitored by Real User Monitor, and data on errors and events for the applications.

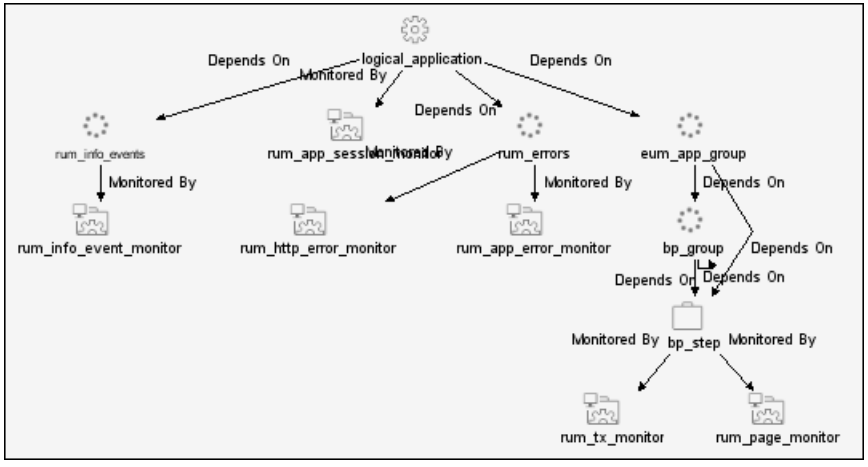
The applications are configured in End User Management Administration. For information on configuring applications to be monitored, see "New/Edit Web or SOAP Application Page" on page 396.

Note: The hierarchies in the Real User Application view are also displayed in the All RUM Monitors View and the End User Monitors View.

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



The TQL for the view is built as follows:



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

For details on the CITs in the Real User Applications view, see "CI Types for Real User Applications View" on page 326.

CI Types for Real User Applications View

This section provides a description of each CIT in the Real User Applications view.

The CITs are:

- **Application.** An Application CI is created for, and with the same name as, each application configured in End User Management Administration.

Note: The Application CI does not show information on volume, even though the Volume KPI is defined for each of the child CIs. Volume does not propagate up to Application, because it shows volume of different traffic types for each of the child groups, and these cannot be logically amalgamated.

- **Business Process Group.** Business Process Group CIs are created automatically with a default name by HP Business Availability Center.
- **Business Process Step.** Business Process Step CIs are added automatically by HP Business Availability Center using the names of the pages and transactions configured for the application in End User Management Administration.
- **End User Management Application Related Group.** An End User Management Application Related Group CI is automatically created for each application configured in End User Management Administration, using a default name from HP Business Availability Center.

- **RUM Application Error Monitor.** A RUM Application Error Monitor CI is automatically created for, and with the same name as, each error event configured for the application in End User Management Administration.
- **RUM Errors Events.** A RUM Error Event CI is created with a default name by HP Business Availability Center for each application configured in End User Management Administration which has error events defined.
- **RUM HTTP Errors Monitor.** A RUM HTTP Error Monitor CI is automatically created for, and with the same name as, each HTTP error event configured for the Real User Monitor engine in End User Management Administration. When a new Real User Monitor engine is created in End User Management Administration, four default HTTP error events are automatically created for the engine (bad user request, request not found, request refused, and server error), and the corresponding RUM HTTP Error Monitor CIs are added to the Application branch in the views.
- **RUM Informational Event Monitor.** A RUM Informational Event Monitor CI is automatically created for, and with the same name as, each informational error event configured for the application in End User Management Administration.
- **Rum Informational Events.** A RUM Informational Event CI is created with a default name by HP Business Availability Center for each application configured in End User Management Administration which has informational error events defined.
- **RUM Page Monitor.** A RUM Page Monitor CI is automatically created for each page that is configured for the application in End User Management Administration. The name of the CI comprises the page name and the word **monitor** (for example, **p1 monitor**).
- **RUM Session Monitor.** RUM Session Monitor CIs are created with a default name by HP Business Availability Center.
- **RUM Transaction Monitor.** A RUM Transaction Monitor CI is automatically created for each transaction that is configured for the application in End User Management Administration. The name of the CI comprises the transaction name and the word **monitor** (for example, **transaction1 monitor**).

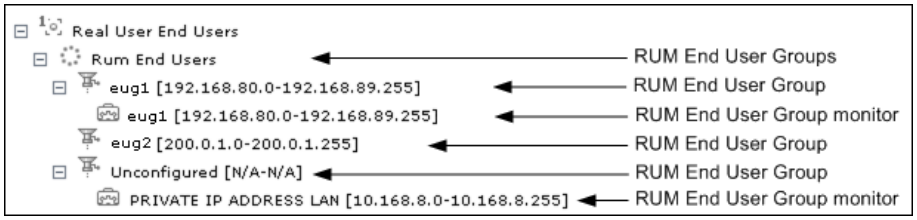
Real User End Users View

The Real User End Users view displays data for the end-user groups that are configured for Real User Monitor in End User Management Administration. The data includes information for each end-user group on the availability, performance, and volume of sessions that were accessed by end users.

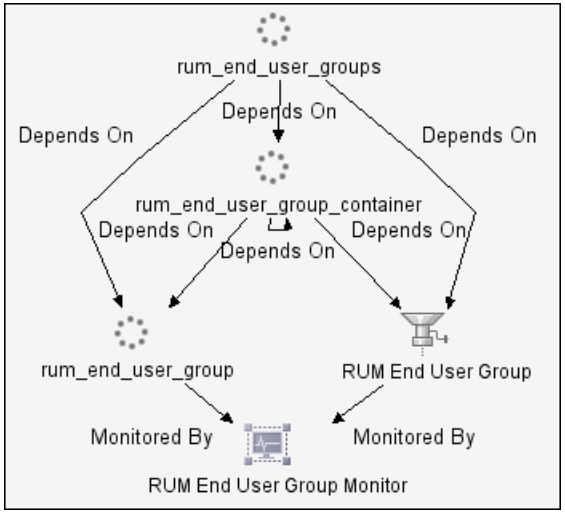
If IP addresses that have not been configured in end-user groups in End User Management Administration are received in Real User Monitor samples, then a hidden Dynamic Node Factory creates a separate branch for them in the view, under a RUM End User Group CI called **Unconfigured**.

For information on configuring end-user groups to be monitored, see "New/Edit End-User Group Page" on page 349.

The Real User End Users view generally contains the following hierarchical structure:



The TQL for the view is built as follows:



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

For details on the CITs in the Real User End Users view, see "CI Types for Real User End Users View" on page 330.

CI Types for Real User End Users View

This section provides a description of each CIT in the Real User End Users view.

The CITs are:

- **RUM End User Groups.** RUM End User Groups CIs are created automatically by HP Business Availability Center using a default name.
- **RUM End User Group.** A RUM End User Group CI is created automatically for each end-user group configured in End User Management Administration. The name comprises the configured end-user group name, together with the IP range of the end-user group.
- **RUM End User Group Monitor.** A RUM End User Group Monitor CI is automatically created for each end-user group configured in End User Management Administration that has been received in Real User Monitor samples. The name comprises the end-user group name together with the IP range of the end-user group.

  In addition, a RUM End User Group Monitor CI called **Private IP Address Lan** (with an IP range) is created for IP addresses received in Real User Monitor samples, but not included in end-user groups configured in End User Management Administration.

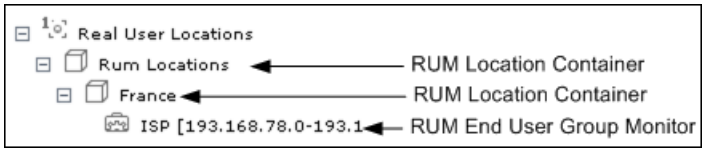
Real User Locations View

The Real User Locations view displays data for end-user groups, organized by location. The locations displayed are those configured in End User Management Administration. The data includes information on the availability, performance, and volume of sessions that were accessed by end users.

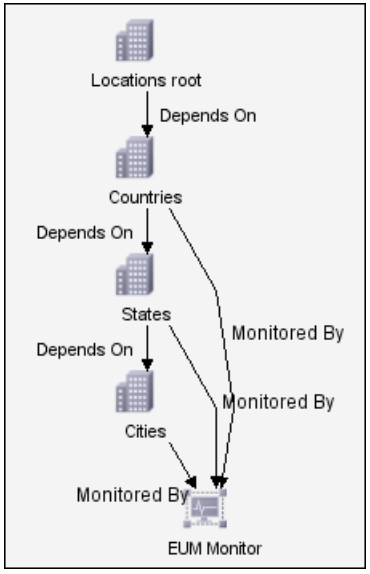
If IP addresses that have not been configured in end-user groups in End User Management Administration are received in Real User Monitor samples, then a hidden Dynamic Node Factory creates a separate branch for them in the view, under a RUM Location Container CI called **Unknown**.

For information on configuring end-user groups to be monitored, see “New/Edit End-User Group Page” on page 349.

The Real User Locations view contains the following hierarchical structure:



The TQL for the view is built as follows:



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

For details on the CITs in the Real User Locations view, see "CI Types for Real User Locations View" on page 332.

CI Types for Real User Locations View

This section provides a description of each CIT in the Real User Locations view.

The CITs are:

- **RUM Location Container.** A RUM Location Container CI is created for each location defined in End User Management Administration (for end-user groups), when data is received for that location in the Real User Monitor samples. A RUM Location Container CI called **Unknown** is created for samples without a configured location.
- **RUM End User Group Monitor.** RUM End User Group Monitor CIs are created for each end-user group for which an IP address has been received in the Real User Monitor samples. The name comprises the configured end-user group name together with the IP range of the end-user group.

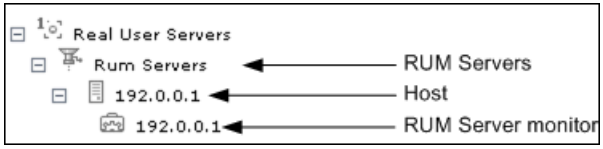
  In addition, a RUM End User Group Monitor CI called **Private IP Address Lan** (with an IP range) is created for IP addresses received in Real User Monitor samples, but not included in end-user groups configured in End User Management Administration.

Real User Servers View

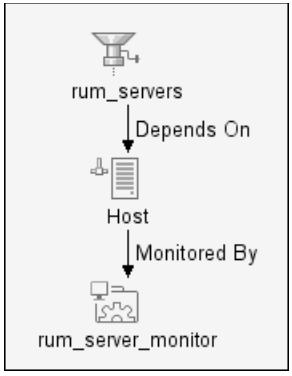
The Real User Servers view displays information on bandwidth usage and server errors for the servers monitored by Real User Monitor.

For information on configuring servers to be monitored, see "New/Edit Server Name Page" on page 372.

The Real User Servers view contains the following hierarchical structure:



The TQL for the view is built as follows:



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

For details on the CITs in the Real User Servers view, see "CI Types for Real User Servers View" on page 334.

CI Types for Real User Servers View

This section provides a description of each CIT in the Real User Servers view.

The CITs are:

- **RUM Servers.** The RUM Servers CI is automatically created with a default name by HP Business Availability Center.
- **Host.** A Host CI is automatically created for each host (server) for which information has been received in the Real User Monitor samples. If a name has been defined for the server in End User Management Administration, the CI uses the that name. Otherwise, the CI name is generally the IP address of the host.
- **RUM Server monitor.** A RUM Server Monitor CI is automatically created under each Host CI, using the same name.

All RUM Monitors View

The All RUM Monitors view includes all of the hierarchies from other views for Real User Monitor views. For details on these hierarchies, see the following sections:

- “Real User Applications View” on page 324
- “Real User End Users View” on page 328
- “Real User Locations View” on page 330
- “Real User Servers View” on page 333

Real User Monitor Administration User Interface

This section describes:

- Add Extraction Parameter Dialog Box on page 336
- Edit General Settings Page on page 338
- Edit SOAP Fault Event Page on page 347
- New/Edit End-User Group Page on page 349
- New/Edit Error Page Event Page on page 353
- New/Edit Global HTTP Error Event Page on page 354
- New/Edit Host Alias Page on page 357
- New/Edit Page on page 359
- New/Edit Page Size Event Page on page 363
- New/Edit Probe Page on page 365
- New/Edit Real User Monitor Engine Page on page 367
- New/Edit Server Name Page on page 372
- New/Edit Session Pages Event Page on page 373
- New/Edit Session Unavailable Pages Event Page on page 375
- New/Edit TCP Application Page on page 377
- New/Edit Text Pattern Event Page on page 383
- New/Edit Transaction Page on page 387
- New/Edit Web or SOAP Application Page on page 396
- Sensitive Data Dialog Box on page 418
- Session Property Dialog Box on page 419
- URL Builder Dialog Box on page 421

Add Extraction Parameter Dialog Box

Description	Enables to you to define a new parameter that is added to a page's URL, 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 a page name configuration file. **To access:** Click the **New Parameter** button in the **Parameter Extraction** panel, when configuring an application.

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

GUI Element (A–Z)	Description
Advanced Criteria	Click the **Advanced Criteria** button to open the Advanced Finding and Retrieving dialog box, where you can enter the regular expression to use for locating and extracting the required string. In the **Scan for (Regular Expression)** box, enter the regular expression that represents the string from which you want Real User Monitor to retrieve data. In the **Retrieve** box, enter the phrase representing the object to be retrieved. **Note:** This field is enabled only when the radio button to the left of it is selected.
Attribute name	If you select **Content (HTML)** as the extracted parameter type, enter the name of the attribute from which to extract data. **Note:** You must also configure the tag name in which the attribute is located. **Syntax exceptions:** The attribute name must conform to the RFC for attribute name definitions.

GUI Element (A–Z)	Description
Extract all content	Select the radio button to extract all the content in the current context (that is, in the header or tag). **Note:** This field is not available for **Content (Generic)** parameter types.
Extract content 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.
Extract from Request	If you select **Content (Generic)** as the extracted parameter type, select this radio box to configure Real User Monitor to extract the parameter content value from a request.
Extract from Response	If you select **Content (Generic)** as the extracted parameter type, select this radio box to configure Real User Monitor to extract the parameter content value from a response.
Extracted parameter type	Select the area from which you want to extract data to be used as the parameter's value. Valid options are: ➤ HTTP header ➤ Content (HTML) ➤ Content (Generic)
Header name	If you select **HTTP header** as the extracted parameter type, enter the header name in which to search for data to extract.
Name	Enter the name of the parameter. **Syntax exceptions:** The parameter name cannot contain spaces and must conform to the RFC for parameter key definitions.
Tag name	If you select **Content (HTML)** as the extracted parameter type, enter the tag name in the content in which to search for data to extract. **Syntax exceptions:** The tag name must conform to the RFC for tag name definitions.

Edit General Settings Page

Description	Configure general monitoring settings for all pages, applications, transactions, servers, and end users being monitored by the Real User Monitor engine. **To access:** Select **Admin** > **End User Management**, select the **Monitors** tab and right-click **General Settings** (under **Engine Settings**) for an existing engine in the monitor tree. Click **Edit** in the displayed menu.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

The section includes the following topics:

- "Page Settings" on page 338
- "Transaction Settings" on page 339
- "Server and End User Group Settings" on page 340
- "Data Reporting Settings" on page 341
- "Broken Link Referral Settings" on page 344
- "Session Reset Settings" on page 345

Page Settings

Description	Configure the default threshold settings that are displayed when you configure a new Page in Real User Monitor. The page and server times you enter here are those displayed by default when you configure a new application in Real User Monitor.

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

GUI Element (A–Z)	Description
Availability (%)	Enter the page availability threshold, as a percentage. If the availability of a page falls within this threshold, the page's availability is displayed in green in the Real User Monitor reports, otherwise it is displayed in red.
Page Time (seconds)	Enter the page download time threshold, in seconds. If a page is downloaded within this amount of time, its page time is displayed in green in the Real User Monitor reports, otherwise it is displayed in red.
Server Time (seconds)	Enter the server time threshold for the page, in seconds. If the server time for a page falls within this threshold, the page's server time is displayed in green in the Real User Monitor reports, otherwise it is displayed in red. **Note:** The server time threshold must be lower than the page download time threshold.
Timeout (seconds)	Enter, in seconds, the amount of time after which Real User Monitor considers the downloading of a page's components to have timed out.

Transaction Settings

Description	Configure the default threshold settings that are displayed when you configure a new Transaction in Real User Monitor.

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

GUI Element (A–Z)	Description
Availability (%)	Enter 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 Real User Monitor reports, otherwise it is displayed in red.
Net Time (seconds)	Enter 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 Real User Monitor reports, otherwise it is displayed in red.
Server Time (seconds)	Enter 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 Real User Monitor reports, otherwise it is displayed in red. **Note:** This threshold must be lower than the total time and net time thresholds.
Timeout (seconds)	Enter, in seconds, the amount of time after which Real User Monitor considers the downloading of a page within a transaction to have timed out.
Total Time (seconds)	Enter 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 Real User Monitor reports, otherwise it is displayed in red.

Server and End User Group Settings

Description	Configure the server availability threshold for all servers, as well as the default latency threshold setting that is displayed when you define a new end-user group.

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

GUI Element (A–Z)	Description
Latency (milliseconds)	Enter the average network latency threshold for each end user within an end-user group subnet, in milliseconds. If the latency of an end-user falls within this threshold, the end user's latency is displayed in green in the Real User Monitor reports, otherwise it is displayed in red.
Server Availability (%)	Enter 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 Real User Monitor reports, otherwise it is displayed in red.

Data Reporting Settings

Description	Configure the collection parameters for global reporting statistics.

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

GUI Element (A–Z)	Description
Most Active End Users	Select this check box and configure the maximum number of most active end users you want Real User Monitor to collect per hour. You can define whether activity is measured by the number of page requests, or the amount of bandwidth used. To instruct Real User Monitor not to collect this information, clear the check box. **Note:** A maximum number of 100 most active end-users can be collected.
Most Popular Pages	Select this check box and configure the maximum number of most popular pages—that is, the pages that received the highest number of end-user requests (hits)—you want Real User Monitor to collect per hour. To instruct Real User Monitor not to collect this information, clear the check box. **Note:** A maximum number of 100 most popular pages can be collected.
Pages with Most Errors	Select this check box and configure the maximum number of pages with most errors—that is, the pages on which the greatest number of HTTP and application errors occurred—you want Real User Monitor to collect during each five-minute period. You can define the minimum number of hits required for a page's data to be collected. To instruct Real User Monitor not to collect this information, clear the check box. **Note:** A maximum of 20 slowest pages can be collected.

GUI Element (A–Z)	Description
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 Real User Monitor 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 Real User Monitor not to collect slowest end-user data, clear the check box. **Note:** A maximum of 50 slowest end users can be collected. The minimum number of hits required cannot exceed 10,000.
Slowest Pages	Select this check box and configure the maximum number of slowest pages—that is, the pages that took the greatest amount of time to download—you want Real User Monitor to collect during each five-minute period. You can define the minimum number of hits required for a page's data to be collected. To instruct Real User Monitor not to collect this information, clear the check box. **Note:** A maximum of 50 slowest pages can be collected. The minimum number of hits required cannot exceed 10,000.
Snapshot on Event	Select this check box and configure the maximum number of previous, session pages (including the page with the error or event itself) that you want the Real User Monitor to report when a page with a global HTTP error or text event is encountered. This is used as the setting for the default application and is also used as the default setting for other applications. To instruct Real User Monitor not to collect this information, clear the check box. **Note:** For snapshots to be reported by Real User Monitor, the **Snapshot on Event** check box must also be enabled in the application configuration and the HTTP global error or text event configuration.

Broken Link Referral Settings

Description	Configure the number of broken links that Real User Monitor collects in a given time period, and define the hosts from which Real User Monitor collects broken link data.
Important Information	By default, no broken link referral settings are defined. Unless you define hosts in this section, no broken link data is collected and no data is displayed in the Broken Links table in the Global Statistics report.

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

GUI Element (A–Z)	Description
	Click to delete a selected host name from the list of hosts from which to report broken link data. To select a host, select the check box at the left of the host name.
Broken Links	Select this check box and configure the maximum number of broken links you want Real User Monitor to collect during each five-minute period. To instruct Real User Monitor not to collect broken link data, clear the check box. **Note:** A maximum number of 50 broken links can be collected.
New Referring Host Name	Click the **New Referring Host Name** button to add a new host name to the list of hosts from which to report broken link data.
Referring Host Name(s)	Define the host names from which to report broken link data. If a user clicks a link on a page from one of these hosts and the link is broken, the broken link data is collected by Real User Monitor. If a user clicks a link on a page from a host that is not defined in this section, the data is ignored by Real User Monitor. Note: You need only enter the host part of the URL – for example, hp.com.

Session Reset Settings

Description	Configure the parameters that cause a session to be reported to Real User Monitor and a new session to be 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 wish to report a separate session for each inquiry handled by the operator, so you can set the **By URL** setting to 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.

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

GUI Element (A–Z)	Description
	Click to delete a selected URL from the list of session delimiter URLs. To select a URL, select the check box at the left of it.
Behavior	Shows for each defined 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.
By Timeout	Enter, in minutes, the maximum time that a session can be open before it is reported to Real User Monitor and a new session is started.
By URL	Define the URLs which, when accessed, cause the current session to be reported to Real User Monitor and a new session to be started.
End Session	Click the **End Session** button to include the 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.

GUI Element (A–Z)	Description
New Session Delimiter URL	Click the **New Session Delimiter URL** button to open the URL Builder Dialog Box, where you can define a URL as a session delimiter. For details on the URL Builder, see "URL Builder Dialog Box" on page 421. **Tip:** To end a Siebel session, configure a URL in the format **<Siebel application URL/start.swe? SWECmd=Logoff&*** and click the **End Session** button for it.
Session Delimiter URL	Lists the defined session delimiter URLs.
Start Session	Click the **Start Session** button to include a selected URL as the first page of the new session on reset. **Note:** This is the default used for new session delimiter URLs.

Edit SOAP Fault Event Page

Description	Edit SOAP faults to be recorded by Real User Monitor for reporting in Real User Monitor reports. SOAP faults are reported as either errors or informational events. **To access:** Select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing SOAP fault under an application in the monitor tree. Click **Edit** in the displayed menu.
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 "New/Edit Text Pattern Event Page" on page 383.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

Main Settings

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

GUI Element (A–Z)	Description
Create snapshot for event	Select the **Create snapshot for event** check box to enable a page snapshot for the fault, if it occurs in an application. **Default value:** Enabled **Note:** For snapshots to be reported by Real User Monitor, the **Snapshot on Event** check box must also be enabled in the Real User Monitor engine configuration and the application configuration.
Enable	Select the **Enable** check box to enable monitoring for the SOAP fault, or clear the check box to disable monitoring. **Default value:** Enabled
Name	Displays the name of the SOAP fault. **Note:** You cannot edit this field.
Report as error	Select this check box to instruct Real User Monitor to report the SOAP fault as an error event instead of an informational event. **Default value:** Disabled, except for the Receiver Error for which it is enabled.

New/Edit End-User Group Page

Description	Add a new end-user group for which, when it accesses monitored servers, Real User Monitor collects data. Also, edit an existing end-user group. **To access:** ➤ To create a new end-user group, select **Admin** > **End User Management**, select the **Monitors** tab and right-click **End User Groups** in the monitor tree. Click **New End User Group** in the displayed menu. ➤ To edit an existing end-user group, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing end-user group in the monitor tree. Click **Edit** in the displayed menu.
Important Information	An end-user group, or end-user group container, can be copied from one Real User Monitor engine to another, but cannot be copied within the same Real User Monitor engine.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

Main Settings

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

GUI Element (A–Z)	Description
City	Select the city in which the IP range you are defining is located. **Note:** This field is enabled only when the **Select a physical location** check box is selected.
Country	Select the country in which the IP range you are defining is located. **Note:** This field is enabled only when the **Select a physical location** check box is selected.

GUI Element (A–Z)	Description
Description	Enter the description of the end-user group, which you can view in End User Management only. **Syntax exceptions:** Cannot exceed 260 characters.
Enable	Select this check box to enable the end-user group configuration, or clear the check box to disable it. **Default value:** Enabled
End user group name	Enter 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.
From IP	Enter the starting IP address of the IP range (subnet) of the end-user group.

GUI Element (A–Z)	Description
IP Resolution	Select one of the following methods by which the subnet is displayed in the Real User Monitor reports: ➤ **As entered.** The defined IP range is displayed in the Real User Monitor reports according to the way in which you enter it in this dialog box. ➤ **Class A.** The IP addresses in the range you defined are displayed in the Real User Monitor reports according to the Class A network IP addressing method. ➤ **Class B.** The IP addresses in the range you defined are displayed in the Real User Monitor reports according to the Class B network IP addressing method. ➤ **Class C.** The IP addresses in the range you defined are displayed in the Real User Monitor reports according to the Class C network IP addressing method. ➤ **According to RFC.** The IP addresses in the range you defined are displayed in the Real User Monitor 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). ➤ **Defined CIDR mask.** The IP addresses in the range you defined are displayed in the Real User Monitor reports according to the mask (CIDR notations, 0 to 32) you define in the text box provided to the right of the selector. ➤ **According to ISP.** The IP addresses in the range you defined are displayed in the Real User Monitor reports according to predefined subnet ranges for Internet service providers (ISP). ➤ **According to Server Host.** The IP addresses in the range you defined are displayed in the Real User Monitor 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.

GUI Element (A–Z)	Description
Latency threshold (milliseconds)	Enter the average network latency threshold in milliseconds, for each end user in the end-user group.
Monitoring conditions	Select one of the following options: ➤ **Always.** Instructs Real User Monitor to collect data for all traffic generated by end users within the end-user group. This data appears in the Real User Monitor reports. ➤ **Never.** Instructs Real User Monitor not to collect data for the end users within the end-user group. Data for the end-user group is not displayed in the Real User Monitor reports.
Perform host name resolution	Select this check box to instruct Real User Monitor 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 subnet you are defining.
Select a physical location	Select this check box to configure the country, state, and city in which the IP range you are defining is located
State	Select the state in which the IP range you are defining is located. **Note:** This field is enabled only when the **Select a physical location** check box is selected.
To IP	Enter the ending IP address of the IP range (subnet) of the end-user group.

New/Edit Error Page Event Page

Description	Add a new error page event to an application, or edit an existing error page event. An error page event is triggered when a specified page in an application encounters an error. **To access:** ➤ To create a new error page event, select **Admin** > **End User Management**, select the **Monitors** tab and right-click the application in the monitor tree, for which you want to configure the event. Click **New Error Page Event** in the displayed menu. ➤ To edit an existing error page event, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing error page event (within an application) in the monitor tree. Click **Edit** in the displayed menu.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

Main Settings

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

GUI Element (A–Z)	Description
Enable	Select this check box to enable the error page event configuration, or clear the check box to disable it. **Default value:** Enabled
Name	Enter the name of the error page event, which you can view in End User Management only. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and **` ~ ! @ # $ % ^ & * ( ) _ - + { } ; <space>**. **Note:** The name must be unique.

GUI Element (A–Z)	Description
Report as error	Select this check box to instruct Real User Monitor to report the error page event as an error event instead of an informational event.
URL	Displays the URL of the page which, if an error is encountered on it, triggers the event.
URL Builder	Click the **URL Builder** button to open the URL Builder Dialog Box, where you define the URL for the page which, if an error is encountered on it, triggers the event. For details on the URL Builder dialog box, see "URL Builder Dialog Box" on page 421.

New/Edit Global HTTP Error Event Page

Description	Create new HTTP errors to be recorded by the Real User Monitor for reporting in Real User Monitor reports, or edit existing HTTP errors. **To access:** ➤ To create a new HTTP error, select **Admin** > **End User Management**, select the **Monitors** tab and right-click **Global HTTP Error Events** (under **Engine Settings**) in the monitor tree. Click **New Global HTTP Error Event** in the displayed menu. ➤ To edit an existing HTTP error, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing Global HTTP Error Event name (under **Engine Settings** > **Global HTTP Error Events**) in the monitor tree. Click **Edit** in the displayed menu.
Important Information	By default, the most common HTTP error codes are predefined under four global HTTP error events—Bad user request, Request not found, Request refused, and Server error. For details, see "HTTP Error Codes" on page 451.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

Main Settings

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

GUI Element (A–Z)	Description
	Click to delete a selected HTTP error code from the list of HTTP error codes included in a global HTTP error event.
Create snapshot for event	Select the **Create snapshot for event** check box to enable a page snapshot for the event, if it occurs in an application. **Default value:** Enabled **Note:** For snapshots to be reported by Real User Monitor, the **Snapshot on Event** check box must also be enabled in the Real User Monitor engine configuration and the application configuration.
Enable	Select the **Enable** check box to enable monitoring for the HTTP error event, or clear the check box to disable monitoring. **Default value:** Enabled
Error code	Lists the HTTP error codes that are included in the HTTP error event.
Name	Enter the name of the HTTP error event. For example, you can create an HTTP global error event called Database errors and include the applicable HTTP error codes for this. **Syntax exceptions:** Allowed characters are **a-z**, **A-Z**, **0-9**, and **` ~ ! @ # $ % ^ & * ( ) _ - + { } ; <space>**.

GUI Element (A–Z)	Description
New Error Code	Click the New Error Code button to add an HTTP error code to the list of codes included in the HTTP error event. **Note:** ➤ HTTP error codes must be a value between 400-599. ➤ An HTTP error code cannot be included in more than one HTTP error event within the same Real User Monitor engine.
Save session snapshots	Select the **Save session snapshots** check box to enable snapshots to be made of all the pages from the beginning of a session, up to and including the page on which the global HTTP 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 Real User Monitor probe performance. ➤ For snapshots of all the pages from the beginning of a session to be saved by Real User Monitor, both the **Session snapshot on event** check box for the application, and the **Save session snapshot** check box for the global HTTP error event must be enabled.

New/Edit Host Alias Page

Description	Create a new host alias, or edit an existing one. 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 Real User Monitor 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 Real User Monitor reports. The host unit is known as a host alias, which you can define on the New Host Alias page. Once a host alias has been defined, you can view the host alias settings, edit the host alias, or delete the host alias from the monitor tree. **To access:** ➤ To create a new host alias, select **Admin** > **End User Management**, select the **Monitors** tab and right-click **Host Aliases** (under **Engine Settings**) in the monitor tree. Click **New Host Alias** in the displayed menu. ➤ To edit an existing host alias, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing host alias (under **Engine Settings** > **Host Aliases**) in the monitor tree. Click **Edit** in the displayed menu.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

The section includes the following topics:

➤ "Main Settings" on page 358

➤ "Hosts" on page 358

Main Settings

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

GUI Element (A–Z)	Description
Name	Enter the name you want to assign the host alias. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and ` **~ ! @ # $ % ^ & * ( ) _ - + { } ; <space>**. **Note:** The name must be unique within the Real User Monitor engine.

Hosts

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

GUI Element (A–Z)	Description
	Click to delete a selected host from the list of hosts included in a host alias.
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.
New Host	Click the **New Host** button to add a new entry in the list of hosts.

New/Edit Page

Description	Add a new page for which to collect data, that is part of an application you want to monitor, or edit an existing page. **To access:** ➤ To create a new page, select **Admin** > **End User Management**, select the **Monitors** tab and right-click **Pages** in the monitor tree. Click **New Page** in the displayed menu. ➤ To edit an existing page, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing page (within an application) in the monitor tree. Click **Edit** in the displayed menu.
Important Information	➤ Pages can only be configured for an existing application. ➤ A maximum of 2000 pages can be configured for each engine.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

The section includes the following topics:

➤ "Main Settings" on page 360

➤ "Threshold Settings" on page 361

➤ "Configuration Item Attachment Settings" on page 362

Main Settings

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

GUI Element (A–Z)	Description
Description	Enter the description of the page, which you can view in End User Management only. **Syntax exceptions:** Cannot exceed 260 characters.
Enable	Select this check box to enable the page configuration, or clear the check box to disable it. **Default value:** Enabled
Monitoring conditions	Enter the monitoring condition for the page your are defining. From the **Monitoring conditions** box, select one of the following options: ➤ **Always.** Instructs Real User Monitor to collect data for all requests of the page. This data appears in the Global Statistics and Page Summary reports. ➤ **Never.** Instructs Real User Monitor not to collect data for the page. Data for this page is not displayed in the Global Statistics or Page Summary reports. ➤ **Only as part of a transaction.** Instructs Real User Monitor to collect data for the page only if the page is included in a transaction. If the page is part of a transaction, data for it appears in the Transaction Summary report. Data for the page is not displayed in the Page Summary report.

GUI Element (A–Z)	Description
Name	Enter the name you want to assign the page. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and **; : / ? = * & { } % @ + - $**. **Note:** ➤ The name must be unique. ➤ If you change the name of a page, the Real User Monitor reports display data for the page under both the original and the new page names.
URL	Displays the configured URL of the page.
URL Builder	Click the **URL Builder** button to open the URL Builder Dialog Box, where you define the URL for the page. For details on the URL Builder dialog box, see "URL Builder Dialog Box" on page 421.

Threshold Settings

Important Information	The default values for all of the fields in this panel are the values configured for the page settings for the Real User Monitor engine. For details, see "Page Settings" on page 338.

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

GUI Element (A–Z)	Description
Availability (%)	Set the default page availability percentage threshold.
Page Time (seconds)	Set the default page download time threshold, in seconds.

GUI Element (A–Z)	Description
Server Time (seconds)	Set the default server time threshold for the page, in seconds.
Timeout (seconds)	Set the default amount of time, in seconds, after which the downloading of the page's components is considered to have timed out.

Configuration Item Attachment Settings

Description	Enables you to attach a CI to the page. **Note:** The Configuration Item Attachment Settings are available only when adding a page to End User Management and cannot be set while editing a page.

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

GUI Element (A–Z)	Description
	Click to delete a selected attached CI.
Add CIs	Click the **Add CIs** button to attach a CI to the page. For details, see "Configuration Items and End User Management Monitor Objects" on page 24.
CI Name	Lists the names of the attached CIs.
CI Type	Lists the CI type of the attached CIs.

New/Edit Page Size Event Page

Description	Add a new page size event to a page or page container that are part of an application you wish to monitor. Also, edit an existing page size event. A page size event is triggered when a page size is either greater than or less than a defined number of kilobytes. **To access:** ➤ To create a new page size event, select **Admin** > **End User Management**, select the **Monitors** tab and right-click the transaction, page or page container in the monitor tree, for which you want to configure the event. Click **New Text Pattern Event** in the displayed menu. ➤ To edit an existing page size event, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing text pattern event (within an application) in the monitor tree. Click **Edit** in the displayed menu.
Important Information	If you are defining an event for a page container, the event is applied to all pages contained within that page container.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

Main Settings

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

GUI Element (A–Z)	Description
Enable	Select this check box to enable the page size event configuration, or clear the check box to disable it. **Default value:** Enabled
Name	Enter the name of the page size event, which you can view in End User Management only. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and **` ~ ! @ # $ % ^ & * ( ) _ - + { } ; <space>**. **Note:** The name must be unique.
Report as error	Select this check box to instruct Real User Monitor to report the page size event as an error event instead of an informational event.
Trigger event when page size	Select either greater than (>), or less than (<) and enter the page size in kilobytes in the adjacent box.

New/Edit Probe Page

Description	Create a new probe, or configure an existing probe for the Real User Monitor engine. **To access:** ➤ To create a new probe, select **Admin** > **End User Management**, select the **Monitors** tab and right-click **Probes** (under **Engine Settings**) in the monitor tree. Click **New Probe** in the displayed menu. ➤ To edit an existing probe, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing probe name (under **Engine Settings** > **Probes**) in the monitor tree. Click **Edit** in the displayed menu.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

Main Settings

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

GUI Element (A–Z)	Description
Description	Enter a description of the probe machine, which you can view in End User Management. **Syntax exceptions:** Limited to 260 characters.
Enable	Clear this check box to disable the probe from monitoring, while retaining its configuration. This enables you to temporarily stop the probe from monitoring, without deleting it. For example, you may want to disable a probe from monitoring if you are expecting heavy network traffic which is of no particular interest to you, during a certain period of time. **Default value:** Enabled
IP address	Enter the IP address of the Real User Monitor probe machine.

GUI Element (A–Z)	Description
Name	Enter the name of the Real User Monitor probe machine. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and ` ~ **! @ # $ % ^ & * ( ) _ - + { } ; <space>**. **Note:** The probe's name must be unique within the Real User Monitor engine you are adding.
Password	Enter the password for accessing the Real User Monitor probe machine. Note: The password must be same as the password configured during the Real User Monitor probe installation. For details on installing the Real User Monitor probe, see "Installing the HP Real User Monitor Probe" in the *Real User Monitor Administration* PDF.
User name	Enter the user name for accessing the Real User Monitor probe machine. Note: The user name must be same as the user name configured during the Real User Monitor probe installation. For details on installing the Real User Monitor probe, see "Installing the HP Real User Monitor Probe" in the *Real User Monitor Administration* PDF.

New/Edit Real User Monitor Engine Page

Description	Add a new Real User Monitor engine to the monitor tree in End User Management Administration, or edit an existing engine. **To access:** ➤ Select **Admin** > **End User Management**, select the **Monitors** tab and right-click **Enterprise** in the monitor tree. Click **New Real User Monitor Engine** in the displayed menu. ➤ Select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing engine in the monitor tree. Click **Edit** in the displayed menu.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

The section includes the following topics:

➤ "Main Settings" on page 368

➤ "Probe Settings" on page 368

➤ "Advanced Settings" on page 371

Main Settings

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

GUI Element (A–Z)	Description
Description	Enter a description for the Real User Monitor engine machine, which you can view in End User Management Administration only. **Syntax exceptions:** Cannot exceed 260 characters.
Engine name	Enter the name of the Real User Monitor engine machine. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and ` ~ **! @ # $ % ^ & * ( ) _ - + { } ; <space>**.
IP Address	Enter the IP address of the Real User Monitor engine machine.
Report data only for defined applications	Select this check box if you want the Real User Monitor engine to report data for defined applications only. A Real User Monitor probe gathers data for all the applications that pass through it. You can limit the amount of data reported by the probe by defining specific applications for the probe to report. For details on defining applications, see "New/Edit Web or SOAP Application Page" on page 396 and "New/Edit TCP Application Page" on page 377.

Probe Settings

Important Information	This panel is visible only when adding a new Real User Monitor engine.

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

GUI Element (A–Z)	Description
Description	Enter a description for the Real User Monitor probe machine, which you can view in End User Management Administration only. **Syntax exceptions:** Cannot exceed 260 characters.
Enable	Clear this check box to disable the probe from monitoring, while retaining its configuration. This enables you to temporarily stop the probe from monitoring, without deleting it. For example, you may want to disable a probe from monitoring if you are expecting heavy network traffic which is of no particular interest to you, during a certain period of time. **Default value:** Enabled
IP Address	Enter the IP address of the Real User Monitor probe machine.
Password	Enter the password for accessing the Real User Monitor probe machine. **Note:** The password must be same as the password configured during the Real User Monitor probe installation. For details on installing the Real User Monitor probe, see "Installing the HP Real User Monitor Probe" in the *Real User Monitor Administration* PDF.

GUI Element (A–Z)	Description
Probe name	Enter the name of the Real User Monitor probe machine. **Syntax exceptions:** Cannot exceed 100 characters. **Note:** The probe's name must be unique within the Real User Monitor engine you are adding.
User name	Enter the user name for accessing the Real User Monitor probe machine. Note: The user name must be same as the user name configured during the Real User Monitor probe installation. For details on installing the Real User Monitor probe, see "Installing the HP Real User Monitor Probe" in the *Real User Monitor Administration* PDF.

Advanced Settings

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

GUI Element (A–Z)	Description
Real User Monitor engine URL	If SSL is configured on the Real User Monitor engine machine, you must define the **Real User Monitor engine URL** setting. To define the URL, enter the https protocol, together with the host name of the machine on which the Real User Monitor engine resides (an IP address cannot be used), and the port number (the default port is 443). **Example:** https://myenginemachinename:443
Retrieve snapshots directly from the Real User Monitor engine	Select this check box to configure the Session Replay applet to retrieve snapshots directly from the Real User Monitor engine, or clear the check box to configure the applet to communicate with the Real User Monitor engine via the HP Business Availability Center Gateway Server. For further information on retrieving session snapshots, see "Customize Real User Monitor Reports" on page 448. **Note:** This setting is applicable to all Real User Monitor engines.

New/Edit Server Name Page

Description	Create a new server name, or edit an existing one. You can define a server name for each IP address that is being monitored, which appears in the Real User Monitor reports, thereby making them more meaningful. **To access:** ➤ To create a new server name, select **Admin** > **End User Management**, select the **Monitors** tab and right-click **Server Names** (under **Engine Settings**) in the monitor tree. Click **New Server Name** in the displayed menu. ➤ To edit an existing server name, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing server name (under **Engine Settings** > **Server Names**) in the monitor tree. Click **Edit** in the displayed menu.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

Main Settings

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

GUI Element (A–Z)	Description
Description	Enter a description of the server which you can view in End User Management only. **Syntax exceptions:** Cannot exceed 260 characters.

GUI Element (A–Z)	Description
IP address	Enter the IP address of the server you are defining.
Name	Enter the server name you want to assign the server. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and ` ~ **! @ # $ % ^ & * ( ) _ - + { } ; <space>**. **Note:** The server name must be unique within the Real User Monitor engine.

New/Edit Session Pages Event Page

Description	Add a new session pages event to an application, or edit an existing session pages event. A session pages event is triggered when a session in an application includes a defined number of pages. **To access:** ➤ To create a new session pages event, select **Admin** > **End User Management**, select the **Monitors** tab and right-click the application in the monitor tree, for which you want to configure the event. Click **New Session Pages Event** in the displayed menu. ➤ To edit an existing session pages event, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing session pages event (within an application) in the monitor tree. Click **Edit** in the displayed menu.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

Main Settings

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

GUI Element (A–Z)	Description
Enable	Select this check box to enable the session pages event configuration, or clear the check box to disable it. **Default value:** Enabled
Name	Enter the name of the session pages event, which you can view in End User Management only. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and **` ~ ! @ # $ % ^ & * ( ) _ - + { } ; <space>**. **Note:** The name must be unique.
Report as error	Select this check box to instruct Real User Monitor to report the session pages event as an error event instead of an informational event.
Trigger event when the number of pages in the session reaches	Enter the number of pages which, when reached, triggers the event.

New/Edit Session Unavailable Pages Event Page

Description	Add a new session unavailable pages event to an application, or edit an existing session unavailable pages event. A session unavailable pages event is triggered when a session in an application includes a defined number of unavailable pages. **To access:** ➤ To create a new session unavailable pages event, select **Admin** > **End User Management**, select the **Monitors** tab and right-click the application in the monitor tree, for which you want to configure the event. Click **New Session Unavailable Pages Event** in the displayed menu. ➤ To edit an existing session unavailable pages event, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing session unavailable pages event (within an application) in the monitor tree. Click **Edit** in the displayed menu.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

Main Settings

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

GUI Element (A–Z)	Description
Enable	Select this check box to enable the session unavailable pages event configuration, or clear the check box to disable it. **Default value:** Enabled
Name	Enter the name of the session unavailable pages event, which you can view in End User Management only. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and ` ~ **! @ # $ % ^ & * ( ) _ - + { } ; <space>**. **Note:** The name must be unique.
Report as error	Select this check box to instruct Real User Monitor to report the session unavailable pages event as an error event instead of an informational event.
Trigger event when the number of unavailable pages in the session reaches	Enter the number of unavailable pages which, when reached, triggers the event.

New/Edit TCP Application Page

Description	Enables you to add a new TCP request/response or TCP streaming application to be monitored by Real User Monitor, or edit an existing application. **To access:** ➤ To create a new application, select **Admin** > **End User Management,** select the **Monitors** tab and right-click **Applications** in the monitor tree. Select **New Application** and click **TCP Request/Response Application** or **TCP Streaming Application** in the displayed menu. ➤ To edit an existing application, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing application (under **Applications**) in the monitor tree. Click **Edit** in the displayed menu.
Important Information	➤ For details on creating applications from predefined templates, see "Application Templates" on page 297. ➤ For details on creating and editing Web or SOAP applications, see "New/Edit Web or SOAP Application Page" on page 396.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

The section includes the following topics:

➤ "Main Settings" on page 378

➤ "Application Location Settings" on page 379

➤ "TCP Thresholds" on page 381

Main Settings

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

GUI Element (A–Z)	Description
Application type	Displays the template type for applications configured using a predefined template, or **Generic** for applications configured without using a predefined template.
Enable	Select the **Enable** check box to enable monitoring for the application, or clear the check box to disable monitoring. **Default value:** Enabled
Name	Enter the name you want to assign the application. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a**-**z**, **A**-**Z**, **0**-9, and ` ~ **! @ # $ % ^ & * ( ) _ - + { } ; <space>**. **Note:** The name must be unique.
Probe	Select the probes to be used in monitoring the application. Use the CTRL key to select multiple probes, or choose **All** to select all the probes within the Real User Monitor engine. **Default value:** All
Protocol	Displays the application's communication protocol.

Application Location Settings

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

GUI Element (A–Z)	Description
	Click to delete a selected application server IP address from the list.
<Left check box>	Select the check box to the left of an application server IP address to select it for deletion when you click the **Delete** button.
IP Range	Enter the IP address, or IP range, of application servers you want to associate with the application you are defining. **Syntax exceptions:** A single IP address is entered as is and ranges are separated by a dash (-). For example, a range of IP addresses is entered as **110.132.10.96-110.132.10.99**.
New IP Range	Click the **New IP Range** button to add details of new application servers you want to associate with the application you are defining. Repeat this procedure for each application server, or range of servers, you want to add. **Important:** Associating an application server with more than one application causes erratic and incorrect monitoring results.

GUI Element (A–Z)	Description
Ports	Enter the port, or port range, of the IP range you are configuring for the application servers. **Default Value:** For HTTP communications the default port number is 80 and for HTTPS communications it is 443. **Syntax exceptions:** A single port number is entered as is and ranges are separated by a dash (-). For example, a range of port numbers is entered as ***96-99***.
SSL	Select the **SSL** check box if the application server uses SSL communications, or clear the check box for regular communications. **Default value:** Disabled **Note:** If you change this setting, the default port number also changes.

TCP Thresholds

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

GUI Element (A–Z)	Description
Collect poor request data	Select the **Collect poor request data** check box to configure Real User Monitor 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 details on the user interface, see "TCP Poor Requests Summary Report" on page 655 and "TCP Requests Analyzer Report" on page 662.
Enable requests capture	Select the **Enable requests capture** check box to configure Real User Monitor to take snapshots of TCP requests that have network errors. **Note:** ➤ This check box is enabled only if you have selected 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 snippet	Select the **Enable requests snippet** check box to configure Real User Monitor 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 have selected the **Collect poor request data** check box.
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 have selected 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.

GUI Element (A–Z)	Description
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%
Request time threshold	Enter the threshold, in seconds, for the request time. **Default value:** 8 seconds **Note:** This field is applicable to TCP request/response applications only and is not visible when configuring TCP streaming applications.
Server connection availability	Enter the threshold, in percent, for the number of connection attempts that must successfully connect to the server. **Default value:** 98%
Server time threshold	Enter the threshold, in seconds, for the server time. **Default value:** 2 seconds **Note:** This field is applicable to TCP request/response applications only and is not visible when configuring TCP streaming applications.

New/Edit Text Pattern Event Page

Description	Add a new text pattern event to an application, or to a page or page container that are part of an application you wish to monitor. Also, edit an existing text pattern event. A text pattern event is triggered when a page includes, or fails to include, a defined string of characters. **To access:** ➤ To create a new text pattern event, select **Admin** > **End User Management**, select the **Monitors** tab and right-click the application, page or page container in the monitor tree, for which you want to configure the event. Click **New Text Pattern Event** in the displayed menu. ➤ To edit an existing text pattern event, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing text pattern event (within an application) in the monitor tree. Click **Edit** in the displayed menu.
Important Information	If you are defining an event for an application, the event is applied to all pages contained within that application. If you are defining an event for a page container, the event is applied to all pages contained within that page container.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

Main Settings

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

GUI Element (A–Z)	Description
Advanced Criteria	Click the **Advanced Criteria** button to open the Advanced Finding and Retrieving dialog box, where you can enter the regular expression to use for locating and extracting the required string. In the **Scan for (Regular Expression)** box, enter the regular expression that represents the string from which you want Real User Monitor to retrieve data. In the **Retrieve** box, enter the phrase representing the object to be retrieved. **Note:** This field is enabled only when the radio button to the left of it is selected.
Any value between the expressions ..... and	Enter the expressions on the page, between which the value to be extracted for use in Real User Monitor Event reports is located. **Note:** ➤ This option is valid only if a value is found on the page where specified. ➤ The option works in conjunction with the main **Trigger an event for pages** option so that both conditions must be met for the event to be triggered. ➤ This field is enabled only when the **Trigger an event for pages** radio button is selected.
Create Snapshot for Event	Select this check box to create a snapshot of the page on which the event occurs. **Note:** For snapshots to be reported by Real User Monitor, this check box must be enabled, as well as the **Snapshot on Event** check box in the Real User Monitor engine configuration and the application configuration.
Enable	Select this check box to enable the text pattern event configuration, or clear the check box to disable it. **Default value:** Enabled

GUI Element (A–Z)	Description
Extract text from the html source to be displayed as event description	Select this check box to instruct Real User Monitor to extract a configured value from the page, which is used as the event name in Real User Monitor Event reports. **Note:** This field is enabled only when the **Trigger an event for pages** radio button is selected.
Field/Tag/Parameter	Configure a specific field within a header, or a specific html tag within the content, in which to search for the string of characters. **Default value:** ➤ Cookie for header ➤ All for get/post parameters ➤ HTML for content
Name	Enter the name of the text pattern event, which you can view in End User Management only. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and **` ~ ! @ # $ % ^ & * ( ) _ - + { } ; <space>**. **Note:** The name must be unique.
Report as error	Select this check box to instruct Real User Monitor to report the text pattern event as an error event instead of an informational event.

GUI Element (A–Z)	Description
Save session snapshots	Select this check box to enable snapshots to be made of all the pages from the beginning of a session, up to and including the page on which the text pattern event occurs. **Note:** ➤ This setting is applicable to Web (HTTP) applications only. ➤ Saving all the pages from the beginning of a session enables more accurate frames unification, thus improving session replay, but may adversely affect Real User Monitor probe performance. ➤ For snapshots of all the pages from the beginning of a session to be saved by Real User Monitor, both the **Session snapshot on event** check box for the application, and the **Save session snapshots** check box for the text pattern event must be enabled.
Search in	Select where on the page to search for the string of characters. Available options are: ➤ **Header.** Instructs Real User Monitor to look for the pattern in the page header. You can further define a specific field within the header in which to search. ➤ **Get/post parameters.** Instructs Real User Monitor to look for the pattern in the get/post parameters. All the get/post parameters are searched. ➤ **Content.** Instructs Real User Monitor to look for the pattern in the page content. You can further define a specific HTML tag within the content in which to search.
Trigger an event for pages	Select whether you want to trigger an event for pages that contain, or do not contain, a specific string, which you enter in the adjacent field. **Note:** This field is enabled only when the radio button to the left of it is selected.

New/Edit Transaction Page

Description	Add a new transaction for which to collect data, that is part of an application you want to monitor, or edit an existing transaction. **To access:** ➤ To create a new page, select **Admin** > **End User Management**, select the **Monitors** tab and right-click **Transaction** in the monitor tree. Click **New Transaction** in the displayed menu. ➤ To edit an existing transaction, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing transaction (within an application) in the monitor tree. Click **Edit** in the displayed menu.
Important Information	➤ 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 Real User Monitor as a single transaction. ➤ A transaction can be copied only within the same Real User Monitor engine.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315
Useful Links	"Transaction Matching" on page 319

The section includes the following topics:

- "Main Settings" on page 388
- "Included Pages Settings" on page 388
- "Threshold Settings" on page 392
- "Advanced Settings" on page 393
- "Configuration Item Attachment Settings" on page 394
- "Related Business Transaction" on page 395

Main Settings

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

GUI Element (A–Z)	Description
Description	Enter the description of the transaction, which you can view in End User Management only. **Syntax exceptions:** Cannot exceed 260 characters.
Enable	Select this check box to enable the transaction configuration, or clear the check box to disable it. **Default value:** Enabled
Name	Enter the name you want to assign the transaction. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and ` **~ ! @ # $ % ^ & * ( ) _ - + { } ; <space>**. **Note:** The name must be unique.

Included Pages Settings

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

GUI Element (A–Z)	Description
	Click the up or down arrow to change the order of a selected page in the transaction.
	Click to remove a selected page from the transaction.

GUI Element (A–Z)	Description
After first page, ignore page order	Select this check box to configure Real User Monitor to ignore the order of all the included pages after the first page, and to record a transaction provided that all the included pages are accessed. Clear the check box to configure Real User Monitor to record a transaction only if the included pages 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 page is included more than once in a transaction match, the properties of the first instance of the page (for example, whether or not to include descendent pages) are applied to all other instances of the page in the transaction match. **Example:** ➤ **Configured pages:** P1, P2, P3 ➤ **Accessed pages:** P1, P4, P3, P2, P5 ➤ **Transaction match if check box selected (unordered):** The transaction is matched, as all the configured pages were accessed and the first configured page (that is, P1) was accessed first (that is, before the other configured pages). ➤ **Transaction match if check box not selected (ordered):** The transaction is not matched, as the configured pages were not matched in the configured order (that is, P3 was accessed before P2).

GUI Element (A–Z)	Description
Include other pages in transaction measurements	Select this check box to configure Real User Monitor to include all the pages (whether configured or not) between the first and last configured pages that are accessed in the transaction, when calculating transaction measurements. Clear the check box to configure Real User Monitor to include only the configured when calculating transaction measurements. **Example:** ➤ **Configured pages:** P1, P2, P3 ➤ **Accessed pages:** P1, P2, P4, P5, P3, P6 ➤ **Transaction match if check box selected (inlcude): P1**, **P2**, **P4**, **P5**, **P3**, P6 ➤ **Transaction match if check box not selected (do not include): P1**, **P2**, P4, P5, **P3**

GUI Element (A–Z)	Description
Include Unified Frames	Select this check box to configure Real User Monitor 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 Transaction Summary report. Clear the check box to configure Real User Monitor to include the page without a breakdown of its parts. For details on this topic, see "Frame Unification" on page 295. **Note:** ➤ This check box is visible only if frame unification is enabled for the application in which the transaction is included. ➤ This setting is applicable to HTML (Web and SOAP) applications only. ➤ If **Include Descendants** is selected, when the last page configured for a transaction is accessed, Real User Monitor waits for three minutes before timing out and recording the transaction, to allow for possible descendants of the last page. If the first configured page 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 pages:** P1 (with descendants), P2, P3 ➤ **Accessed pages:** 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 page 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 page 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 page instance, see "Advanced Settings" on page 393.

GUI Element (A–Z)	Description
Pages Added	Lists the pages that are included in the transaction.
Select Pages To Add	Lists all the pages that have been configured for the application. Click on a page to include it in the transaction.

Threshold Settings

Important Information	The default values for all of the fields in this panel are the values configured for the transaction settings for the Real User Monitor engine. For details, see "Transaction Settings" on page 339.

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

GUI Element (A–Z)	Description
Availability (%)	Set the default transaction availability percentage threshold.
Net Time (seconds)	Set the default net transaction time threshold for the pages included in the transaction, in seconds.
Server Time (seconds)	Set the default server time threshold for the transaction, in seconds.
Timeout (seconds)	Set the default amount of time, in seconds, after which the downloading of a page in the transaction is considered to have timed out.
Total Time (seconds)	Set the default total transaction time threshold (download time + think time), in seconds.

Advanced Settings

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

GUI Element (A–Z)	Description
Measure first/last page instance	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. Select the appropriate radio button to instruct Real User Monitor to report data for either the first or last instance of a page in a transaction. **Default value:** First page instance is reported. **Note:** ➤ When last page instance is selected, the last instance of a configured page before the first instance of the next configured page is used. For example, if P1, P2, and P3 are the configured pages for a transaction and P1, P2, **P2**, P3, and P2 are the accessed pages in a session, the second occurrence of P2 is the matched page for last page instance. ➤ If last page instance is selected, when the last page configured for the transaction is accessed, Real User Monitor waits for three minutes before timing out and recording the transaction, to allow for a possible page refresh. If the first configured page 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 pages:** P1, P2, P3 ➤ **Accessed pages:** P1, P4, P1, P2, P3, P2, P3 ➤ **Transaction match for first page instance: P1**, P4, P1, **P2**, **P3**, P2, P3 ➤ **Transaction match for last page instance:** P1, P4, **P1**, **P2**, P3, P2, **P3**

GUI Element (A–Z)	Description
Report unavailable transaction if user reaches page	Select one of the configured transaction pages from the drop-down list to instruct Real User Monitor to report data for an unavailable transaction, only if the transaction stream includes the selected page. An unavailable transaction is a transaction that does not end properly due to a session reset, a transaction timeout, or because an error on one of the transaction's pages prevents it from completing. **Default value:** The first page you added to the transaction.

Configuration Item Attachment Settings

Description	Enables you to attach a CI to the transaction. **Note:** The Configuration Item Attachment Settings are available only when adding a transaction to End User Management and cannot be set while editing a transaction.

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

GUI Element (A–Z)	Description
	Click to delete a selected attached CI.
Add CIs	Click the **Add CIs** button to attach a CI to the page. For details, see "Configuration Items and End User Management Monitor Objects" on page 24.
CI Name	Lists the names of the attached CIs.
CI Type	Lists the CI type of the attached CIs.

Related Business Transaction

Description	Enables you to map a Business Transaction CI to the transaction so that status information for the transaction is included in the Business Transactions view and in the relevant TransactionVision flow map. For details on integrating End User Management with business transactions, see "Map End-User Transactions to TransactionVision Business Transactions" on page 35. **Note:** You can map only one Business Transaction CI to a Real User Monitor transaction. If you map a Business Transaction CI to a Real User Monitor transaction that already has a Business Transaction CI mapped to it, the new mapping replaces the existing mapping.

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

GUI Element (A–Z)	Description
Detach Business Transaction	Click the **Detach Business Transaction** button to detach the Business Transaction CI that is mapped to the Real User Monitor transaction.
Map Business Transaction	Click the **Map Business Transaction** button to open the **Select Related Business Transaction** dialog box, where you select the Business Transaction CI to map to the Real User Monitor transaction. For details on the Select Related Business Transaction dialog box, see "Select Related Business Transaction Dialog Box" on page 149.
Related Business Transaction	Displays the name of the Business Transaction CI that is already mapped to the Real User Monitor transaction.

New/Edit Web or SOAP Application Page

Description	Enables you to add a new Web or SOAP application to be monitored by Real User Monitor, or edit an existing application. **To access:** ➤ To create a new application, select **Admin** > **End User Management,** select the **Monitors** tab and right-click **Applications** in the monitor tree. Select **New Application** and click **New Web Application** or **New SOAP Application** in the displayed menu. ➤ To edit an existing application, select **Admin** > **End User Management**, select the **Monitors** tab and right-click an existing application (under **Applications**) in the monitor tree. Click **Edit** in the displayed menu.
Important Information	➤ For details on creating applications from predefined templates, see "Application Templates" on page 297. ➤ When you create a new SOAP application, default SOAP faults are automatically added to the application. For details on the user interface, see "Edit SOAP Fault Event Page" on page 347. ➤ If an application or session passes through more than one server, for example in the case of load balancing or server delegation, only the first server listed in the session is reported. ➤ If an application or session includes resources from more than one server, for example images in a page coming from a separate image server, these resources are not always correlated for statistical purposes as in some cases, they do not contain the session identifier. ➤ For details on creating and editing TCP applications, see "New/Edit TCP Application Page" on page 377.
Included in Tasks	"Set up Real User Monitors – Workflow" on page 315

The section includes the following topics:

- "Main Settings" on page 398
- "Application Location Settings" on page 399
- "Parameter Extraction" on page 401
- "User Name Detection" on page 402
- "Session Identification" on page 406
- "Page Names Configuration" on page 407
- "Snapshot Collection Settings" on page 409
- "Session Properties" on page 411
- "Sensitive Data Settings" on page 412
- "Operation Detection" on page 413
- "Advanced Settings" on page 415
- "TCP Settings" on page 415

Main Settings

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

GUI Element (A–Z)	Description
Application type	Displays the template type for applications configured using a predefined template, **Generic** for Web applications configured without using a predefined template, or **SOAP** for SOAP applications configured without using a predefined template.
Collect application clickstream	Select the **Collect application clickstream** 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:** Disabling the application clickstream results in snapshots of the pages and events not being available for viewing in the Session Analyzer report.
Enable	Select the **Enable** check box to enable monitoring for the application, or clear the check box to disable monitoring. **Default value:** Enabled
Name	Enter the name you want to assign the application. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and ` **~ ! @ # $ % ^ & ( ) _ - { } <space>**. **Note:** The name must be unique.
Page time threshold	Configure the page time threshold, in seconds, to be used as default for all pages being monitored as part of the application. **Default value:** 8 seconds

GUI Element (A–Z)	Description
Probe	Select the probes to be used in monitoring the application. Use the CTRL key to select multiple probes, or choose **All** to select all the probes within the Real User Monitor engine. **Default value:** All
Protocol	Displays the application's communication protocol.
Server time threshold	Configure the server time threshold, in seconds, to be used as default for all pages being monitored as part of the application. **Default value:** 2 seconds
Unify frames	Select the **Unify frames** check box to configure Real User Monitor 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 Real User Monitor to record pages without a breakdown of their parts. For details on this topic, see "Frame Unification" on page 295. **Default value:** Disabled **Note:** This setting is applicable to Web applications only.

Application Location Settings

Description	Enables you to configure the application server IP addresses and ranges, and their ports, as well as the URLs in which an application is located.
Important Information	If you configure both application server IP addresses and URLs for an application, Real User Monitor only matches traffic that goes to both a configured IP address and a configured URL.

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

GUI Element (A–Z)	Description
	Click to delete a selected application server IP address or URL from the list.
	Click to edit a selected URL from the list.
<Left check box>	Select the check box to the left of an application server IP address or URL to select it for deletion when you click the **Delete** button.
IP Range	Enter the IP address, or IP range, of application servers you want to associate with the application you are defining. **Syntax exceptions:** A single IP address is entered as is and ranges are separated by a dash (-). For example, a range of IP addresses is entered as **110.132.10.96-110.132.10.99**.
New Application URL	Click the **New Application URL** button to open the URL Builder, where you configure a URL that you want to associate with the application you are defining. The URL appears in the list of Application URLs. Repeat this procedure for each URL you want to add to the list. For details on the URL Builder, see "URL Builder Dialog Box" on page 421. **Important:** Including a URL in more than one application causes erratic and incorrect monitoring results.
New IP Range	Click the **New IP Range** button to add details of new application servers you want to associate with the application you are defining. Repeat this procedure for each application server, or range of servers, you want to add. **Important:** Associating an application server with more than one application causes erratic and incorrect monitoring results.

GUI Element (A–Z)	Description
Ports	Enter the port, or port range, of the IP range you are configuring for the application servers. **Default Value:** For HTTP communications the default port number is 80 and for HTTPS communications it is 443. **Syntax exceptions:** A single port number is entered as is and ranges are separated by a dash (-). For example, a range of port numbers is entered as ***96-99***.
SSL	Select the **SSL** check box if the application server uses SSL communications, or clear the check box for regular communications. **Default value:** Disabled **Note:** If the default value for the port number is used, it changes between 443 and 80 when this check box is selected or cleared.

Parameter Extraction

Description	Enables to you to define new parameters that are added to a page's URL and from where to extract data to be used as the parameter value.
Important Information	You can add a maximum of 25 parameters to an application.

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

GUI Element (A–Z)	Description
	Click to delete a selected parameter extraction configuration from the list.
<Left check box>	Select the check box to the left of a parameter extraction configuration to select it for deletion when you click the **Delete** button.

GUI Element (A–Z)	Description
Content	Displays the contents of configured parameters according to the selected parameter type.
Extract From	Displays from where data for the configured parameter is extracted—the request or the response.
Extract HTTP method	Select the **Extract HTTP method** check box to configure Real User Monitor to extract the HTTP method name and add it to a page's URL as a parameter called **HTTPMethodName**.
Name	Displays the names of configured parameters.
New Parameter	Click the New Parameter button to open the Add Extraction Parameter dialog box, where you configure the new parameter you want to add. For details on the user interface, see "Add Extraction Parameter Dialog Box" on page 336.
Type	Displays the extracted parameter type.

User Name Detection

Description	Enables you to stipulate 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	You can configure multiple settings in which to search for a user name. Real User Monitor uses the first user name located and once a user name is located, additional areas are not searched.

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

GUI Element (A–Z)	Description
	Click the up or down arrow button to change the order of a selected user name detection setting in the list.
	Click to delete a selected login page URL, or user name detection setting from the list.
<Left check box>	Select the check box to the left of a login page URL, or user name detection setting to select it for deletion when you click the **Delete** button.
Advanced Criteria	Click the **Advanced Criteria** button to open the Advanced Finding and Retrieving dialog box, where you can enter the regular expression that represents the string within which you want Real User Monitor to locate the user name. **Note:** The Advanced Criteria button is enabled only when the **Advanced options** radio button is selected.
Advanced options	Select the radio button to enable you to configure a regular expression that represents the string within which you want Real User Monitor to locate the user name.
Between...and	Select the radio button to enable you to configure the strings between which the user name can be located. Enter the strings in the **Between** and **and** text boxes. **Note:** If you select **Parameter** in the **Search in** field, the **Between** and **and** text boxes are irrelevant and are disabled.
Field/Tag/Parameter	If you select **HTTP header**, **Content**, or **Parameter** in the **Search in** field, enter the specific HTML tag, header parameter, or parameter within which the user name can be located. **Tip:** To configure the user name search settings for a Siebel application, select **Parameter** in the **Search in** field, and enter **SWEUserName** in this field.

GUI Element (A–Z)	Description
New	Click the **New** button to configure additional user name detection settings.
New Login Page URL	Click the **New Login Page URL** button to open the URL Builder Dialog Box, where you configure the URL that you want to include in the Login Page URL list. For details on the URL Builder, see "URL Builder Dialog Box" on page 421. **Note:** The **New Login Page URL** button is enabled only if you select the **Scan login pages** radio button.
Scan all pages	Select the radio button to configure Real User Monitor to search for the user name in all the pages associated with the application. **Note:** For more efficient performance, it is recommended to configure specific login pages to be searched rather than configuring Real User Monitor to search all pages.
Scan login pages	Select the radio button to configure Real User Monitor to search for the user name in specific login pages that you define. **Note:** For more efficient performance, it is recommended to configure specific login pages to be searched rather than configuring Real User Monitor to search all pages.

GUI Element (A–Z)	Description
Search in	Select the string in which you want Real User Monitor to locate the user name: **All Parameters, HTTP header**, **Content**, or **Parameter** (for a single parameter).
Use name translation file	Select the **Use name translation file** check box to configure Real User Monitor to translate the user name it locates. **Note:** A name translation file called **UserLoginNames.csv** must be located in the **<Real User Monitor engine root directory>\conf\resolver** directory on the Real User Monitor engine machine. For details on this topic, see "User Name Translation" on page 311. **Default value:** For SOAP applications, the Web Services file (ws.xml) is automatically selected.

Session Identification

Description	Enables you to configure where to search for the session ID of the application you are defining. If no session ID is configured, Real User Monitor uses the client's IP address and port number by default.

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

GUI Element (A–Z)	Description
	Click to delete a selected session ID search.
<Left check box>	Select the check box to the left of a session ID search configuration to select it for deletion when you click the **Delete** button.
Advanced Criteria	Click the **Advanced Criteria** button to open the Advanced Finding and Retrieving dialog box, where you define a regular expression you wish to use for locating the session ID.
Advanced options	Click the **Advanced options** radio button to enable the **Advanced Criteria** button.
Between...and	Enter strings within the parameter between which the session ID is located, if applicable.
In application type	Select the application type that is the same as, or similar to, the type of application you are defining. The parameter in which Real User Monitor searches for the session ID is automatically displayed in **Search in Header fields...**. If the application you are defining does not match one of the default types listed, select **User defined application** to stipulate your own session identification parameters.

GUI Element (A–Z)	Description
New	Click the **New** button to configure additional parameters in which to search for the session ID, if it is not located in previously searched parameters.
Search in Header fields...	If you select a default type of application in **In application type**, the parameter in which Real User Monitor searches for the session ID is displayed. If you select **User defined application** in **In application type**, enter the name of the parameter in which the session ID is located. This parameter is searched for in Header fields, Parameters and Content tags.

Page Names Configuration

Description	Enables you to configure how names are assigned to pages that have not been configured in End User Management Administration. You can specify an XML file to be used by the application to assign meaningful names to pages, and can also configure the application to use page titles as names. For details on assigning meaningful names to pages and configuring an XML file, see "Configuring Meaningful Page Names" in the *Real User Monitor Administration* PDF.
Important Information	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.

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

GUI Element (A–Z)	Description
Page Names 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. **Note:** ➤ The full file name including the extension (.xml) must be entered. ➤ The files are located on the Real User Monitor engine machine in the **<HPRUM>\conf\ resolver\meaningful_pages** directory.
Use page title for pages without an assigned name	Select this check box to enable the application to use page titles when assigning names to pages.

Snapshot Collection Settings

Important Information	If both **Session snapshot on event** and **Snapshot on event** are enabled, **Session snapshot on event** is used.

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

GUI Element (A–Z)	Description
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 Real User Monitor probe machine. Retrieving resources from the Real User Monitor 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
Save request snapshot	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. **Note:** This setting is applicable to SOAP applications only. **Default value:** Enabled

GUI Element (A–Z)	Description
Session snapshot on event	Select this check box to enable snapshots to be made of all the pages from the beginning of a session, up to and including the page on which a text event, global HTTP error, or SOAP fault that has been configured for session snapshots, occurs. Saving all the pages from the beginning of a session enables more accurate frames unification, thus improving session replay, but may adversely affect Real User Monitor probe performance. **Note:** For snapshots of all the pages from the beginning of a session to be saved by Real User Monitor, 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.
Snapshot on event	Select this check box to enable snapshots to be made of pages on which text events, global HTTP errors, or SOAP faults that have been configured for snapshots occur. Clear the check box to disable snapshots of event pages in the application. If you select this check box, enter the number of pages back for which snapshots should be made when an event occurs, including the event page itself. Using any number greater than one may adversely affect Real User Monitor probe performance. **Note:** For snapshots to be reported by Real User Monitor, the **Snapshot on Event** check box must also be enabled in the Real User Monitor engine, and 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.

GUI Element (A–Z)	Description
Snapshot on transaction detection	Select this check box to configure a transaction snapshot collection schedule. Transaction snapshots can be viewed when displaying session details in the Session Analyzer report and are used to include the monitored real-user transactions in a VuGen script generated from the Business Process Distribution Report. If you select this check box, configure whether you want to collect transaction snapshots immediately, during a single interval or at various points throughout the monitoring process, by clicking one of the following radio buttons: ➤ **Run now.** If you select this option, specify the number of hours and minutes for which you want Real User Monitor to collect transaction snapshots. ➤ **Run every.** If you select this option, specify the days of the week, as well as the time and duration, for which you want to schedule Real User Monitor transaction snapshot collection. **Note:** When transaction snapshot collection is configured, a significant amount of data is generated. Ensure that the duration for which transaction snapshots are collected is not excessive so that Real User Monitor is not overloaded. **Default value:** Disabled

Session Properties

Description	Enables you to configure session properties to be tagged by Real User Monitor. The tags can be used to filter sessions included in the Session Analyzer report and to view the tagged properties for a session when viewing the session details.
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.

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

GUI Element (A–Z)	Description
	Click to delete a selected session property.
<Left check box>	Select the check box to the left of a session property to select it for deletion when you click the **Delete** button.
New Session Property	Click the **New Session Property** button to configure a new session property for the application. The **Session Property** dialog box opens. For details, see "Session Property Dialog Box" on page 419.
Session Property	Lists the configured session properties for the application.

Sensitive Data Settings

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

GUI Element (A–Z)	Description
	Click to delete a selected sensitive data configuration.
<Left check box>	Select the check box to the left of a sensitive data configuration to select it for deletion when you click the **Delete** button.
Include only the following	Enter the parameters that you want Real User Monitor to include in the page URLs that appear in Real User Monitor reports. All other parameter values are replaced with a series of asterisks (***). **Note:** ➤ You must select the radio button to the left of this field to be able to enter parameters. ➤ Use semicolons to separate the parameters you enter in this box.

GUI Element (A–Z)	Description
New Sensitive Data	Click the **New Sensitive Data** button to configure a new sensitive data setting for the application. The **Sensitive Data** dialog box opens. For details, see "Sensitive Data Dialog Box" on page 418.
Omit the following	Enter any HTTP POST and/or GET parameters (such as password parameters) that you want to exclude from the page URLs that appear in Real User Monitor reports. These parameter values are replaced with a series of asterisks (*******). **Note:** ➤ You must select the radio button to the left of this field to be able to enter parameters. ➤ Use semicolons to separate the parameters you enter in this box.
Sensitive Data	Lists the configured sensitive data settings.

Operation Detection

Important Information	This pane is applicable to SOAP applications only.

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

GUI Element (A–Z)	Description
Operation name detection method	Select 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. 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 paramater extraction keys, see "Parameter Extraction" on page 401. For details on configuring page names, see "Page Names Configuration" on page 407. For details on creating page name configuration files, see the *Real User Monitor Administration* PDF. **Default value:** Automatic

Advanced Settings

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

GUI Element (A–Z)	Description
HTTP parameter values to include for most popular pages	Enter any HTTP POST and/or GET parameters (such as session ID, or time stamp) that Real User Monitor should include as part of the page request, when assessing the pages that received the highest number of hits for inclusion in the Global Statistics report's Most Popular Pages table. Use semicolons to separate the parameters you enter in this box.
Trigger Performance event on page time	Select this radio button to configure Real User Monitor to trigger a performance event when the configured page time threshold is breached. **Note:** The following page time thresholds are used: ➤ **Page configuration page time threshold.** For configured pages in the application. ➤ **Application configuration page time threshold.** For unconfigured pages in the application.
Trigger Performance event on server time	Select this radio button to configure Real User Monitor to trigger a performance event when the configured server time threshold is breached. **Note:** The following server time thresholds are used: ➤ **Page configuration server time threshold.** For configured pages in the application. ➤ **Application configuration server time threshold.** For unconfigured pages in the application.

TCP Settings

Description	Configure the TCP settings to be used for the Web or SOAP application.

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

GUI Element (A–Z)	Description
Collect poor request data	Select the **Collect poor request data** check box to configure Real User Monitor 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 details on the user interface, see "TCP Poor Requests Summary Report" on page 655 and "TCP Requests Analyzer Report" on page 662.
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 requests capture	Select the **Enable requests capture** check box to configure Real User Monitor to take snapshots of TCP requests that have network errors. **Note:** ➤ This check box is enabled only if you have selected 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 snippet	Select the **Enable requests snippet** check box to configure Real User Monitor 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 have selected the **Collect poor request data** check box.
Enable TCP	Select the **Enable TCP** check box to configure Real User Monitor to collect TCP data for the Web application.

GUI 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 have selected 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%

Sensitive Data Dialog Box

Description	The dialog box used to configure sensitive data to be removed from page content that is shown in page snapshots by Real User Monitor. **To Access:** Click the **New Sensitive Data** button in the **Advanced Settings** panel, when configuring an application.

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

GUI Element (A–Z)	Description
Advanced Criteria	Click the **Advanced Criteria** button to open the Advanced Finding and Retrieving dialog box, where you can enter the regular expression from which to remove sensitive data. In the **Scan for (Regular Expression)** box, enter the regular expression that represents the string within which you want Real User Monitor to replace sensitive data. In the **Remove** box, enter the phrase representing the objects to be removed. **Note:** This button is enabled only after you select the radio button next to it.
Enable	Select this check box to enable the sensitive data configuration, or clear the check box to disable it. **Default value:** Enabled
Remove any value between the expressions.....and	Enter the expressions between which sensitive data is removed. **Note:** These fields are enabled only after you select the radio button next to them.

Session Property Dialog Box

Description	The dialog box used to configure a new session property for an application. **To Access:** Click the **New Session Property** button in the **Session Properties** panel, when configuring an application.
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.

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

GUI Element (A–Z)	Description
Advanced Criteria	Click the **Advanced Criteria** button to open the Advanced Finding and Retrieving dialog box, where you can enter the regular expression that represents the string for Real User Monitor to find to tag the session, and configure the data to retrieve as the session property value. **Note:** This button is enabled only after you select the radio button next to it.
Enable	Select this check box to enable the session property configuration, or clear the check box to disable it. **Default value:** Enabled
Field/Tag/Parameter	Enter the specific HTML tag, header field, or paramater in the search area configured in the **Search in** field. For details on Session Property search settings, see “Session Property Search Settings” on page 311.
Name	Enter the name of the session property.

GUI Element (A–Z)	Description
Save any value between the expressions.....and	Enter the **<to>** and **<from>** expressions in the search area, between which the required session property value is located. For details on Session Property search settings, see "Session Property Search Settings" on page 311. **Note:** This field is enabled only after you select the radio button next to it.
Search in	Select the search area in which you want Real User Monitor to look for the expressions between which the required session property value is located. Valid options are: ➤ **header** ➤ **content** ➤ **get/post parameters**. For details on Session Property search settings, see "Session Property Search Settings" on page 311.

URL Builder Dialog Box

Description	Configure a URL using its composite parts when configuring Real User Monitor engine settings, applications, pages and events. **To access:** ➤ When configuring a Real User Monitor engine's general settings, in the **Session Reset Settings** panel click the **New Session Delimiter URL** button. ➤ When configuring an application: ➤ in the Application **Location Settings** panel, click the **New Application URL** button. ➤ in the **User Name Detection** panel, click the **New Logon Page URL** button. ➤ When configuring an Error Page event, click the **URL Builder** button in the **Main Settings** panel. ➤ When configuring a page, click the **URL Builder** button in the **Main Settings** panel.

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

GUI Element (A–Z)	Description
	Click to delete a selected parameter.
Add New Parameter	Click the **Add New Parameter** button to add additional parameters.
Apply	Click the **Apply** button to break down the URL into its five components–protocol, host, port, path, and parameters. **Note:** Once you click the **Apply** button and the URL is broken down into its parts, you cannot edit the URL directly in the **URL** box, but do so by editing the individual components. Any change to the individual components is automatically updated and displayed in the full URL in the **URL** box.

GUI Element (A–Z)	Description
Encode & Save	Click the **Encode & Save** button to convert the URL into UTF-8 format and save it in your configuration. **Note:** URL matching is affected by the encoding of recorded and configured URLs. For recorded and configured URLs to match, they must have the same encoding.
Host	Enter the URL host, which is the name of the machine on which the file, or resource, that you wish to access via the URL resides.
Name	Enter the name of the parameter.
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. ➤ **Those 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 **Those parameters listed below as well as other parameters**, you must configure specific parameters.

GUI Element (A–Z)	Description
Port	Enter the port number used to connect to the URL host machine. If no port is specified, a default port number is used. The default port when using the HTTP protocol is 80 and when using the HTTPS protocol, the default port is 443. The asterisk wildcard character can be used. For example, if you enter 44* as the URL port, any port that begins with 44 can be correlated with the configured URL. **Note:** The asterisk wildcard character cannot be used in the URL port when defining 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.
Save	Click the **Save** button to save the URL without any encoding. By saving a URL without UTF-8 encoding, you can define a URL that is externally encoded by a different encoding scheme. **Note:** URL matching is affected by the encoding of recorded and configured URLs. For recorded and configured URLs to match, they must have the same encoding.
Type	Select **All** to include all values of the parameter, or = to include only a specific parameter value.

GUI 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. You can use wildcards when defining a URL. For details, see "URL Wildcards" on page 300. **Syntax exceptions:** The URL cannot exceed 1000 characters and cannot include the # sign followed by an asterisk (**#***).
URL Path	Enter the URL path to the file, or resource, that you wish 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.
Value	If you chose to include only a specific parameter value (by selecting = in the Type field), enter the specific value. **Note:** The asterisk wildcard (*****) can be used in a parameter value.

6

Real User Monitor Reports

This chapter provides information on Real User Monitor reports.

This chapter includes:

Concepts

- Real User Monitor Reports Overview on page 426
- Aggregating Real User Monitor Data on page 429
- Drilling Down Within Real User Monitor Reports on page 430
- Viewing Data for Different Application Types in Real User Monitor Reports on page 430
- Viewing Session Details in the Session Analyzer Report on page 437
- Viewing HP Diagnostics Data From Real User Monitor Reports on page 438
- Viewing TransactionVision Data From Real User Monitor Reports on page 440
- Viewing HP Network Node Manager Data From Real User Monitor Reports on page 443
- Displaying End-User Names in Reports on page 445
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Tasks

- Customize Real User Monitor Reports on page 448

Reference

- HTTP Error Codes on page 451
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Troubleshooting and Limitations on page 704

Real User Monitor Reports Overview

Real User Monitor reports enable you to monitor the experience of real users that access your application, regardless of the location of these users. This helps you track real-user performance and availability, and assess the business impact of your application on real users across multiple domains and geographical regions.

Note: The **Real User** tab (for Real User Monitor reports) in the End User Management application, is only visible when you log in to HP Business Availability Center after having configured at least one Real User Monitor engine in End User Management Administration. For details on configuring a Real User Monitor engine in End User Management Administration, see "New/Edit Real User Monitor Engine Page" on page 367.

The following are the main Real User Monitor reports:

Global Statistics

The Global Statistics report contains tables displaying general page, end-user, and broken link data that is not related to the specific pages and end users that you define for Real User Monitor in End User Management Administration. To configure monitoring settings for Global Statistics report data, see "Edit General Settings Page" on page 338. For details, see "Global Statistics Report" on page 540.

Page Summary

The Page Summary report displays data for the monitored Web pages that you configure in End User Management Administration. For information on configuring Web pages to be monitored, see "New/Edit Page" on page 359. For details, see "Page Summary Report" on page 563.

Transaction Summary

The Transaction Summary report displays data for monitored transactions that you configure in End User Management Administration. For information on configuring transactions to be monitored, see "New/Edit Transaction Page" on page 387. For details, see "Transaction Summary Report" on page 679.

End User Summary

The End User Summary report displays data for monitored end-user groups that you configure in End User Management Administration. For information on configuring end-user groups to be monitored, see "New/Edit End-User Group Page" on page 349. For details, see "End User Summary Report" on page 489.

Server Summary

The Server Summary report displays data for the servers that are monitored by the Real User Monitor probe. For information on configuring the probe to monitor specific servers, see "New/Edit Probe Page" on page 365. To assign a specific name to a monitored server, see "New/Edit Server Name Page" on page 372. For details, see "Server Summary Report" on page 600.

Session Analyzer

The Session Analyzer report displays data for all sessions in monitored applications that you configure in End User Management Administration. Sessions in applications that have not been configured for monitoring are also reported as part of a default entity for other applications in the Real User Monitor engine. For information on configuring applications to be monitored, see "New/Edit Web or SOAP Application Page" on page 396. For details, see "Session Analyzer Report" on page 612.

Event Count Over Time

The Event Count Over Time report displays data for all events in monitored applications that you configure in End User Management Administration, broken down by time intervals. For information on configuring applications to be monitored, see "New/Edit Web or SOAP Application Page" on page 396. For details, see "Event Count Over Time Report" on page 528.

Event Summary

The Event Summary report displays a summary of events in monitored applications that you configure in End User Management Administration. For information on configuring applications to be monitored, see "New/Edit Web or SOAP Application Page" on page 396. For details, see "Event Summary Report" on page 534.

TCP Application Summary

The TCP Application Summary report displays data for the TCP applications you configure in End User Management Administration. For information on configuring TCP applications to be monitored, see "New/Edit TCP Application Page" on page 377. For details, see "TCP Application Summary Report" on page 641.

Business Process Distribution

The Business Process Distribution report shows transaction run and transaction response time data over time for the transactions that you configure in End User Management Administration. For information on configuring transactions to be monitored, see "New/Edit Transaction Page" on page 387. For details, see "Business Process Distribution Report" on page 470.

Note: You can also create custom reports and trend reports using Real User Monitor data. For details on creating these reports, see "Custom Report Wizard" in *Reports*.

Aggregating Real User Monitor Data

The Real User Monitor engine sends data samples to Business Availability Center, which aggregates the data for use in Real User Monitor reports. For details on Business Availability Center data aggregation, see "Data Aggregation" in *Reference Information*.

There are nine data sample types that the Real User Monitor engine aggregates itself, before sending them to Business Availability Center. Once received in Business Availability Center, these pre-aggregated data samples are further aggregated by Business Availability Center on a daily basis. The following table lists the data sample types, the Real User Monitor report for which they are used, and their aggregation period in Real User Monitor:

Data Sample Type	Real User Monitor Report	Aggregation Period in Real User Monitor
Top Domain	Global Statistics	Every hour
Top Page	Global Statistics	Every hour
Missing Component	Global Statistics	Every five minutes
Page with Most Errors	Global Statistics	Every five minutes
Slow Domain	Global Statistics	Every five minutes
Slow Page	Global Statistics	Every five minutes
Domain	End User Summary	Every five minutes
Page	Page Summary	Every five minutes
Server	Server Summary	Every five minutes

You can change the aggregation period of these data sample types in the Real User Monitor engine JMX console. For details on changing the aggregation period, see "Using the HP Real User Monitor JMX Console" in the *Real User Monitor Administration* PDF.

Drilling Down Within Real User Monitor Reports

In each of the reports, except the Global Summary report, it is possible to drill down to view more detailed information about end-user groups, pages, events, transactions, servers, and sessions, depending on the specific report. To drill down within a report, click a specific row in the report to select it and then click the required drilldown button.

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 455.

Viewing Data for Different Application Types in Real User Monitor Reports

In a number of Real User Monitor reports, the availability of certain tabs, graphs, tables, and data depends of the types of the applications for which the report is generated—Web (HTTP) or SOAP only, Web (HTTP) or SOAP with TCP settings, TCP request-response, or TCP streaming. If you generate a report for more than one type of application, only data that is common to all the selected application types is displayed.

When you generate the **End-user Summary**, **Server Summary**, **End-user Over Time**, **Server Over Time**, and **Unconfigured End Users** reports for a combination of pure Web (HTTP) or SOAP applications and Web (HTTP) or SOAP applications with TCP settings, by default certain HTTP data is not displayed (HTTP latency, HTTP traffic, and HTTPS traffic). You can configure HP Business Availability Center to display such data in these situations. To configure HP Business Availability Center to display the HTTP data, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Applications**, select **End User/System Availability Management**, and locate the **Show HTTP-based measurements when TCP enabled** entry in the **Display** table. Modify the value to **True**.

For details on creating Web and SOAP applications, see "New/Edit Web or SOAP Application Page" on page 396. For details on creating TCP applications, see "New/Edit TCP Application Page" on page 377.

This section includes the following topics:

- "End-user and Server Summary Reports and Unconfigured End Users Reports" on page 431
- "Server Over Time Report" on page 432
- "End-user Over Time Report" on page 434
- "TCP Application Summary Report" on page 435
- "TCP Application Over Time Report" on page 436

End-user and Server Summary Reports and Unconfigured End Users Reports

The End-user and Server Summary reports, as well as the Unconfigured End Users reports, group and display data in different tabs—HTTP, Request-Response, and Network Connections. The availability of these tabs depends on the type of applications for which you generate the report. The following table describes which tabs are available for the different application types:

Report Tab	Web (HTTP) or SOAP only	Web (HTTP) or SOAP with TCP settings	TCP Request-Response	TCP Streaming
HTTP	✔	✔		
Request-Response		✔	✔	
Network		✔	✔	✔

For details on the End-user Summary report, see "End User Summary Report" on page 489. For details on the Server Summary report, see "Server Summary Report" on page 600. For details on the Unconfigured End Users reports, see "Unconfigured End Users by Country/State, City, or IP" on page 690.

Server Over Time Report

The Server 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 Element	Web (HTTP) or SOAP Only	Web (HTTP) or SOAP with TCP Settings	TCP Request-Response	TCP Streaming
Component Hits Over Time graph	✔			
HTTP Traffic Over Time graph	✔			
Server Availability Over Time graph – application data	✔	✔		
Server Availability Over Time graph – connection data		✔	✔	✔
Server Requests Over Time graph		✔	✔	
TCP Server Errors Over Time graph		✔	✔	✔
Traffic Throughput Over Time graph – application traffic		✔	✔	✔

Report Element	Web (HTTP) or SOAP Only	Web (HTTP) or SOAP with TCP Settings	TCP Request-Response	TCP Streaming
Traffic Throughput Over Time graph – TCP layer traffic		✔	✔	✔
HTTP Table	✔	✔		
Request-Response Table			✔	
Network Connections Table		✔	✔	✔

Note: If you generate the Server Over Time report for a combination of pure Web (HTTP) or SOAP applications and Web (HTTP) or SOAP applications with TCP settings, the Component Hits Over Time graph is displayed.

For details on the Server Over Time report, see “Server Over Time Report” on page 588.

End-user Over Time Report

The End-user 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 and tables are available for the different application types:

Report Element	Web (HTTP) or SOAP Only	Web (HTTP) or SOAP with TCP Settings	TCP Request-Response	TCP Streaming
Application Traffic Over Time		✔	✔	✔
HTTP Traffic Over Time graph	✔			
Latency Over Time Graph	✔	✔	✔	✔
Page Hits Over Time graph	✔	✔		
Pages with Events Over Time graph	✔	✔		
Requests Over Time graph		✔	✔	
TCP Errors Over Time graph		✔	✔	✔
HTTP table	✔	✔		
Network Connections table		✔	✔	✔
Request-Response table		✔	✔	

Note: If you generate the End-User Over Time report for a combination of pure Web (HTTP) or SOAP applications and Web (HTTP) or SOAP applications with TCP settings, by default the **Latency Over Time** and **HTTP Traffic Over Time** graphs are not displayed. For details on configuring HP Business Availability Center to display the Latency Over Time and HTTP Traffic Over Time graphs in such situations, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430.

For details on the End-user Over Time report, see "End User Over Time Report" on page 476.

TCP Application Summary Report

The TCP Application Summary report groups and displays data in different tabs—General, Availability, and Performance. The availability of these tabs depends on the type of applications for which you generate the report. The following table describes which tabs are available for the different application types:

Report Tab	Web (HTTP) or SOAP with TCP settings	TCP Request-Response	TCP Streaming
General	✔	✔	✔
Availability	✔	✔	✔
Performance	✔	✔	

Note: In the General tab for TCP streaming applications, the Average Response Time, Average Server Time, and Total Requests columns are displayed with a dash (-) as the value.

For details on the TCP Application Summary report, see "TCP Application Summary Report" on page 641.

TCP Application Over Time Report

The TCP Application 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 Element	Web (HTTP) or SOAP with TCP Settings	TCP Request-Response	TCP Streaming
Throughput Over Time graph	✔	✔	✔
TCP Errors Over Time graph	✔	✔	✔
Application Load Over Time graph	✔	✔	
Response Time Breakdown Over Time graph	✔	✔	
Network Connections table	✔	✔	✔
Request-Response Application table	✔	✔	

For details on the TCP Application Over Time report, see "TCP Application Over Time Report" on page 631.

Viewing Session Details in the Session Analyzer Report

When you view session details from the 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 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 Session Analyzer report for the same session.

When viewing session details, all the pages 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 End User Management 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 Business Availability Center 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 Business Availability Center. You run the 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 pages configured in End User Management Administration as being part of the application.
- When clicking on the breadcrumb to return to the Session Analyzer report, the report is not regenerated and the original Session Analyzer report is redisplayed.

Viewing HP Diagnostics Data From Real User Monitor Reports

If HP Diagnostics has been registered and enabled on your HP Business Availability Center system, you can drill down to the HP Diagnostics server to view a snapshot of server requests for specific pages from some of the Real User Monitor reports. The following table lists the applicable Real User Monitor reports and describes the data included in the HP Diagnostics snapshot:

Real User Monitor Report	Data included in the HP Diagnostics Snapshot
Session Details	Server request instance details for the corresponding URL of the given clickstream page.
Page Summary	Server request instance details for the corresponding URL in the given time period.
Page Over Time	
End Users by Page	
Servers by Page Summary	
Pages by Server Summary	

For details on working with the HP Diagnostics snapshot, see the *HP Diagnostics User's Guide*.

The following notes and limitations apply when drilling down to HP Diagnostics:

- The drilldown button to HP Diagnostics in the Real User Monitor reports is enabled only if you have registered and enabled HP Diagnostics in HP Business Availability Center. To register and enable HP Diagnostics in HP Business Availability Center, select **Admin** > **Diagnostics**.
- The drilldown button to HP Diagnostics in the Real User Monitor reports is not visible if the application for which you generated the report is not configured to collect clickstream data in End User Management Administration.

- The data displayed in the HP Diagnostics snapshot is data aggregated by URL, whereas the data displayed in the Real User Monitor reports is data aggregated by time, except in the Session Analyzer and Session Details reports which use raw data.
- If the URL of a page you have configured for monitoring in End User Management Administration has passed through a Web server that uses URL rewriting, the URL in Real User Monitor differs from the corresponding URL 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 URL of a page in Real User Monitor has multiple corresponding URLs in HP Diagnostics. In such a case, when you drill down to the HP Diagnostics snapshot all the corresponding URLs are displayed, but only one of those URLs is selected.
- Parameter aggregation is enabled by default in the Diagnostics Probe points file. To obtain an exact match in HP Diagnostics for a Real User Monitor URL 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 that you are drilling down from in the Real User Monitor 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.
- 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 *HP Diagnostics User's Guide*.
- You are unable to drill down to view HP Diagnostics data from the Session Details report if the Session Viewer window is open. To overcome this problem, close the Session Viewer window. For details on the Session Viewer, see "Session Viewer Page" on page 621.

Viewing TransactionVision Data From Real User Monitor Reports

If TransactionVision has been deployed on your HP Business Availability Center system, you can drill down to the TransactionVision Transaction Tracking report for specific pages from some of the Real User Monitor reports. For details on working with the TransactionVision Transaction Tracking report, see the TransactionVision documentation.

This section includes the following topics:

- "Real User Monitor Reports With Drilldown to TransactionVision" on page 440
- "Notes and Limitations" on page 441

Real User Monitor Reports With Drilldown to TransactionVision

The following table lists the applicable Real User Monitor reports and describes the data included in the TransactionVision Transaction Tracking report:

Real User Monitor Report	Data included in the HP TransactionVIsion Transaction Tracking Report
Session Analyzer	All the pages included in the selected session. Note: To view details of the pages within a session in TransactionVision's Transaction Tracking report, Real User Monitor must send events data to TransactionVision. For details, see "Notes and Limitations" on page 441.
Session Details	The selected page hit only.

Real User Monitor Report	Data included in the HP TransactionVIsion Transaction Tracking Report
Page Summary	Up to ten hits of the selected page that have the slowest server time in the given time period.
Page Over Time	
End Users by Page	
Servers by Page Summary	
Pages by Server Summary	

Notes and Limitations

The following notes and limitations apply when drilling down to TransactionVision:

- The drilldown button to TransactionVision in the Real User Monitor reports is enabled only if you have:
  - configured the TransactionVision drilldown URL in Business Availability Center. This is automatically configured by TransactionVision by running a setup program after the TransactionVision installation. For details, see the TransactionVision documentation.
  - enabled the Real User Monitor communication link for a project in the TransactionVision application in Business Availability Center, and have selected this project as the drilldown project. For details on enabling and selecting a project, see "Projects Page" in *Using TransactionVision*.
- The drilldown button to TransactionVision in the Real User Monitor reports is not visible if the application for which you generated the report is not configured to collect clickstream data in End User Management Administration.
- The data displayed in the TransactionVision Transaction Tracking report is raw data, whereas the data displayed in the Real User Monitor reports is aggregated data, except in the Session Analyzer and Session Details reports, which use raw data.
- If the application server handling a particular page is not monitored by TransactionVision Sensor, the drilldown button to TransactionVision is disabled.

- To view details of the pages within a session in TransactionVision's Transaction Tracking report,Real User Monitor must send events data to TransactionVision. To configure Real User Monitor to send events data to TransactionVision, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Foundations**, select **Integration with other applications**, and in the **TransactionVision** table, modify the following entries:
  - **HP TransactionVision URL for RUM Publishing.** The TransactionVision host and port number for Real User Monitor publishing.
  - **TransactionVision Basic Authentication Password.** The password used to access the TransactionVision host using basic authentication.
  - **TransactionVision Basic Authentication User Name.** The user name used to access the TransactionVision host using basic authentication.

Viewing HP Network Node Manager Data From Real User Monitor Reports

If you have configured a link in HP Business Availability Center to an HP Network Node Manager server, you can drill down to view HP Network Node Manager data from some of the Real User Monitor reports. In HP Network Node Manager 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 the HP Network Node Manager, see the HP Network Node Manager documentation.

To configure a link in HP Business Availability Center to an HP Network Node Manager server, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Foundations**, select **Integrations with other applications**, and modify the values in the following entries in the **HP NNM** table:

- **HP NNM Integration URL.** The protocol, host, and port number of the HP Network Node Manager server.
- **HP NNM User name.** The user name for accessing the HP Network Node Manager server.
- **HP NNM User password.** The password for accessing the HP Network Node Manager server.

The following table lists the Real User Monitor reports from which you can drill down to view HP Network Node Manager data and describes the relevant source and destination machines for which trace route data is displayed:

Real User Monitor Report	Source and Destination Machines
End User Over Time Report (for details, see "End User Over Time Report" on page 476).	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 HP Network Node Manager from this report only when it is generated for TCP applications, or Web applications with TCP data.
End User Summary Report (for details, see "End User Summary Report" on page 489).	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 HP Network Node Manager from this report only when it is generated for TCP applications, or Web applications with TCP data.
Page Over Time Report (for details, see "Page Over Time Report" on page 552).	The source and destination IP addresses with the worst network time for the selected page. If more than one page is included in the filter, the first page is used.
Page Summary Report (for details, see "Page Summary Report" on page 563).	The source and destination IP addresses with the worst network time for the selected page.
Session Analyzer Report (for details, see "Session Analyzer Report" on page 612).	The page server and session client IP addresses.
TCP Application Over Time Report (for details, see "TCP Application Over Time Report" on page 631).	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
TCP Application Summary Report (for details, see "TCP Application Summary Report" on page 641).	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 669).	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.
Transaction Summary Report (for details, see "Transaction Summary Report" on page 679).	The source and destination IP addresses with the worst network time for the selected transaction.

Displaying End-User Names in Reports

End-user group names are displayed in reports for end-user groups that have been configured in End User Management Administration. For details on configuring end-user groups in End User Management Administration, see "New/Edit End-User Group Page" on page 349. HP Business Availability Center 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 details on the End User Summary report, see "End User Summary Report" on page 489. For details on the Unconfigured End Users reports, see "Unconfigured End Users by Country/State, City, or IP" on page 690.

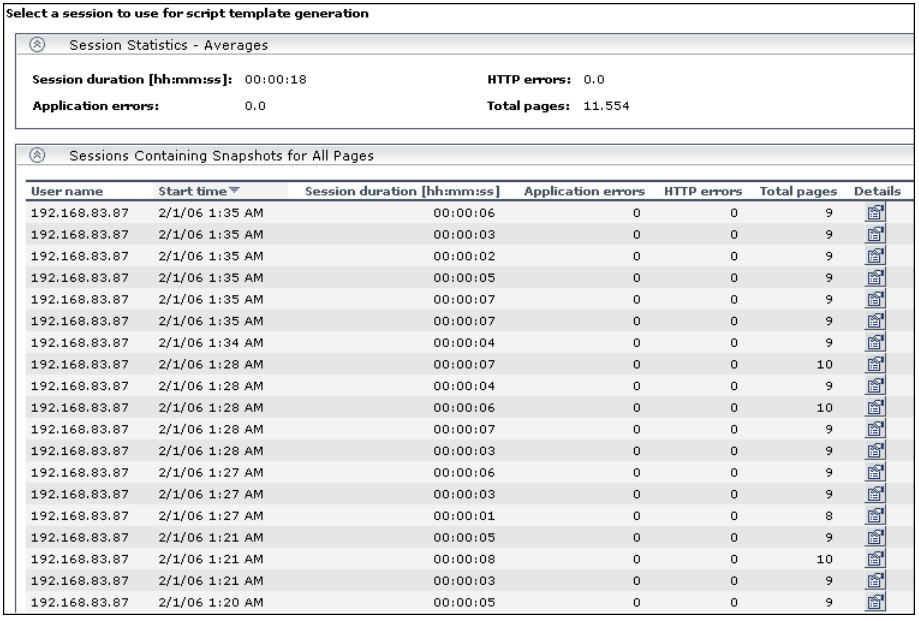
Note: If an IP range is included in both a predefined end-user group and an end-user group you configure, the end-user group you configure is used as the name in reports.

Analyzing the Business Process Distribution Report

You use the Business Process Distribution report to pinpoint the Real User Monitor transactions with the greatest number of runs and the highest session popularity. You then drill down in this report to view the individual sessions in which these transactions were run. You can also use the Business Process Distribution report to pinpoint the transactions that were problematic in terms of response time and availability and drill down so that you can isolate the sessions, and pages within the sessions, that were problematic.

To analyze the Business Process Distribution report:

1 Select a transaction, based on the total number of runs for the transaction as well as the transaction's session popularity (or response time/availability data), and click the **View Sessions** button. The Sessions page opens, displaying data for each session in which the selected transaction was run and a transaction snapshot was collected, as well as certain key statistic averages of all the displayed sessions.



Select a session to use for script template generation

Session Statistics - Averages

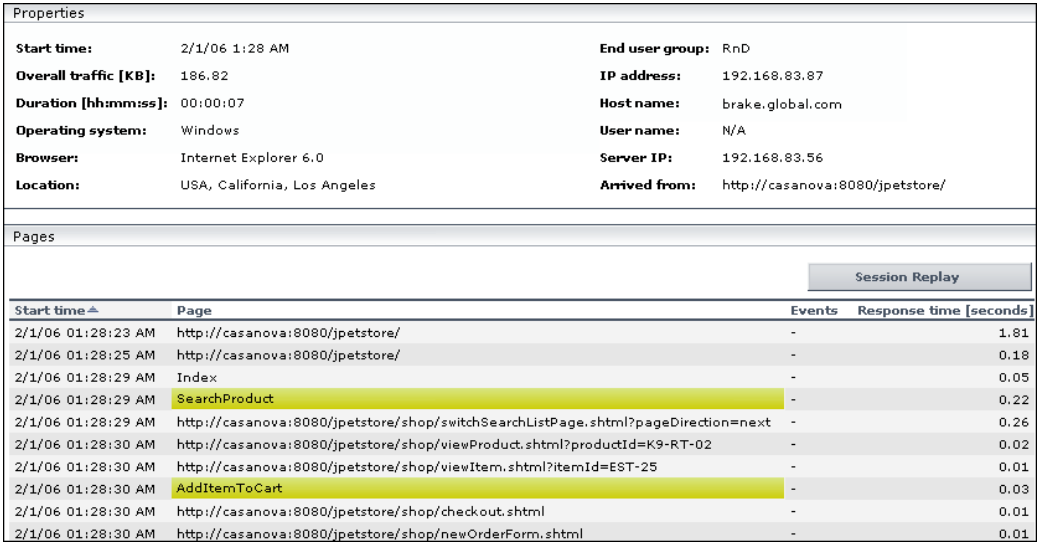
Session duration [hh:mm:ss]:	00:00:18	**HTTP errors:**	0.0
Application errors:	0.0	**Total pages:**	11.554

Sessions Containing Snapshots for All Pages

User name	Start time	Session duration [hh:mm:ss]	Application errors	HTTP errors	Total pages	Details
192.168.83.87	2/1/06 1:35 AM	00:00:06	0	0	9	
192.168.83.87	2/1/06 1:35 AM	00:00:03	0	0	9	
192.168.83.87	2/1/06 1:35 AM	00:00:02	0	0	9	
192.168.83.87	2/1/06 1:35 AM	00:00:05	0	0	9	
192.168.83.87	2/1/06 1:35 AM	00:00:07	0	0	9	
192.168.83.87	2/1/06 1:35 AM	00:00:07	0	0	9	
192.168.83.87	2/1/06 1:34 AM	00:00:04	0	0	9	
192.168.83.87	2/1/06 1:28 AM	00:00:07	0	0	10	
192.168.83.87	2/1/06 1:28 AM	00:00:04	0	0	9	
192.168.83.87	2/1/06 1:28 AM	00:00:06	0	0	10	
192.168.83.87	2/1/06 1:28 AM	00:00:07	0	0	9	
192.168.83.87	2/1/06 1:28 AM	00:00:03	0	0	9	
192.168.83.87	2/1/06 1:27 AM	00:00:06	0	0	9	
192.168.83.87	2/1/06 1:27 AM	00:00:03	0	0	9	
192.168.83.87	2/1/06 1:27 AM	00:00:01	0	0	8	
192.168.83.87	2/1/06 1:21 AM	00:00:05	0	0	9	
192.168.83.87	2/1/06 1:21 AM	00:00:08	0	0	10	
192.168.83.87	2/1/06 1:21 AM	00:00:03	0	0	9	
192.168.83.87	2/1/06 1:20 AM	00:00:05	0	0	9	

For additional information on the Sessions page, see the "Session Analyzer Report" on page 612.

2 Select a session, based on page hit and error data, and click the **View Session Details** button. The Session Details page opens, displaying general session and event information as well a list of all the pages accessed as part of the session and the events and response time for each page. The pages that were included in the selected transaction's definition are highlighted.



Properties

Start time:	2/1/06 1:28 AM	**End user group:**	RnD
Overall traffic [KB]:	186.82	**IP address:**	192.168.83.87
Duration [hh:mm:ss]:	00:00:07	**Host name:**	brake.global.com
Operating system:	Windows	**User name:**	N/A
Browser:	Internet Explorer 6.0	**Server IP:**	192.168.83.56
Location:	USA, California, Los Angeles	**Arrived from:**	http://casanova:8080/jpetstore/

Pages

Session Replay

Start time	Page	Events	Response time [seconds]
2/1/06 01:28:23 AM	http://casanova:8080/jpetstore/	-	1.81
2/1/06 01:28:25 AM	http://casanova:8080/jpetstore/	-	0.18
2/1/06 01:28:29 AM	Index	-	0.05
2/1/06 01:28:29 AM	SearchProduct	-	0.22
2/1/06 01:28:29 AM	http://casanova:8080/jpetstore/shop/switchSearchListPage.shtml?pageDirection=next	-	0.26
2/1/06 01:28:30 AM	http://casanova:8080/jpetstore/shop/viewProduct.shtml?productId=K9-RT-02	-	0.02
2/1/06 01:28:30 AM	http://casanova:8080/jpetstore/shop/viewItem.shtml?itemId=EST-25	-	0.01
2/1/06 01:28:30 AM	AddItemToCart	-	0.03
2/1/06 01:28:30 AM	http://casanova:8080/jpetstore/shop/checkout.shtml	-	0.01
2/1/06 01:28:30 AM	http://casanova:8080/jpetstore/shop/newOrderForm.shtml	-	0.01

Note: Event data is displayed only if you configured events for the application with which the transaction you are viewing is associated. For information on events and their configuration, see "Real User Monitor Administration" on page 293.

For additional information on the Session Details page, see "Session Details Report" on page 616.

Customize Real User Monitor Reports

You can customize Real User Monitor reports using the following options:

This task includes the following steps:

- "Modify the Default Number of Rows Displayed in a Table" on page 448
- "Modify the Number of Rows Returned from the Database for the Session Analyzer Report and the Event Log" on page 449
- "Change How the Real User Monitor Snapshot Applet Retrieves Snapshots" on page 449
- "Configure Real User Monitor Reports for Auto Generation" on page 450

1 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 HP Business Availability Center to display a different number of rows in a table, in the Infrastructure Settings Manager.

To modify the number of rows displayed in a table:

To modify the number of rows displayed in a table, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Applications**, select **End User/System Availability Management**, and locate the **Max Table Rows** entry in the **End User/System Availability Management - Data** table. Modify the value to the number of rows you want to be displayed in a table.

2 Modify the Number of Rows Returned from the Database for the Session Analyzer Report and the Event Log

By default, the maximum number of rows that are returned from the database for the Session Analyzer report and the Event Log, which is accessed by drilling down from the Event Summary report, is 200. You can configure HP Business Availability Center to return a different number of rows from the database, in the Infrastructure Settings Manager.

To modify the number of rows returned:

To modify the number of rows returned, select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Applications**, select **End User/System Availability Management**, and locate the **Max rows returned from the database in EUM Reports** entry in the **End User/System Availability Management - Data** table. Modify the value to the number of rows you want to be returned.

3 Change How the Real User Monitor Snapshot Applet Retrieves Snapshots

By default, the Real User Monitor Snapshot applet communicates with the Real User Monitor engine through the HP Business Availability Center 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 Real User Monitor engine. You can configure HP Business Availability Center so that the Real User Monitor Snapshot applet communicates directly with the Real User Monitor engine to retrieve snapshots.

To change the way the Real User Monitor Snapshot applet communicates with the Real User Monitor engine:

Select **Admin** > **Platform** > **Setup and Maintenance** > **Infrastructure Settings**, choose **Applications**, select **End User/System Availability Management**, and locate the **Retrieve RUM snapshots directly from RUM engine** entry in the **End User/System Availability Management - Data** table. Change the setting to **true** if you want the Real User Monitor Snapshot applet to communicate directly with the Real User Monitor engine. Change the setting to **false** if you want the Real User Monitor Snapshot applet to communicate with the Real User Monitor engine via the HP Business Availability Center Gateway Server.

Note: You can also change this setting in the **Advanced Settings** pane when configuring a Real User Monitor engine in End User Management Administration. For details on configuring a Real User Monitor engine in End User Management Administration, see "New/Edit Real User Monitor Engine Page" on page 367.

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4 Configure Real User Monitor Reports for Auto Generation

All the Real User Monitor reports can be configured for auto generation. In addition, the Session Analyzer, Event Count Over Time, and Event Summary reports, as well as the Session Details, Pages Details and Event Log pages accessed when drilling down within reports, can be customized to achieve different behavior, looks, and displays. The features available for customization in these reports and pages are:

- The addition of headers and footers.
- Changing report elements for different looks and displays.

For details on customizing reports, see "Customizing Reports" in *Reports*.

HTTP Error Codes

The following tables show the various categories of HTTP errors and the error codes they include, that are predefined in Business Availability Center. For information on configuring HTTP error codes, see "New/Edit Global HTTP Error Event Page" on page 354.

Bad User Requests

The following codes indicate bad user requests:

Code	Description
400	Bad Request
405	Method Not Allowed
406	Not Acceptable
408	Request Timeout
411	Length Required
414	Request - URI Too Large
416	Requested range not satisfiable
417	Expectation Failed

Refused Requests

The following codes indicate refused requests:

Code	Description
402	Payment Required
403	Forbidden
407	Proxy Authentication Required
409	Conflict
410	Gone

Code	Description
412	Precondition Failed
413	Request Entity Too Large
415	Unsupported Media Type

Requests Not Found

The following code indicates requests not found:

Code	Description
404	Not Found

Server Errors

The following codes indicate server errors:

Code	Description
500	Internal Server Error
501	Not Implemented
502	Bad Gateway
503	Service Unavailable
504	Gateway Timeout
505	HTTP Version not supported

Parsing Supported Protocols

Real User Monitor supports the following protocols for parsing. In the TCP Requests Analyzer report, enhanced snippets and request names are displayed for these protocols. For details on the user interface, see "TCP Requests Analyzer Report" on page 662.

- FTP
- IMAP
- LDAP
- My SQL
- Ms SQL Server
- POP3
- SMTP

Real User Monitor Reports User Interface

This section describes:

- Active Filters Dialog Box on page 455
- Applications Dialog Box on page 468
- Business Process Distribution Report on page 470
- Define End-User Group Dialog Box on page 471
- Define Page Dialog Box on page 473
- End User Over Time Report on page 476
- End User Summary Report on page 489
- End Users by Page Report on page 502
- End Users by Transaction Report on page 512
- Event Analysis Report on page 522
- Event Count Over Time Report on page 528
- Event Log on page 532
- Event Summary Report on page 534
- Find Dialog Box on page 538
- Global Statistics Report on page 540
- Page Details Page on page 549
- Page Over Time Report on page 552
- Page Summary Report on page 563
- Pages by Server Summary Report on page 575
- Selected URLs with Meaningful Names Dialog Box on page 586
- Server Over Time Report on page 588
- Server Summary Report on page 600
- Servers by Page Summary Report on page 608
- Session Analyzer Report on page 612

- Session Details Report on page 616
- Session Viewer Page on page 621
- Snapshot Viewer Page on page 628
- TCP Application Over Time Report on page 631
- TCP Application Summary Report on page 641
- TCP Poor Requests Summary Report on page 655
- TCP Requests Analyzer Report on page 662
- Transaction Over Time Report on page 669
- Transaction Summary Report on page 679
- Unconfigured End Users by Country/State, City, or IP on page 690

Active Filters Dialog Box

Description	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 Real User Monitor reports.
Important Information	➤ The Active Filters dialog box includes all the filters available for Real User Monitor reports. Only the filters that are valid for the report from which you are accessing the Active Filters dialog box are displayed. ➤ Active filters are saved across reports. For details on this topic, see "Drilling Down Within Real User Monitor Reports" on page 430.

The Active Filters dialog box includes the following filter tabs and areas (listed alphabetically), which you access by clicking on the appropriate tab:

- "End User Groups" on page 456
- "Events" on page 459

➤ "Pages" on page 460
➤ "Servers" on page 463
➤ "Session Properties" on page 465
➤ "Transactions" on page 466
➤ "User Properties" on page 467

End User Groups

Description	Enables you to filter the data included in the report according to specific end-user groups that you select, a wildcard expression, or a range of IP addresses.

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

GUI Element (A–Z)	Description
<End user group tree>	Displays the existing end-user CIs in the Universal CMDB. Click an entry in the tree to expand it. Select the check box for the end-user groups you want to include in the filter. **Note:** ➤ If an end-user group you configured in End User Management Administration does not appear in the tree, synchronize the Real User Monitor engine in End User Management Administration, or wait until an automatic synchronization occurs, which can take up to an hour. ➤ Descendants of selected items in the tree are automatically included in the filter as well, but do not appear as being selected in the tree.
Browse	Click to open the filter's Browse mode, where you configure the filter tab's main settings. **Note:** The Browse link is enabled only when you are in the Search mode.

GUI Element (A–Z)	Description
City	You can further filter selected end-user groups by selecting a city from the drop-down list. Only selected end-user groups (whether you chose specific end-user groups, or entered an end-user group name or an IP range) that are configured as being in the selected city, are displayed in the report. **Note:** To select a city, you must first select a country and, if applicable, a state.
Country	You can further filter selected end user groups by selecting a country from the drop-down list. Only selected end-user groups (whether you chose specific end-user groups, or entered an end-user group name or an IP range) that are configured as being in the selected country, are displayed in the report.
End user group name	Choose this option to specify a specific end-user group name to include in the filter. Any end-user group whose name includes the text you enter is added to the filter. **Note:** It is recommended to select the end-user group from the end-user group tree, even if the search option is used, to enable the report to be generated faster.
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.
Search	Click to open the Search mode, where you can search for end-user groups with names containing a specific string. **Note:** ➤ The search is not case sensitive. ➤ You can use the asterisk (*) wildcard in your string to match one or more words of text. ➤ The Search link is enabled only when you are in the Browse mode.

GUI Element (A–Z)	Description
Show <Real User Monitor component> only for end user groups with poor performance	Select this check box to show only the Real User Monitor component relevant for the report you are generating, for end-user groups with poor performance. That is, end-user groups whose latency is greater than the latency threshold you configured for the end-user group in End User Management Administration.
Show unconfigured end user groups	Select this check box to include data in the report applicable to unconfigured end-user groups, or clear the check box to exclude such data from the report. An unconfigured end-user group is one that is not configured in End User Management Administration, but that is still detected and recognized by the Real User Monitor engine. **Default value:** Selected
Specific end user groups	Choose this option to select specific end-user groups from the end-user group tree.
State	You can further filter selected end-user groups by selecting a state from the drop-down list. Only selected end-user groups (whether you chose specific end-user groups, or entered an end-user group name or an IP range) that are configured as being in the selected state, are displayed in the report. **Note:** To select a state, you must first select a country.

Events

Description	Enables you to filter the data included in the report according to specific events that you select.

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

GUI Element (A–Z)	Description
<Event tree>	Displays the existing event CIs in the Universal CMDB. Click an entry in the tree to expand it. Select the check box for the events you want to include in the filter. **Note:** ➤ If an event you configured in End User Management Administration does not appear in the tree, synchronize the Real User Monitor engine in End User Management Administration, or wait until an automatic synchronization occurs, which can take up to an hour. ➤ Descendants of selected items in the tree are automatically included in the filter as well, but do not appear as being selected in the tree.
Browse	Click to open the filter's Browse mode, where you configure the filter tab's main settings. **Note:** The Browse link is enabled only when you are in the Search mode.

GUI Element (A–Z)	Description
Filter <Real User Monitor component> with pages that have performance events	Select this check box to include the Real User Monitor component relevant for the report you are generating, that includes pages on which events occurred due to poor performance. That is, events caused by thresholds not being met or being exceeded, and not necessarily including specific events that you configured in End User Management Administration.
Search	Click to open the Search mode, where you can search for events with names containing a specific string. **Note:** ➤ The search is not case sensitive. ➤ You can use the asterisk (*) wildcard in your string to match one or more words of text. ➤ The Search link is enabled only when you are in the Browse mode.

Pages

Description	Enables you to filter the data included in the report according to specific pages that you select.

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

GUI Element (A–Z)	Description
<Pages tree>	Displays the existing page CIs in the Universal CMDB. Click an entry in the tree to expand it. Select the check box for the pages you want to include in the filter. **Note:** ➤ If a page you configured in End User Management Administration does not appear in the tree, synchronize the Real User Monitor engine in End User Management Administration, or wait until an automatic synchronization occurs, which can take up to an hour. ➤ Descendants of selected items in the tree are automatically included in the filter as well, but do not appear as being selected in the tree.
Browse	Click to open the filter's Browse mode, where you configure the filter tab's main settings. **Note:** The Browse link is enabled only when you are in the Search mode.
Search	Click to open the Search mode, where you can search for pages with names containing a specific string. **Note:** ➤ The search is not case sensitive. ➤ You can use the asterisk (*) wildcard in your string to match one or more words of text. ➤ The Search link is enabled only when you are in the Browse mode.

GUI Element (A–Z)	Description
Selected URLs with meaningful names	Click this link to open the Selected URLs with Meaningful Names dialog box, where you select unconfigured URLs with meaningful names to include in the report. For details on the Selected URLs with Meaningful Names dialog box, see "Selected URLs with Meaningful Names Dialog Box" on page 586. For details on meaningful names, see "Configuring Meaningful Page Names" in the *Real User Monitor Administration* PDF.
Show <Real User Monitor component> for defined pages	Select this check box to show the Real User Monitor component for the pages you configured in End User Management Administration. Select the pages for which you want to include the Real User Monitor component from the Page tree, or leave the Page tree completely unselected to include the Real User Monitor component for all the pages you configured in End User Management Administration. Clear this check box to show the Real User Monitor component for only unconfigured pages and pages with meaningful names. **Default value:** Selected **Note:** When Real User Monitor reports are included in custom reports, this check box is not selected by default. For details on custom reports, see "Custom Report Wizard" in *Reports*.
Show <Real User Monitor component> only for pages with low average availability	Select this check box to show the Real User Monitor component relevant for the report you are generating, that include only pages whose average availability is less than the page availability you configured in End User Management Administration.

GUI Element (A–Z)	Description
Show <Real User Monitor component> only for pages with poor average performance	Select this check box to show the Real User Monitor component relevant for the report you are generating, that include only pages whose average page time is less than the page time you configured in End User Management Administration.
Show <Real User Monitor component> only for pages with poor average server performance	Select this check box to show the Real User Monitor component relevant for the report you are generating, that include only pages whose average server time is less than the server time you configured in End User Management Administration.

Servers

Description	Enables you to filter the data included in the report according to specific servers that you select, a wildcard expression or a server IP address.

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

GUI Element (A–Z)	Description
Server IP	Select a server for inclusion in the report by a specific IP address.
Server Name	Select servers for inclusion in the report by name. Any server whose name matches the text you enter is added to the filter. **Note:** ➤ The server name is case sensitive. ➤ You can use the asterisk (*) wildcard to represent any string of characters in the server name.

GUI Element (A–Z)	Description
Show <Real User Monitor component> only for servers with low average application availability	Select this check box to show the Real User Monitor component relevant for the report you are generating, that include only servers whose availability is less than the average server availability threshold you configured for a Real User Monitor engine in End User Management Administration. **Note:** This settings applies to Web (HTTP-Web and SOAP) based applications only.
Show <Real User Monitor component> only for servers with low average network availability	Select this check box to show the Real User Monitor component relevant for the report you are generating, that include only servers whose network availability is less than the server connection availability threshold you configured in the TCP settings of an application in End User Management 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

Description	Enables you to filter the sessions displayed in the report according to session status and session properties.

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

GUI Element (A–Z)	Description
Operator	Select the operator to use on a specific session property. Valid options are: ➤ **= =.** 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.
Session Property	The names of all the session properties configured in End User Management Administration for the selected applications for the report are listed.
Show sessions	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.
Value	Enter the value to be used when filtering sessions by the specific session property.

Transactions

Description	Enables you to filter the data included in the report according to specific transactions that you select.

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

GUI Element (A–Z)	Description
<Transactions tree>	Displays the existing transaction CIs in the Universal CMDB. Click an entry in the tree to expand it. Select the check box for the transactions you want to include in the filter. **Note:** ➤ If a transaction you configured in End User Management Administration does not appear in the tree, synchronize the Real User Monitor engine in End User Management Administration, or wait until an automatic synchronization occurs, which can take up to an hour. ➤ Descendants of selected items in the tree are automatically included in the filter as well, but do not appear as being selected in the tree.
Browse	Click to open the filter's Browse mode, where you configure the filter tab's main settings. **Note:** The Browse link is enabled only when you are in the Search mode.
Search	Click to open the Search mode, where you can search for transactions with names containing a specific string. **Note:** ➤ The search is not case sensitive. ➤ You can use the asterisk (*) wildcard in your string to match one or more words of text. ➤ The Search link is enabled only when you are in the Browse mode.

GUI Element (A–Z)	Description
Show <Real User Monitor component> only for transactions with low average availability	Select this check box to show the Real User Monitor component relevant for the report you are generating, that include only transactions whose average availability is less than the transaction availability threshold you configured in End User Management Administration.
Show <Real User Monitor component> only for transactions with poor average net performance	Select this check box to show the Real User Monitor component relevant for the report you are generating, that include only transactions whose average net performance time is less than the net performance time threshold you configured in End User Management Administration.
Show <Real User Monitor component> only for transactions with poor average performance	Select this check box to show the Real User Monitor component relevant for the report you are generating, that include only transactions whose average transaction time is less than the transaction time threshold you configured in End User Management Administration.
Show <Real User Monitor component> only for transactions with poor average server performance	Select this check box to show the Real User Monitor component relevant for the report you are generating, that include only transactions whose average server time is less than the server time threshold you configured in End User Management Administration.

User Properties

Description	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.

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

GUI 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.

Applications Dialog Box

Description	Enables you to select the applications for which data is included in Real User Monitor reports. **To access:** Click the **Applications** link in the report settings area of a Real User Monitor report.
Important Information	In the Global Statistics report, you select an application from the drop-down list in the **Application** field. For details on the Global Statistics report, see “Real User Monitor Reports Overview” on page 426.

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

GUI Element (A–Z)	Description
<**Application**>	Lists all the applications configured in End User Management Administration. For details on configuring applications in End User Management Administration, see "New/Edit Web or SOAP Application Page" on page 396.
<**Check box**>	Select the check boxes for the applications you want to include in the Real User Monitor report.
Sort applications by name	Select the **Name** radio button to list the configured applications alphabetically. **Note:** Selections are kept when you move between sorting applications by name and type.
Sort applications by type	Select the **Type** radio button to list the configured applications by application type. Valid types are: ➤ HTTP–Web ➤ SOAP ➤ TCP Request-Response ➤ TCP Streaming **Note:** Selections are kept when you move between sorting applications by name and type.

Business Process Distribution Report

Description	Displays transaction run and transaction response time data over time for the transactions that you configure in End User Management Administration. You use the Business Process Distribution report to pinpoint the Real User Monitor transactions with the greatest number of runs and the highest session popularity. You then drill down in this report to view the individual sessions in which these transactions were run. You can also use the Business Process Distribution report to pinpoint the transactions that were problematic in terms of response time and availability and drill down so that you can isolate the sessions, and pages within the sessions, that were problematic. For details on the user interface, see "Business Process Distribution Page" in *Solutions and Integrations*. For details on analyzing the Business Process Distribution report, see "Analyzing the Business Process Distribution Report" on page 446. **To access:** Select **Applications** > **End User Management** > **Real User** > **Business Process Distribution**

Define End-User Group Dialog Box

Description	Enables you to add an undefined end-user group to the list of configured end-user groups in End User Management Administration, directly from a Real User Monitor report. **To access:** Click the **Define End User** button in the Global Statistics (Most Active End Users and Slowest End Users tables), or the Unconfigured End Users by IP reports. For details on the Global Statistics report, see "Real User Monitor Reports Overview" on page 426. For details on the Unconfigured End Users by IP report, see "Unconfigured End Users by Country/State, City, or IP" on page 690.
Important Information	A newly defined end-user group is only listed as defined when the next data sample is compiled by the Real User Monitor engine.

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

GUI Element (A–Z)	Description
Container	Select the Real User Monitor engine or end-user group container in which to create the end-user group, from the list of engines and containers already configured in End User Management Administration.
Latency threshold	Enter the average network latency threshold in milliseconds, for each end user in the end-user group.

GUI Element (A–Z)	Description
Monitoring Conditions	Select one of the following options: ➤ **Always.** Instructs Real User Monitor to collect data for all traffic generated by end users within the end-user group. This data appears in the Real User Monitor reports. ➤ **Never.** Instructs Real User Monitor not to collect data for the end users within the end-user group. Data for the end-user group does not appear in the Real User Monitor reports.
Name	Enter the name of the end-user group. **Default value:** The name of the end-user group as detected by Real User Monitor. **Syntax exceptions:** ➤ Cannot exceed 100 characters. ➤ Allowed characters are **a-z**, **A-Z**, **0-9**, and ` ~ ! @ # $ % ^ & * ( ) _ - + { } ; <**space**>. **Note:** The name must be unique.

Define Page Dialog Box

Description	Enables you to add an undefined page to the list of configured pages in End User Management Administration and to define a transaction for the page, directly from a Real User Monitor report. **To access:** Click the **Define Page** button in the Global Statistics (Most Popular Pages, Pages with Slowest Server Time, and Pages with Most Errors tables), or Session Details reports. For details on the Global Statistics report, see "Real User Monitor Reports Overview" on page 426. For details on the Session Details report, see "Session Details Report" on page 616.
Important Information	➤ A newly defined page is only listed as defined when the next data sample is compiled by the Real User Monitor engine. ➤ A page added using the Define Page dialog box, acquires the default settings for page thresholds configured in End User Management Administration. To change any of the page's default settings, you must do so in End User Management Administration. ➤ You cannot define a page that has a URL of more than one thousand characters.

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

GUI Element (A–Z)	Description
Define page as a transaction	Select this check box to add a transaction that includes only the page you are defining to the list of transactions for the current application in End User Monitor Administration. Creating a transaction for a single page with frame unification enables you to measure data for the page with its children frames and components, which is displayed in the **Transaction Summary** report.
Group	The group (Real User Monitor engine and application) to assign to the page.
Include descendants (Unify Frames)	Select this check box to configure frame unification for the page when you are defining the page as a transaction. For details on frame unification, see "Frame Unification" on page 295. **Note:** This check box is enabled only if the **Define page as a transaction** check box is selected and frame unification is enabled for the application containing the transaction for the page.
Monitoring Conditions	The monitoring condition for the page. Data for monitored pages appears in the Global Statistics and Page Summary reports. Available options are: ➤ **Always.** Instructs Real User Monitor to collect data for all requests of the page. ➤ **Never.** Instructs Real User Monitor not to collect data for the page.
Name	The name you want to assign the page. **Syntax Exceptions:** The page name must be unique and must not exceed 100 characters. The page name can include the following special characters: **; : / ? = * & { } % @ + - $**

GUI Element (A–Z)	Description
Transaction name	Enter the name of the transaction that your are defining for the page. **Note:** ➤ This field is enabled only if the **Define page as a transaction** check box is selected. ➤ A transaction name must be unique within an application.
URL	The URL of the page. **Default Value:** The URL as reported by Real User Monitor. **Syntax Exceptions:** By default, asterisks in URLs are treated as wildcards. To define an asterisk as a literal and not as a wildcard, precede it with a backslash (\). For example, **my*str**.

End User Over Time Report

Description	Displays a selected end-user group's hits, latency, events, requests, and traffic over the course of time. The data in the End User Over Time report can be viewed either as graphs or as tables, by clicking on the appropriate tab. **To access:** Click the **End User Over Time** button for a selected end-user group in the End User Summary Report (see page 489).
Important Information	➤ The available graphs and tables in the report depend on the types of the applications for which you generate the report. For details on this topic, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430. ➤ Data for end users is aggregated for each five minute period. This means that you do not see a real picture of such data if you view this report using a time breakdown of less than five minutes. ➤ 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. ➤ In each 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. In some of the graphs, to drill down to a higher time resolution, click a data point or bar and then select **Time Resolution** from the displayed menu.

This section includes the following topics:

- "Report Settings" on page 477
- "Application Traffic Over Time Graph" on page 478
- "HTTP Traffic Over Time Graph" on page 479
- "Latency Over Time Graph" on page 481
- "Page Hits Over Time Graph" on page 482
- "Pages with Events Over Time Graph" on page 483
- "Requests Over Time Graph" on page 484
- "TCP Errors Over Time Graph" on page 485
- "HTTP Over Time Table" on page 486
- "Network Connections Table" on page 488
- "Request-Response Over Time Table" on page 488

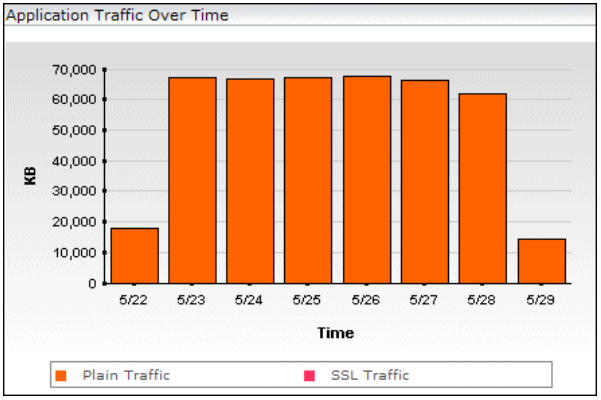
Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The **End User Groups** active filters tab is enabled for this report.

GUI Element (A–Z)	Description
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

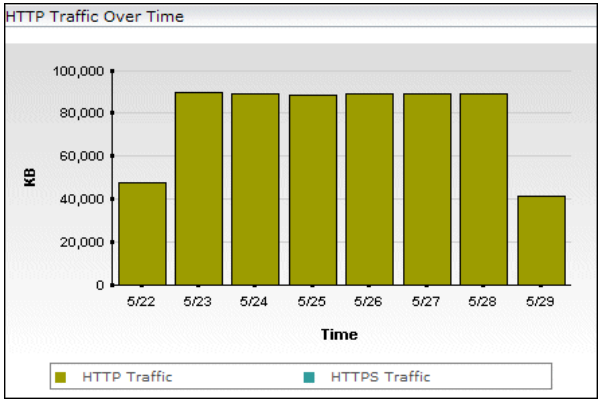
Application Traffic Over Time Graph



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

GUI Element (A–Z)	Description
<Bars>	Indicate the amount of encrypted (SSL) and plain traffic sent and received by the end-user group at each point over the course of the defined time period. **Tooltip:** The amount of encrypted and plain traffic sent and received by the end-user group at that point of time.
<Legend>	Describes the color coding used in the graph.
KB <y-axis>	Displays the number of kilobytes.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.

HTTP Traffic Over Time Graph

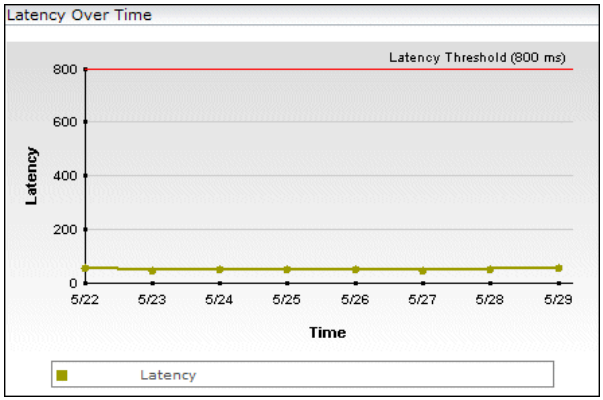


Important Information	If you generate the End User Over Time report for both pure Web (HTTP) or SOAP applications and Web (HTTP) or SOAP applications with TCP settings, by default the HTTP Traffic Over Time graph is not displayed. You can configure HP Business Availability Center to display this graph in such situations. For details, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430.

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

GUI Element (A–Z)	Description
<Bars>	Indicate the total amount of HTTP and HTTPS traffic, in kilobytes, sent and received by the end-user group at each point over the course of the defined time period. The bars are divided into two sections, one indicating HTTP traffic and the other indicating HTTPS traffic. **Tooltip:** The amount of HTTP or HTTPS traffic, in kilobytes, and the relevant time.
<Legend>	Describes the color coding used in the graph.
KB <y-axis>	Displays the number of kilobytes.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.

Latency Over Time Graph

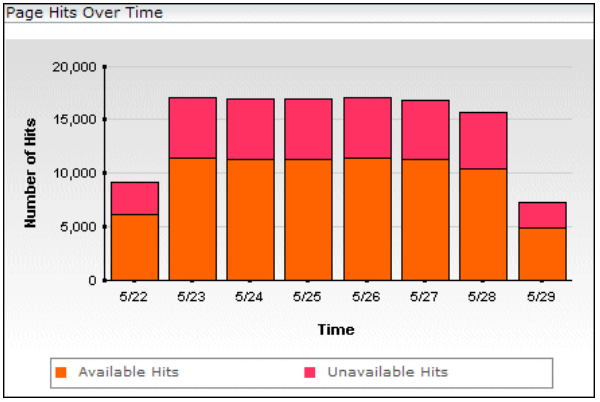


Important Information	If you generate the End User Over Time report for both pure Web (HTTP) or SOAP applications and Web (HTTP) or SOAP applications with TCP settings, by default the Latency Over Time graph is not displayed. You can configure HP Business Availability Center to display this graph in such situations. For details, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430.

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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the graph.
Latency data points	Indicates the average latency in milliseconds for the end-user group at each point over the course of the defined time period. To drill down to HP Network Node Manager, click a data point and select **Drilldown to NNM** from the displayed menu. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443. **Tooltip:** The end-user group's average latency time at that point of time.
Latency <y-axis>	Displays the network latency time in milliseconds.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.

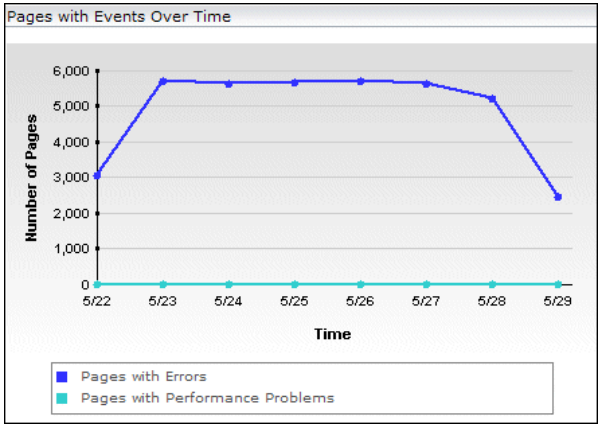
Page Hits Over Time Graph



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

GUI Element (A–Z)	Description
<Bars>	Indicate the number of available and unavailable page hits for the end-user group at each point over the course of the defined time period. **Tooltip:** The end-user group's number of available or unavailable hits at that point of time.
<Legend>	Describes the color coding used in the graph.
Number of Hits <y-axis>	Displays the number of hits.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.

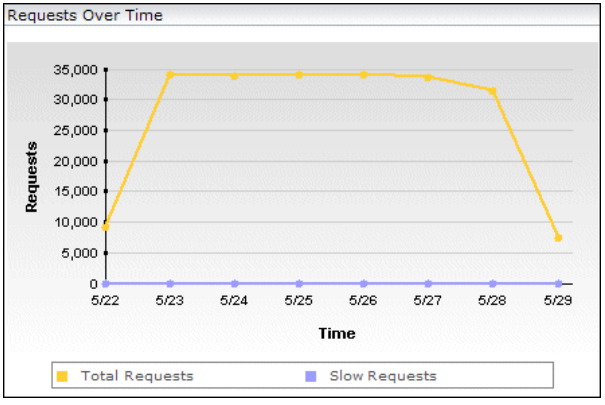
Pages with Events Over Time Graph



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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the graph.
Number of Pages <y-axis>	Displays the number of pages.
Pages with Errors data points	Indicate the number of pages on which error or performance events occurred, that were hit by the end-user group at each point over the course of the defined time period. **Tooltip:** The number of pages with events hit by the end-user group at that point of time.
Pages with Performance Problems data points	Indicate the number of pages with a page time that exceeded the page time threshold configured for the application, that were hit by the end-user group at each point over the course of the defined time period. **Tooltip:** The number of pages with performance problems hit by the end-user group at that point of time.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.

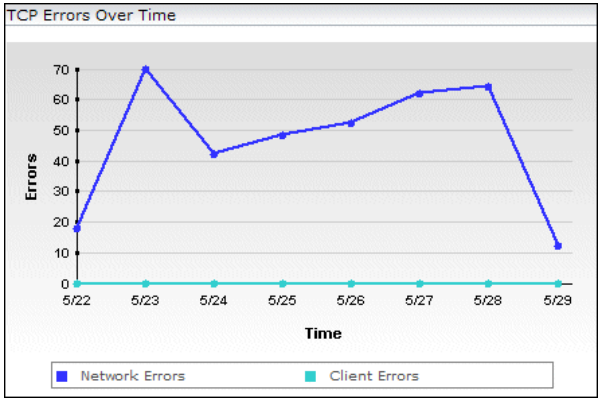
Requests Over Time Graph



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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the graph.
Requests <y-axis>	Displays the number of requests.
Slow Requests data points	Indicate the number of slow requests (that is, requests whose time exceeded the component time threshold you configured for the application) made by the end-user group at each point over the course of the defined time period. **Tooltip:** The number of slow requests made by the end-user group at that point of time.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.
Total Requests data points	Indicate the total number of requests made by the end-user group at each point over the course of the defined time period. **Tooltip:** The total number of requests made by the end-user group at that point of time.

TCP Errors Over Time Graph



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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the graph.
Client Error data points	Indicate the number of client errors for the end-user group at each point over the course of the defined time period. **Tooltip:** The number of Zero Windows and Stuck Window errors for the end-user group at that point of time.
Errors <y-axis>	Displays the number of errors.
Network Error data points	Indicate the number of network errors for the end-user group at each point over the course of the defined time period. **Tooltip:** The number of retransmission and duplicate ACK errors for the end-user group at that point of time.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.

HTTP Over Time Table

Important Information	If you generate the End User Over Time report for both pure Web (HTTP) or SOAP applications and Web (HTTP) or SOAP applications with TCP settings, by default the **HTTP Traffic**, **HTTPS Traffic**, and **Latency** columns are not displayed. You can configure HP Business Availability Center to display these fields in such situations. For details, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430.

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

GUI Element (A–Z)	Description
Available Hits	Displays the total number of available page hits generated by the end-user group at a given point of time.
Errors	Displays the total number of pages hit by the end-user group at a given point of time, that had errors.
HTTP Traffic (KB)	Displays the amount of HTTP traffic, in kilobytes, that each end-user group sent to, and received from, the servers at a given point of time.
HTTPS Traffic (KB)	Displays the amount of HTTPS traffic, in kilobytes, that each end-user group sent to, and received from, the servers at a given point of time.
Latency (ms)	Displays the average network HTTP-based latency, in milliseconds, for the end-user group at a given point of time.
Performance Problems	Displays the total number of pages with a page time that exceeded the page time threshold configured for the application, hit by the end-user group at a given point of time, that had performance events.
Time	Displays the time division units for the time range that you defined when generating the report.
Unavailable Hits	Displays the total number of unavailable page hits generated by the end-user group at a given point of time.

Network Connections Table

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

GUI Element (A–Z)	Description
Latency	Displays the average network TCP latency, in milliseconds, for the end-user group at a given point of time.
Plain Traffic	Displays the number of kilobytes of plain traffic that the end-user group sent to, and received from, the servers at a given point of time.
SSL Traffic	Displays the number of kilobytes of SSL traffic that each end-user group sent to, and received from, the servers at a given point of time.
Time	Displays the time division units for the time range that you defined when generating the report.

Request-Response Over Time Table

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

GUI Element (A–Z)	Description
Client Errors	Displays the total number of client errors for the end-user group at a given point of time.
Network Errors	Displays the total number of network errors for the end-user group at a given point of time.
Slow Requests	Displays the number of slow requests (that is, requests whose time exceeded the component time threshold you configured for the application) made by the end-user group at a given point of time.
Time	Displays the time division units for the time range that you defined when generating the report.
Total Requests	Displays the total number of requests made by the end-user group at a a given point of time.

End User Summary Report

Description	Displays data for specific end-user groups that were configured for Real User Monitor in End User Management Administration. Also displays aggregated data for unconfigured end-user groups, which is displayed grouped by country, or if the country is unknown, then grouped as OTHER. **To access:** Select **Applications** > **End User Management** > **Real User** > **End User Summary**
Important Information	The available tabs in the report depend on the types of the applications for which you generate the report. For details on this topic, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430.
Useful Links	"Displaying End-User Names in Reports" on page 445

This section includes the following topics:

- "Report Settings" on page 490
- "HTTP Tab" on page 490
- "Request–Response Tab" on page 495
- "Network Connections Tab" on page 498

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The **End User Groups** active filters tab is enabled for this report.
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

HTTP Tab

Important Information	If you generate the End User Summary report for both pure Web (HTTP) or SOAP applications and Web (HTTP) or SOAP applications with TCP settings, by default the **HTTP Traffic**, **HTTPS Traffic**, and **Latency** columns are not displayed. You can configure HP Business Availability Center to display these fields in such situations. For details, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430.

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

GUI Element (A–Z)	Description
	End User Over Time button. Click to open the End User Over Time report for a selected configured end-user group, where you can view graphs or a table showing the end-user group's hits, latency, events and traffic over the course of time. For details on the End User Over Time report, see "End User Over Time Report" on page 476.
	Unconfigured End Users by Country/State button. Click to open the Unconfigured End Users by Country/State report for the selected unconfigured end-user group, which shows the same data as the End User Summary report for the end-users included in the selected unconfigured end-user group, grouped by country and state. For details on the Unconfigured End Users by Country/State report, see "Unconfigured End Users by Country/State, City, or IP" on page 690.
	Page Summary button. Click to open the Page Summary report for a selected end-user group, where you can view data for the Web pages configured in End User Management Administration that were hit by the end-user group. For details on the Page Summary report, see "Page Summary Report" on page 563.
	Transaction Summary button. Click to open the Transaction Summary report for a selected end-user group, where you can view data for specific transactions that you configured in End User Management Administration. For details on the Transaction Summary report, see "Transaction Summary Report" on page 679.

GUI Element (A–Z)	Description
	Event Summary button. Click to open the Event Summary report for a selected end-user group, where you can view a summary of events in monitored applications that you configured in End User Management Administration. For details on the Event Summary report, see "Event Summary Report" on page 534.
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.
	TCP Poor Requests Summary button. Click to open the TCP Poor Requests Summary report, where you can view a summary of the selected applications' TCP requests that were slow or had network errors, broken down by servers and end users, for a selected end-user group. For details on the user interface, see "TCP Poor Requests Summary Report" on page 655.
Available Page Hits	Displays the total number of available page hits generated by each end-user group. **Note:** The sum of all the available page hits for each end-user group is displayed in the summary row.
End User	Displays the names of the end-users groups that were defined in End User Management Administration, as well as the end-user group IP addresses. For unconfigured end-user groups, the country name and IP addresses are displayed, or if the country is unknown, **OTHER** is displayed.
HTTP Traffic	Displays the number of kilobytes that each end-user group sent to, and received from, the servers via HTTP. **Note:** The sum of all the sent and received HTTP kilobytes for each end-user group is displayed in the summary row.

GUI Element (A–Z)	Description
HTTPS Traffic	Displays the number of kilobytes that each end-user group sent to, and received from, the servers via HTTPS. **Note:** The sum of all the sent and received HTTPS kilobytes for each end-user group is displayed in the summary row.
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 End User Management Administration, or the default end-user group latency threshold that is configured. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The configured, or default, end-user group latency threshold in milliseconds. **Note:** The average latency for all end-user groups is displayed in the summary row.
Location	Displays the geographic location (city, state, and country) of each end-user group. If the geographic location is unknown, **OTHER** is displayed.
Pages with Errors	Displays, for each end-user group, the total number of pages hit that had errors. **Note:** The sum of all the pages with errors for each end-user group is displayed in the summary row.
Pages with High Latency	Displays, for each end-user group, the total number of pages whose average network latency exceeded the configured latency threshold. **Note:** The sum of all the slow page hits for each end-user group is displayed in the summary row.

GUI Element (A–Z)	Description
Pages with Performance Problems	Displays, for each end-user group, the total number of pages hit that had performance events. **Note:** The sum of all the pages with performance problems for each end-user group is displayed in the summary row.
Slow Pages Latency	Displays the average latency, in milliseconds, of each end-user group's slow page hits. **Note:** The average latency for all end-user groups slow page hits is displayed in the summary row.
Unavailable Page Hits	Displays the total number of unavailable page hits generated by each end-user group. **Note:** The sum of all the unavailable page hits for each end-user group is displayed in the summary row.

Request–Response Tab

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

GUI Element (A–Z)	Description
	End User Over Time button. Click to open the End User Over Time report for a selected configured end-user group, where you can view graphs or a table showing the end-user group's hits, latency, events and traffic over the course of time. For details on the End User Over Time report, see "End User Over Time Report" on page 476.
	Unconfigured End Users by Country/State button. Click to open the Unconfigured End Users by Country/State report for the selected unconfigured end-user group, which shows the same data as the End User Summary report for the end-users included in the selected unconfigured end-user group, grouped by country and state. For details on the Unconfigured End Users by Country/State report, see "Unconfigured End Users by Country/State, City, or IP" on page 690.
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.
	TCP Poor Requests Summary button. Click to open the TCP Poor Requests Summary report, where you can view a summary of the selected applications' TCP requests that were slow or had network errors, broken down by servers and end users, for a selected end-user group. For details on the user interface, see "TCP Poor Requests Summary Report" on page 655.

GUI Element (A–Z)	Description
Application Traffic	Displays the number of kilobytes that each end-user group sent to, and received from, the application servers for the selected applications. **Note:** The sum of the application traffic for each end-user group is displayed in the summary row.
Average Client Time	Displays the average amount of time, in seconds, that the requests for the selected applications were delayed on each end-user group's client machines. **Tooltip:** The minimum, maximum, and standard deviation of the client time values. **Note:** The average client time of all end-user groups (that is, the total client time of all requests for all end-user groups divided by the total number of requests for all end-user groups) is displayed in the summary row.
Average Network Time	Displays the average time, in seconds, that the requests for the selected application were delayed on the network for each end-user group. **Tooltip:** The minimum, maximum, and standard deviation of the network time values. **Note:** The average network time of all end-user groups (that is, the total network time of all requests for all end-user groups divided by the total number of requests for all end-user groups) is displayed in the summary row.

GUI Element (A–Z)	Description
Average Response Time	Displays the average response time for a single request, in seconds, for each end-user group. This column is color-coded, based on the end-user group's average response time in relation to the component time threshold (for Web applications), or request time threshold (for TCP applications) you configured for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The minimum, maximum, and standard deviation of the response time values, as well as the component time threshold (for Web applications), or request time threshold (for TCP applications) you configured for the application in End User Management Administration. **Note:** The average response time of all end-user groups (that is, the total response times for all end-user groups divided by the total number of requests for all end-user groups) is displayed in the summary row.
Average Retransmit Time	Displays the average retransmission time, in seconds, for each end-user group. **Note:** ➤ The retransmission time is included in the average network time. ➤ The average retransmission time for all end-user groups is displayed in the summary row.
End User	Displays the names of the end-users groups that were defined in End User Management Administration, as well as the end-user group IP addresses. For unconfigured end-user groups, the country name and IP addresses are displayed, or if the country is unknown, **OTHER** is displayed.
Location	Displays the geographic location (city, state, and country) of each end-user group. If the geographic location is unknown, **OTHER** is displayed.

GUI Element (A–Z)	Description
Slow Requests	Displays for each end-user group, the number of requests that exceeded the component time threshold (for Web applications), or request time threshold (for TCP applications) you configured for the application in End User Management Administration. **Note:** The sum of all slow requests for each end-user group is displayed in the summary row.
Total Requests	Displays the total number of requests send by each end-user group for the selected applications. **Note:** The sum of all requests for each end-user group is displayed in the summary row.

Network Connections Tab

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

GUI Element (A–Z)	Description
	End User Over Time button. Click to open the End User Over Time report for a selected configured end-user group, where you can view graphs or a table showing the end-user group's hits, latency, events and traffic over the course of time. For details on the End User Over Time report, see "End User Over Time Report" on page 476.
	Unconfigured End Users by Country/State button. Click to open the Unconfigured End Users by Country/State report for the selected unconfigured end-user group, which shows the same data as the End User Summary report for the end-users included in the selected unconfigured end-user group, grouped by country and state. For details on the Unconfigured End Users by Country/State report, see "Unconfigured End Users by Country/State, City, or IP" on page 690.

GUI Element (A–Z)	Description
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.
Application Traffic	Displays the number of kilobytes that each end-user group sent to, and received from, the application servers for the selected applications. **Note:** The sum of the application traffic for each end-user group is displayed in the summary row.
Average Connect Time (sec.)	Displays the average time taken for each end-user group to establish a connection with the application servers for the selected applications. **Note:** The average connect time for all end-user groups is displayed in the summary row.
Average SSL Handshake Time (sec.)	Displays the average time for SSL handshaking for the selected applications, for each end-user group. **Note:** The average SSL handshake time for all end-user groups is displayed in the summary row.
Connection Availability	Displays the percentage of connections that were successful for each end-user group. 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 End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Note:** The average connection availability of all end-user groups (that is, the total number of successful connections for all end-user groups divided by the total number of connections for all end-user groups) is displayed in the summary row.

GUI Element (A–Z)	Description
End User	Displays the names of the end-users groups that were defined in End User Management Administration, as well as the end-user group IP addresses. For unconfigured end-user groups, the country name and IP addresses are displayed, or if the country is unknown, **OTHER** is 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 End User Management Administration, or the default end-user group latency threshold that is configured. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The configured, or default, end-user group latency threshold in milliseconds. **Note:** The average latency for all end-user groups is displayed in the summary row.
Location	Displays the geographic location (city, state, and country) of each end-user group. If the geographic location is unknown, **OTHER** is displayed.

GUI Element (A–Z)	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 End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The number of zero window and stuck window errors, as well as the **Packets with client errors** threshold configured for the application. **Note:** The average percentage of packets with client errors for all end-user groups (that is, the total number of packets with client errors for all end-user groups divided by the total number of packets for all end-user groups) is displayed in the summary row.
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 End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The total number of retries and the total number of duplicate Acks received. **Note:** The average percentage of packets with network errors for all end-user groups (that is, the total number of packets with network errors for all end-user groups divided by the total number of packets for all end-user groups) is displayed in the summary row.

GUI Element (A–Z)	Description
Refused Connections	Displays the number of connections that were refused for each end-user group. **Note:** The sum of the refused connections for each end-user group is displayed in the summary row.
Timed-out Connections	Displays the number of connections that timed out for each end-user group. **Note:** The sum of the timed-out connections for each end-user group is displayed in the summary row.
Total Connection Attempts	Displays the total number of connection attempts for each end-user group. **Note:** The sum of the total connection attempts for each end-user group is displayed in the summary row.
Total Traffic	Displays the total amount of network traffic (application traffic and TCP layer overhead traffic), in kilobytes, for each end-user group. **Note:** The sum of the total traffic for each end-user group is displayed in the summary row.

End Users by Page Report

Description	Displays data for a selected Web page configured for Real User Monitor in End User Management Administration, broken down by end-user groups. For information on configuring Web pages to be monitored, see “New/Edit Page” on page 359. The End Users by Page report contains the following tables, accessed by clicking the appropriate tab: ➤ General (for details, see page 504) ➤ Availability (for details, see page 507) ➤ Performance (for details, see page 509) **To access:** Click the **End Users by Page** button for the page in the “Page Summary Report” on page 563.

This section includes the following topics:

➤ "Report Settings" on page 503
➤ "General" on page 504
➤ "Availability" on page 507
➤ "Performance" on page 509

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Events ➤ Pages ➤ End Users ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

General

Description	Displays general data related to the selected Web page, broken down by end-user groups.

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

GUI Element (A–Z)	Description
	Page Over Time button. Click to open the Page Over Time report, where you can view details of the availability, performance, hits availability, and breakdown for the selected Web page over the course of time, for an end-user group. For details on the Page Over Time report, see "Page Over Time Report" on page 552.
	View Event Summary button. Click to open the Event Summary report, where you can view event summary data for each end-user group for the page you selected. For details on the Event Summary report, see "Event Summary Report" on page 534.
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.

GUI Element (A–Z)	Description
Availability	Displays the percentage of requests for which the page was available for each end-user group. This column is color-coded, based on the page's availability in relation to the page availability threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The page availability threshold you defined in End User Management Administration. **Note:** If a page is unavailable, its data is not included in the page performance calculations.
Average Number of Components	Displays the average number of page components that were downloaded for the page. **Note:** The average number of components may not always be an integer. This is caused by caching, which means that the components of a page may not all be downloaded each time the page is hit.
End User	Displays the end-user group name and IP range that accessed the selected page. **Tooltip:** The full name of the end-user group and the IP range.
Informational Events	Displays the number of informational events that occurred on the page, based on the informational events you defined for the page, or application, in End User Management Administration.
Page Size	Displays the average downloaded size, in kilobytes, of the page.

GUI Element (A–Z)	Description
Page Time	Displays the average amount of time, in seconds, it took for the page to download. This column is color-coded, based on the page's download time in relation to the page time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The page time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the page time values.
Total Hits	Displays the total number of requests that the page received in the selected time period.
Total Server Time	Displays the average amount of time, in seconds, that it took the server to process the requests for the page. This column is color-coded, based on the page's server time in relation to the server time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the server time values in the selected time period.

Availability

Description	Displays availability data related to the selected Web page, broken down by end-user groups.

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

GUI Element (A–Z)	Description
	Page Over Time button. Click to open the Page Over Time report, where you can view details of the availability, performance, hits availability, and breakdown for the selected Web page over the course of time, for an end-user group. For details on the Page Over Time report, see "Page Over Time Report" on page 552.
	View Event Summary button. Click to open the Event Summary report, where you can view event summary data for each end-user group for the page you selected. For details on the Event Summary report, see "Event Summary Report" on page 534.
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
Application Errors	Displays the number of application errors encountered by the page, based on the application errors you defined for the page, or the application, in End User Management Administration.

GUI Element (A–Z)	Description
Availability	Displays the percentage of requests for which the page was available for each end-user group. This column is color-coded, based on the page's availability in relation to the page availability threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The page availability threshold you defined in End User Management Administration. **Note:** If a page is unavailable, its data is not included in the page performance calculations.
End User	Displays the end-user groups that accessed the selected page. **Tooltip:** The full name of the end-user group.
HTTP Errors	Displays the number of HTTP errors encountered by the page, based on the HTTP errors you defined for the Real User Monitor engine in End User Management Administration.
Stopped	Displays the number of hits for which the page was unavailable because page downloading was stopped.
Total Hits	Displays the total number of requests that the page received.
Unavailable Hits	Displays the number of hits for which the page was unavailable.

Performance

Description	Displays performance data related to the selected Web page, broken down by end-user groups.

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

GUI Element (A–Z)	Description
	Page Over Time button. Click to open the Page Over Time report, where you can view details of the availability, performance, hits availability, and breakdown for the selected Web page over the course of time, for an end-user group. For details on the Page Over Time report, see "Page Over Time Report" on page 552.
	View Event Summary button. Click to open the Event Summary report, where you can view event summary data for each end-user group for the page you selected. For details on the Event Summary report, see "Event Summary Report" on page 534.
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
Client Time	Displays the average amount of time, in seconds, that the page's requests were delayed on the client machine. **Tooltip:** The minimum, maximum, and standard deviation of the client time values.

GUI Element (A–Z)	Description
Connection Time	Displays 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	Displays the end-user groups that accessed the selected page. **Tooltip:** The full name of the end-user group.
Max Page Time	Displays the maximum amount of time, in seconds, it took for the page to download in the selected time period.
Page Time	Displays the average amount of time, in seconds, it took for the page to download. This column is color-coded, based on the page's download time in relation to the page time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The minimum, maximum, and standard deviation of the page time values.
Page Time of Slow Hits	Displays the average amount of time, in seconds, that it took to download the page's slow page requests.
Retry Time	Displays the overall amount of time that passes from the moment an HTTP request is started until the moment an error message is returned. **Note:** Retry time only relates to errors that execute a retry after the error.
Server Time of Slow Server Hits	Displays the average server time, in seconds, for the page's slow hits.
Server Time to First Buffer	Displays 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.

GUI Element (A–Z)	Description
Slow Hits	Displays the total number of hits for the page, whose page time exceeded the page time threshold you configured for the page in end End User Management Administration.
Slow Server Hits	Displays the total number of hits for the page, whose server time exceeded the configured server time threshold.
SSL Handshake Time	Displays the average amount of time taken to establish an SSL connection. **Note:** SSL handshake time is applicable only for HTTPS communications.
Total Hits	Displays the total number of requests that the page received.
Total Network Time	Displays the average amount of time, in seconds, that the page's requests were delayed on the network. Connection, SSL handshaking, and retry times are also included in the total network time. **Tooltip:** The server time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the network time values.
Total Server Time	Displays the average amount of time, in seconds, that it took the server to process the requests for the page. This column is color-coded, based on the page's server time in relation to the server time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the server time values.

End Users by Transaction Report

Description	Displays general, availability, and performance data for each end-user group that ran the transaction you selected in the Transaction Summary report. You configure end-user groups to be monitored in End User Management Administration. The End Users by Transaction report contains the following tables, accessed by clicking the appropriate tab: ➤ General (see page 514) ➤ Availability (see page 517) ➤ Performance (see page 518) **To access:** Click the **End Users by Transaction** button for the transaction in the Transaction Summary Report (see page 679).

This section includes the following topics:

➤ "Report Settings" on page 513
➤ "General" on page 514
➤ "Availability" on page 517
➤ "Performance" on page 518

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Transactions ➤ End User Groups ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

General

Description	Displays general data related to the selected transaction, broken down by end-user groups.

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

GUI Element (A–Z)	Description
	Transaction Over Time button. Click to open the Transaction Over Time report, where you can view details of the availability, page times, run availability, and breakdown for the selected transaction, over the course of time, for an end-user group. For details, see "Transaction Over Time Report" on page 669.
Availability	Displays the percentage of transaction runs for which there were no availability problems. This column is color-coded, based on the transaction's availability in relation to the transaction availability threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The transaction availability threshold. **Note:** ➤ If a transaction is unavailable, its data is not included in the transaction performance calculations ➤ The average availability of all transactions (that is, the total number of successful transaction runs for all transactions divided by the total number of transaction run requests for all transactions) is displayed in the summary row.
End User	Displays the end-user group name and IP range. **Tooltip:** The full end-user name and IP range.

GUI Element (A–Z)	Description
Net Time	Displays the net time, in seconds, of the transaction (that is, server time + network time + client time of all the pages included in the transaction). This column is color-coded, based on the transaction's net time in relation to the net time threshold you configured in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The net transaction time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the net time values. **Note:** The average net time of all transactions is displayed in the summary row.
Runs	Displays the total number of run instances for the transaction, for each end-user group. **Note:** The sum of all the transaction run instances for each transaction is displayed in the summary row.
Total Server Time	Displays the total server time of all the pages included in the transaction. This column is color-coded, based on the transaction's server time in relation to the transaction server time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the server time values. **Note:** The average server time of all transactions is displayed in the summary row.

GUI Element (A–Z)	Description
Total Time	Displays an average of the overall transaction time (from the start of the first page to the end of the last page), in seconds, for each end-user group. This column is color-coded, based on the transaction's total time in relation to the total time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The total transaction time threshold. **Note:** The average total transaction time of all transactions is displayed in the summary row.
Transaction Size	Displays the size, in kilobytes, of all the pages in the transaction for each end-user group. **Note:** The average transaction size of all transactions is displayed in the summary row.

Availability

Description	Displays availability data related to the selected transaction, broken down by end-user groups.

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

GUI Element (A–Z)	Description
	Transaction Over Time button. Click to open the Transaction Over Time report, where you can view details of the availability, page times, run availability, and breakdown for the selected transaction, over the course of time, for an end-user group. For details, see "Transaction Over Time Report" on page 669.
Availability	Displays the percentage of transaction runs for which there were no availability problems. This column is color-coded, based on the transaction's availability in relation to the transaction availability threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The transaction availability threshold. **Note:** If a transaction is unavailable, its data is not included in the transaction performance calculations.
End User	Displays the end-user group name and IP range. **Tooltip:** The full end-user group name and IP range.
Runs	Displays the total number of run instances for the transaction, for each end-user group.
Unavailable Runs	Displays the total number of transaction run instances for which availability problems occurred, for each end-user group.

Performance

Description	Displays total performance data related to the selected transaction, broken down by end-user groups.

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

GUI Element (A–Z)	Description
	Transaction Over Time button. Click to open the Transaction Over Time report, where you can view details of the availability, page times, run availability, and breakdown for the selected transaction, over the course of time, for an end-user group. For details, see "Transaction Over Time Report" on page 669.
Client Time	Displays the total time, in seconds, that each page included in the transaction was delayed on the client machine. **Tooltip:** The minimum, maximum, and standard deviation of the client time values.
Connection Time	Displays 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	Displays the end-user group name and IP range. **Tooltip:** The full end-user group name and IP range.

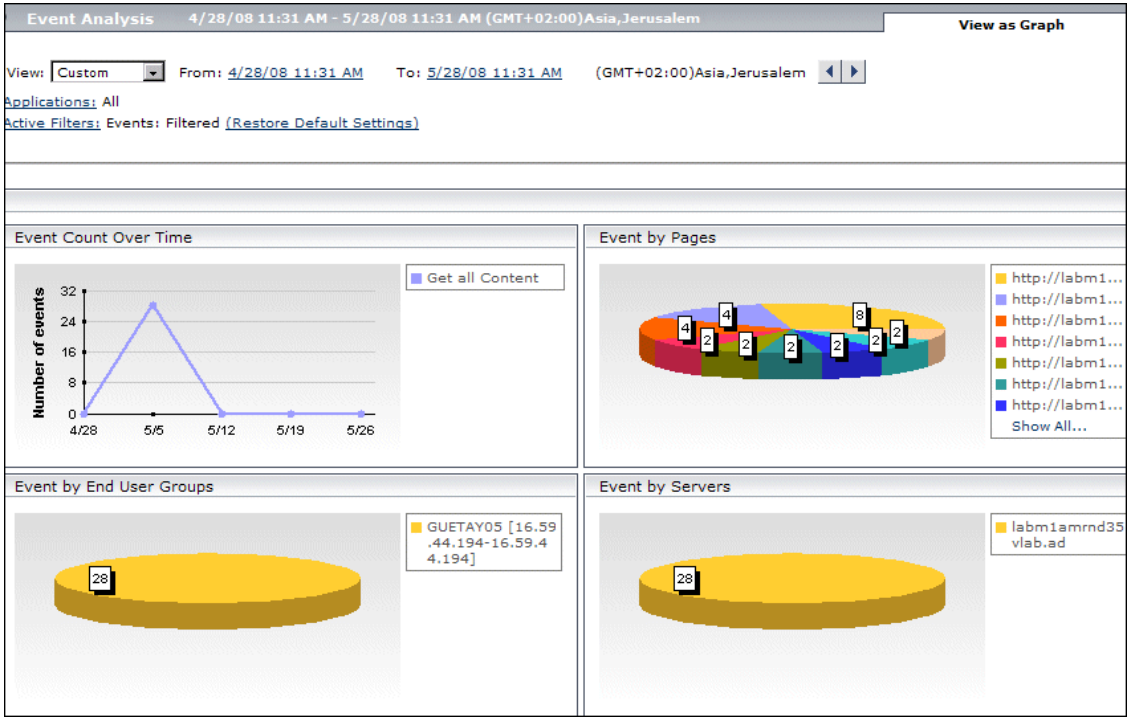
GUI Element (A–Z)	Description
Net Time	Displays the net time, in seconds, of the transaction (that is, server time + network time + client time of all the pages included in the transaction) for each end-user group. This column is color-coded, based on the transaction's net time in relation to the net time threshold you configured in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The net transaction time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the net time values.
Retry Time	Displays the overall amount of time that passes from the moment an HTTP request is started until the moment an error message is returned. **Note:** Retry time only relates to errors that execute a retry after the error.
Runs	Displays the total number of run instances for the transaction, for each end-user group.
Server Time to First Buffer	Displays 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	Displays the number of run instances whose total transaction time exceeded the configured total time threshold, for each end-user group.
Slow Transaction Net Time	Displays the average net transaction time, in seconds, of the transaction's slow runs, for each end-user group.

GUI Element (A–Z)	Description
Slow Transaction Server Time	Displays the average server time, in seconds, of the transaction's slow runs, for each end-user group.
Slow Transaction Total Time	Displays the average total transaction time, in seconds, of the transaction's slow runs, for each end-user group.
SSL Handshake Time	Displays the average amount of time taken to establish an SSL connection. **Note:** SSL handshake time is applicable only for HTTPS communications.
Think Time	Displays 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) for each end-user group.
Total Network Time	Displays the total time, in seconds, that each page included in the transaction was delayed on the network. Connection, SSL handshaking, and retry times are also included in the total network time. **Tooltip:** The minimum, maximum, and standard deviation of the network time values.

GUI Element (A–Z)	Description
Total Server Time	Displays the total server time of all the pages included in the transaction. This column is color-coded, based on the transaction's server time in relation to the transaction server time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the server time values.
Total Time	Displays an average of the overall transaction time (from the start of the first page to the end of the last page), in seconds, for each end-user group. This column is color-coded, based on the transaction's total time in relation to the total time threshold you configured in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The total transaction time threshold you defined in End User Management Administration.

Event Analysis Report

The following is an example of the Event Analysis report.



Description	Displays data for a selected event type, broken down by pages, servers, and end-user groups. Also displays the Event Count Over Time report for the selected event type. You can view the report either as a graph or as a table, by clicking the appropriate tab. The report opens in the same view as the Event Summary report from which it was called. **To access:** ➤ Click a pie chart slice in the Event Summary report, when viewed as a graph. ➤ Click the **View Event Analysis Report** button in the Event Summary report, when viewed as a table. ➤ Click a data point in the Event Count Over Time report, when viewed as a graph. ➤ Click a value of the number of events that occurred for an event type in the Event Count Over Time report, when viewed as a table.

This section includes the following topics:

- "Report Settings" on page 524
- "Data by Pages, Servers and End-User Groups Graphs" on page 525
- "Event Count Over Time Graph" on page 526
- "Data by Pages, Servers and End-User Groups Tables" on page 526
- "Event Count Over Time Table" on page 527

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Events ➤ Pages ➤ End User Groups ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

Data by Pages, Servers and End-User Groups Graphs

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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the pie charts.
<Pie chart>	Comprises color-coded slices representing the different pages, servers, and end-user groups on which the events occurred. **Tooltip:** Hold the cursor over a slice of a pie chart to display the page, server, or end-user group name represented by the slice, the number of events that occurred on the page, server, or end-user group in the time period for which you generated the report, and the maximum number of sessions in which the events occurred. **Note:** ➤ Up to 10 different slices can be displayed per chart. If there are more than 10 pages, servers, or end-user groups 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 pages, events that occurred in a session and that are not related to a specific URL, are grouped together in a slice called **Session Events**.
Event Analysis Report	Select from the right-click menu for a pie-chart slice. Regenerates the Event Analysis report to show more detailed data for the specific page, server, or end-user group represented by the right-clicked slice. **Note:** Regenerating the Event Analysis report for a specific page, server, or end-user group changes the data displayed in all of the panes accordingly.
Event Log Report	Select from the right-click menu for a pie-chart slice. Opens the Event Log report for a specific page, server, or end-user group. For details on the Event Log report, see "Event Log" on page 532.

Event Count Over Time Graph

Description	The Event Count Over Time report shows data for the selected event type, broken down into time intervals. You can narrow the time period for which data is displayed in the Event Count Over Time report, by clicking on an individual point to obtain more detailed information for a specific event. For details on the Event Count Over Time report, see "Event Count Over Time Report" on page 528.
Important Information	Changing the time period of the Event Count Over Time report causes the data displayed in the other panes of the Event Analysis report to change accordingly.

Data by Pages, Servers and End-User Groups Tables

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

GUI Element (A–Z)	Description
End User	In the Event by End Users table, displays the End-User Group name.
Event Count	Displays the number of events that occurred on the page, server, or end-user group in the time period for which you generated the report.
Page	In the Event by Pages table, displays the page name. **Note:** Events that occurred in a session and that are not related to a specific URL, are grouped together under **Session Events** in the Event by Pages table.
Server	In the Event by Server table, displays the server name.
Maximum Sessions	Displays the maximum number of sessions in which the events occurred.

Event Count Over Time Table

Description	The Event Count Over Time table shows data for the selected event type, broken down into time intervals. You can narrow the time period for which data is displayed in the Event Count Over Time report, by clicking on the individual the number of events displayed for a particular time. For more information on working with the Event Count Over Time report, see "Event Count Over Time Report" on page 528.
Important Information	Changing the time period of the Event Count Over Time report causes the data displayed in the other tables of the Event Analysis report to change accordingly.

Event Count Over Time Report

The following is an example of the Event Count Over Time report.

Description	Displays data for all events, or sessions with events, in monitored applications that you configured in End User Management Administration, broken down by time intervals. The report can be viewed as a graph (see page 530), or as a table (see page 531), by clicking on the appropriate tab. The report opens in the graph view by default. **To access:** Select **Applications > End User Management > Real User > Event Count Over Time**
Important Information	You can choose to view individual events, or sessions with events, in the report by selecting the appropriate option before generating the report.

This section includes the following topics:

➤ "Report Settings" on page 529
➤ "View as Graph" on page 530
➤ "View as Table" on page 531

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Events ➤ Pages ➤ End User Groups ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

View as Graph

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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the graph.
<Lines connecting data points>	A different colored line on the graph is shown for each type of event that you configured for the monitored application. **Note:** Click a data point in the graph to display the Event Analysis report for a specific event in a shorter time range. For details on the Event Analysis report, see "Event Analysis Report" on page 522.
Number of Events <y-axis>	Displays the number of events or sessions, depending on the selection you made.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.

View as Table

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

GUI Element (A–Z)	Description
<Date/time>	The table shows a column for each time division unit for the time range that you defined when generating the report. The number of events that occurred for each event type at each time division unit is displayed. **Note:** Click an individual value to display the Event Analysis report for a specific event in a shorter time range. For details on the Event Analysis report, see "Event Analysis Report" on page 522.
Event Name	Displays the name of the event type configured for the monitored application selected, or a different HTTP error event type configured for the Real User Monitor engine.

Event Log

Description	Displays a log of the occurrences of a specific event type for a selected time frame. **To access:** Select **Event Log Report** from the right-click menu for a pie-chart slice in the Event Analysis Report, displayed as a graph. For details on the Event Analysis report, see "Event Analysis Report" on page 522.

This section includes the following topics:

- "Report Settings" on page 532
- "Report Content" on page 533

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Events ➤ Pages ➤ End User Groups ➤ User Properties ➤ Servers

GUI Element (A–Z)	Description
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

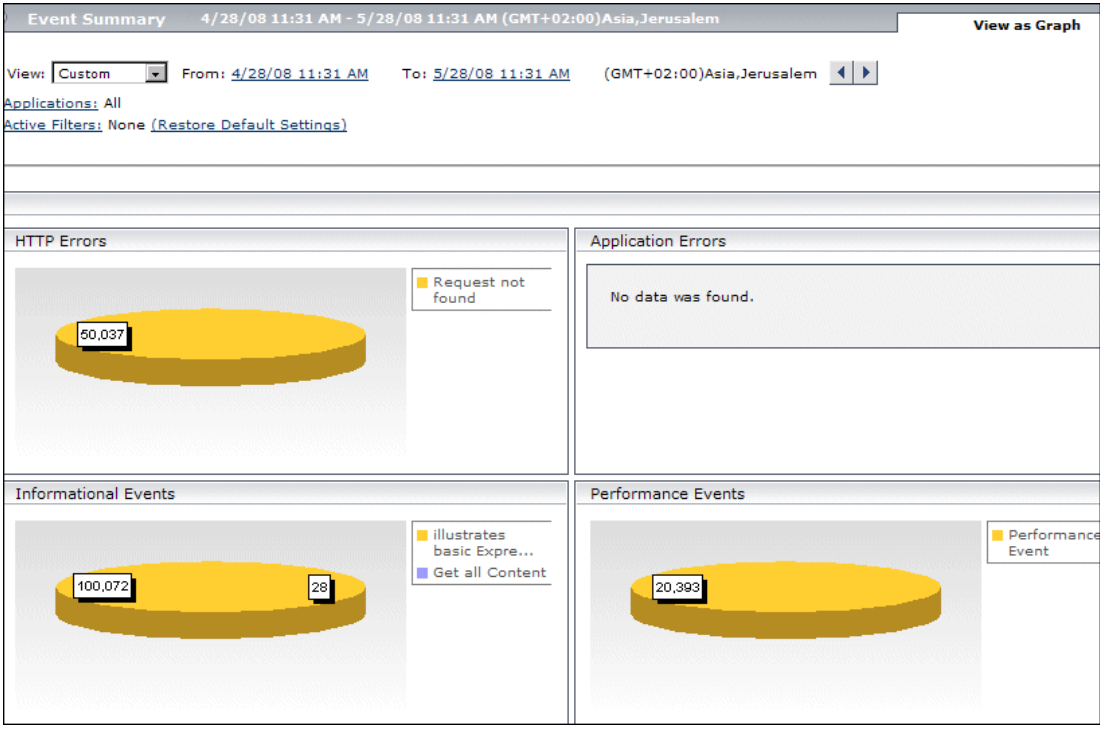
Report Content

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

GUI Element (A–Z)	Description
	View Session Details button. Click to open the Session Details page, where you can view the properties, events, and pages of a session. For details on the Session Details page, see "Session Details Report" on page 616.
End User	Displays the name of the end-user group that hit the page on which the event occurred.
Event Description	Displays the event description as you configured in End User Management Administration.
Page	Displays the URL of the page on which the event occurred.
Time	Displays the date and time that the event occurred.

Event Summary Report

The following is an example of the Event Summary report.



Description	Displays a summary of events in monitored applications that you configured in End User Management Administration. The data in the Event Summary report can be viewed either as a graph (see page 537), or as a table (see page 537), by clicking on the appropriate tab. The report opens in the **View as Graph** tab by default. **To access:** ➤ Select **Applications** > **End User Management** > **Real User** > **Global Statistics** ➤ Click the **Event Summary** button for a selected end-user group in the End User Summary Report (see page 489).
Important Information	➤ The Event Summary report shows data for HTTP errors, application errors, informational events, and performance events. You can deselect any of these options prior to generating the report by clearing the relevant check box. ➤ 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.

This section includes the following topics:

➤ "Report Settings" on page 536
➤ "View as Graph" on page 537
➤ "View as Table" on page 537

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Events ➤ Pages ➤ End User Groups ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

View as Graph

Description	The Event Summary report contains up to four panes, one each for HTTP errors, application errors, informational events, and performance events. If you deselect any of these options prior to generating the report, that specific pane is not displayed. Each pane displays a pie chart with color-coded slices representing the different types of events included in the pane's main event type, for which there is data. Up to 10 different slices can be displayed per chart. If there are more than 10 types of events to be displayed, the types with the least number of occurrences are grouped together in a slice called others. The color coding used for the slices is described in the legend.
Important Information	➤ Hold the cursor over a slice of a pie chart to display a tooltip that shows the event type represented by the slice, the number of events of this type that occurred in the time period for which you generated the report, and the maximum number of sessions in which the events occurred. ➤ To view the Event Analysis report for a specific type of event, click the slice in the pie chart that represents the event or error for which you want to view the report. The Event Analysis report opens. For details on the Event Analysis report, see "Event Analysis Report" on page 522.

View as Table

Description	The Event Summary report contains four tables, one each for HTTP errors, application errors, informational events, and performance events. If you deselect any of these options prior to generating the report, that specific pane is not displayed. Each table includes a row for every type of event included in the table's main event type, for which there is data.

The following elements are included in each table in the Events Summary report (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
	View Event Analysis Report button. Click to open the Event Analysis report, where you can view detailed data for a selected event type. For details on the Event Analysis report, see "Event Analysis Report" on page 522.
# of Events	Displays the number of events that occurred in the monitored application during the time range you specified for the report.
Event Type	Displays the event name.
Maximum Sessions	Displays the maximum number of sessions in which the events occurred.

Find Dialog Box

Description	You use the **Find** dialog box to search for a specific string in the HTML source code of a session snapshot. **To access:** In the **Source** tab of the Session Viewer Page (see page 621) or the Snapshot Viewer Page (see page 628), click an HTML page and within the page press CTRL + F.

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

GUI Element (A–Z)	Description
<Text field>	Enter the string for which you want to search.
Close	Click the **Close** button to close the Find dialog box when you have finished searching.

GUI Element (A–Z)	Description
Down	Select the **Down** option to search the source code from top to bottom.
Find	Click the **Find** button to find the next occurrence of the string for which you are searching in the source code.
Up	Select the **Up** option to search the source code from bottom to top.

Global Statistics Report

Description	Contains tables displaying general page, end-user, and broken link data that is not related to the specific pages and end-users that you define for Real User Monitor in End User Management Administration. For details on configuring monitoring settings for Global Statistics report data, see "Edit General Settings Page" on page 338. **To access:** Select **Applications** > **End User Management** > **Real User** > **Global Statistics**
Important Information	➤ The data displayed in the tables is based on all data collected from the selected engine, and not on the specific pages and end-user groups configured for Real User Monitor in End User Management Administration. The data is collected according to the settings defined for the engine in End User Management Administration. For information on configuring these settings, see "Edit General Settings Page" on page 338. ➤ You generate the Global Statistics report for a specific Web or SOAP application, which you select from the list in the **Application** field on the report page. You cannot generate the Global Statistics report for TCP applications. ➤ Data for servers and end users is aggregated by the Real User Monitor engine for each five minute period. This means that you do not see a real picture of such data if you view this report using a time breakdown of less than five minutes.

This section includes the following topics:

➤ "Report Settings" on page 541

➤ "Most Popular Pages" on page 541

➤ "Most Active End Users" on page 542

➤ "Slowest End Users" on page 544

➤ "Pages with Slowest Server Time" on page 545

➤ "Pages with Most Errors" on page 546

➤ "Broken Links" on page 547

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Application	Select the application from the drop-down list for which data is included in the report. **Note:** Only Web and SOAP applications are included in the drop-down list. You cannot generate the Global Statistics report for TCP applications.

Most Popular Pages

Description	Displays data for the pages that received the highest number of hits.
Important Information	In calculating the most popular pages, Real User Monitor takes into account which pages were most popular during each one-hour interval and the number of intervals for which the pages were most popular.

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

GUI Element (A–Z)	Description
	Define Page button. Click to open the Define Page dialog box, where you add an undefined page to the list of configured pages in End User Management Administration. For details on configuring pages in End User Management Administration, see "New/Edit Page" on page 359. For details on the Define Page dialog box, see "Define Page Dialog Box" on page 473.
Defined	Indicates whether a page was defined in End User Management Administration at the time at which the data sample was compiled by the Real User Monitor engine.
Hits	Displays the total number of requests that each page received for the entire amount of time that it was most popular.
Page	Displays the URLs of the most popular pages.

Most Active End Users

Description	Displays data for the end-user groups with the highest number of page requests.
Important Information	In calculating the most active end-users, Real User Monitor takes into account which end-user groups were most active during each one-hour interval and the number of intervals for which the end-user groups were most active.

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

GUI Element (A–Z)	Description
	Define End User button. Click to open the Define End-User Group dialog box, where you add an undefined end-user group to the list of configured end-user groups in End User Management Administration. For details on configuring end-user groups in End User Management Administration, see "New/Edit End-User Group Page" on page 349. For details on the Define End-User Group dialog box, see "Define End-User Group Dialog Box" on page 471.
Defined	Indicates whether an end-user group was defined in End User Management Administration at the time at which the data sample was compiled by the Real User Monitor engine.
End User	Displays the names and IP addresses of the most active end-user groups.
End-User Location	Displays the geographic location of each end-user group.
HTTP Traffic	Displays the number of kilobytes that each end-user group sent to, and received from, the servers via HTTP.
HTTPS Traffic	Displays the number of kilobytes that each end-user group sent to, and received from, the servers via HTTPS.
Latency	Displays the average network latency (the round trip time for a packet), in milliseconds, for each end-user group.
Page Hits	Displays the total number of page hits generated by each end-user group for the entire amount of time that it was most active.

Slowest End Users

Description	Displays data for the end-user groups that experienced the highest average network latency.
Important Information	In calculating the slowest end-users, Real User Monitor takes into account which end-user groups were slowest during each five-minute interval and the number of intervals for which the end-user groups were slowest.

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

GUI Element (A–Z)	Description
	Define End User button. Click to open the Define End-User Group dialog box, where you add an undefined end-user group to the list of configured end-user groups in End User Management Administration. For details on configuring end-user groups in End User Management Administration, see "New/Edit End-User Group Page" on page 349. For details on the Define End-User Group dialog box, see "Define End-User Group Dialog Box" on page 471.
Defined	Indicates whether an end-user group was defined in End User Management Administration at the time at which the data sample was compiled by the Real User Monitor engine.
End User	Displays the names or IP addresses of the slowest end-user groups.
End-User Location	Displays the geographic location of each end-user group.
HTTP Traffic	Displays the number of kilobytes that each end-user group sent to, and received from, the servers via HTTP.
HTTPS Traffic	Displays the number of kilobytes that each end-user group sent to, and received from, the servers via HTTPS.

GUI Element (A–Z)	Description
Latency	Displays the average network latency, in milliseconds, for each end-user group.
Page Hits	Displays the total number of page hits generated by each end-user group for the entire amount of time that it was one of the slowest end-users.

Pages with Slowest Server Time

Description	Displays data for the pages with the longest server time, from those pages whose average server time is greater than the server time threshold you configured for the page in End User Management Administration.
Important Information	➤ In calculating the pages with the slowest server time, Real User Monitor takes into account which pages had the slowest server time during each five-minute interval, and the number of intervals for which the pages were slowest. ➤ It is possible that a page included in the Pages with Slowest Server Time table has a number of hits that would seem to qualify it for inclusion in the Most Popular Pages table, but it is not included. This is due to the different aggregation schedule between the Slowest Pages (aggregated every five minutes) and the Most Popular Pages (aggregated every hour).

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

GUI Element (A–Z)	Description
	Define Page button. Click to open the Define Page dialog box, where you add an undefined page to the list of configured pages in End User Management Administration. For details on configuring pages in End User Management Administration, see "New/Edit Page" on page 359. For details on the Define Page dialog box, see "Define Page Dialog Box" on page 473.
Download Time	Displays the average amount of time it took to download each page.
Hits	Displays the total number of hits that each page received for the entire amount of time that it was one of the slowest pages.
Page URL	Displays the URLs of the slowest pages.
Server Time	Displays the average amount of time, in seconds, that it took the server to process the requests for each page.

Pages with Most Errors

Description	Displays data for the pages on which the most HTTP and application errors occurred.
Important Information	In calculating the pages with most errors, Real User Monitor takes into account which pages had the most errors during each five-minute interval and the number of intervals for which the pages had most errors.

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

GUI Element (A–Z)	Description
	Define Page button. Click to open the Define Page dialog box, where you add an undefined page to the list of configured pages in End User Management Administration. For details on configuring pages in End User Management Administration, see "New/Edit Page" on page 359. For details on the Define Page dialog box, see "Define Page Dialog Box" on page 473.
Application Errors	Displays the total number of application errors (that is, the application errors and events that you configured in End User Management Administration) that occurred on each page. For details on configuring application errors and events, see "Real User Monitor Administration User Interface" on page 335.
HTTP Errors	Displays the total number of predefined, default HTTP errors that occurred on each page.
Page	Displays the URLs of the pages with most errors.
Total Errors	Displays the total number of HTTP and application errors that occurred on each page.

Broken Links

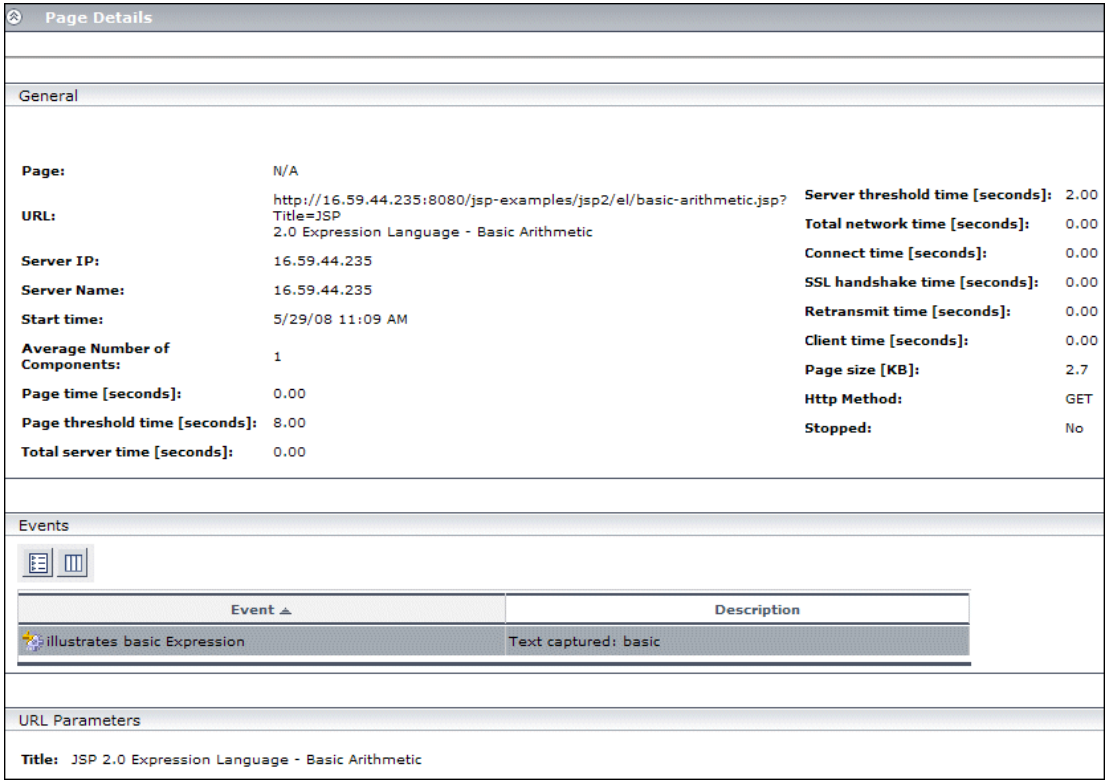
Description	Displays data for the broken links encountered on specific host machines that you configure for Real User Monitor in End User Management Administration, experienced most frequently by end-users.
Important Information	In calculating the most frequent broken links, Real User Monitor takes into 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.

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

GUI Element (A–Z)	Description
# of Occurrences	Displays the total number of occurrences of each broken link for the entire amount of time that it was considered a frequent broken link.
First Occurrence	Displays the time at which an end-user group first experienced the broken link.
Last Occurrence	Displays the time at which an end-user group last experienced the broken link.
Page URL	Displays the URLs of the pages with the most frequent broken links.
Referring URL	Displays the URL from which each broken link was accessed.

Page Details Page

The following is an example of the Page Details page.



Description	Displays details of a page and includes the General Pane (see page 550) showing general page properties, Events Pane (see page 551) showing the configured events that occurred on the page, and URL Parameters Pane (see page 551) showing the parameters included in the page's URL. **To access:** Click the **View Page Details** button in the Session Details Report (see page 616).

This section includes the following topics:

- "General Pane" on page 550
- "Events Pane" on page 551
- "URL Parameters Pane" on page 551

General Pane

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

GUI Element (A–Z)	Description
Client Time	Displays the amount of time, in seconds, that the page was active on the client machine.
HTTP Method	Displays the HTTP method used to access the page.
Network Time	Displays the amount of time, in seconds, that the page was active on the network.
Number of Components	Displays the number of components included in the page.
Page	Displays the name configured for the page in End User Management Administration, or blank if the page has not been configured.
Page Size	Displays the downloaded size, in kilobytes, of the page.
Page Threshold	Displays the page time threshold configured for the page in End User Management Administration.
Page Time	Displays the total amount of time, in seconds, from when the page was requested until it finished loading.
Server IP	Displays the IP address of the server on which the page was located.
Server Name	Displays the name of the server on which the page was located.
Server Threshold	Displays the server time threshold configured for the page in End User Management Administration.

GUI Element (A–Z)	Description
Server Time	Displays the amount of time, in seconds, that it took the server to process the request for the page.
Start Time	Displays the date and time the page was hit.
Stopped	Displays whether or not the page downloading was stopped by the end-user.
URL	Displays the URL of the page.

Events Pane

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

GUI Element (A–Z)	Description
Description	Displays the event description
Name	Displays the event name

URL Parameters Pane

Description	Displays the names and values of any parameters that were included in the page's URL, which is displayed in the General pane. For example, for a page with the URL: http://www.myDomain.com:8080/application1/page3.jsp?firstName=John&lastName=Doe&vehicle=bike the following parameters are displayed in the URL Parameters pane: ➤ **firstName:** John ➤ **lastName:** Doe ➤ **vehicle:** bike

Page Over Time Report

Description	Displays details of the availability, performance, hits availability, and breakdown for the selected Web page over the course of time. You can view the report as a graph or as a table by clicking the appropriate tab. **To access:** ➤ Click the **Page Over Time** button for the page in the Page Summary Report (see page 563). ➤ Click the **Page Over Time** button for the page in the End Users by Page Report (see page 502).
Important Information	➤ When accessing the Page Over Time report from the End Users by Page Report, the report is filtered for the end-user group for which you accessed the report. ➤ When you view the report 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. In some of the graphs, to drill down to a higher time resolution, click a data point or bar and then select **Time Resolution** from the displayed menu.

This section includes the following topics:

➤ "Report Settings" on page 553

➤ "Page Availability Over Time Graph" on page 554

➤ "Page Hits Availability Over Time Graph" on page 555

➤ "Page Performance Over Time Graph" on page 556

➤ "Page Breakdown Over Time Graph" on page 558

➤ "Page Availability Over Time Table" on page 560

➤ "Page Hits Availability Over Time Table" on page 560

➤ "Page Performance Over Time Table" on page 561

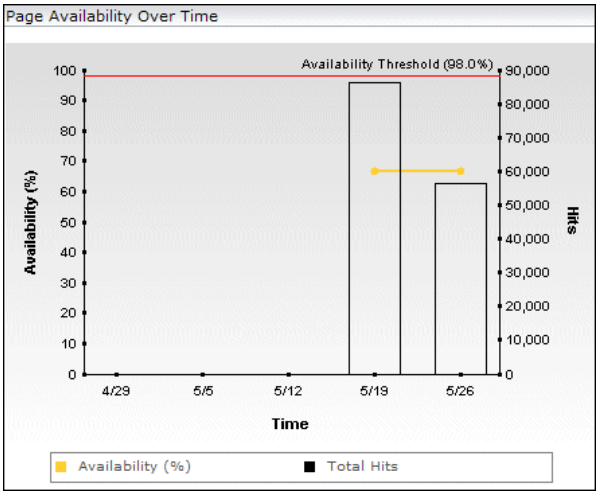
➤ "Page Breakdown Over Time Table" on page 561

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Events ➤ Pages ➤ End User Groups ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

Page Availability Over Time Graph



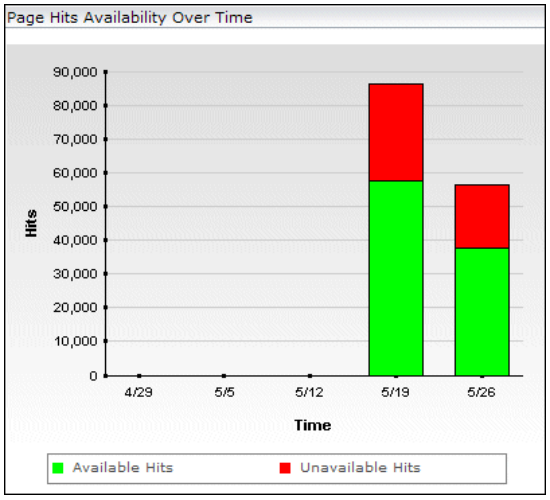
Important Information	If active filters are used to add more than one page to the report, the displayed data is the average of all the included pages.

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

GUI Element (A–Z)	Description
<Bars>	Display the total number of pages hits at each point over the course of the defined time period. **Tooltip:** the relevant time period, the percentage of availability, and the number of hits.
<Horizontal Availability Threshold line>	Displays the page availability threshold you configured in End User Management Administration. **Note:** If active filters are used to add more than one page to the report, this line is not displayed.
<Legend>	Describes the color coding used in the graph.

GUI Element (A–Z)	Description
<Line connecting data points>	Displays the percentage of available hits of the page at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point on the graph to display the relevant time period, the percentage of availability, and the number of hits.
Availability <left y-axis>	Page availability percentage units.
Hits <right y- axis>	The total number of page hits.
Time <x-axis>	Time division units for the time range you defined when generating the report.

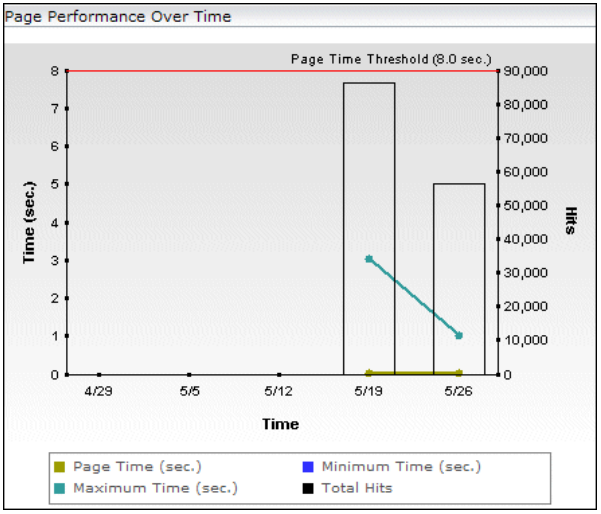
Page Hits Availability Over Time Graph



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

GUI Element (A–Z)	Description
<Bars>	Each bar represents the number of page hits over the course of the defined time period. The bars are divided into the number of available hits (colored green), and the number of unavailable hits (colored red). **Tooltip:** The number and percentage of available and unavailable hits.
<Legend>	Describes the color coding used in the bars.
Hits <y-axis>	The number of page hits.
Time <x-axis>	Time division units for the time range you defined when generating the report.

Page Performance Over Time Graph

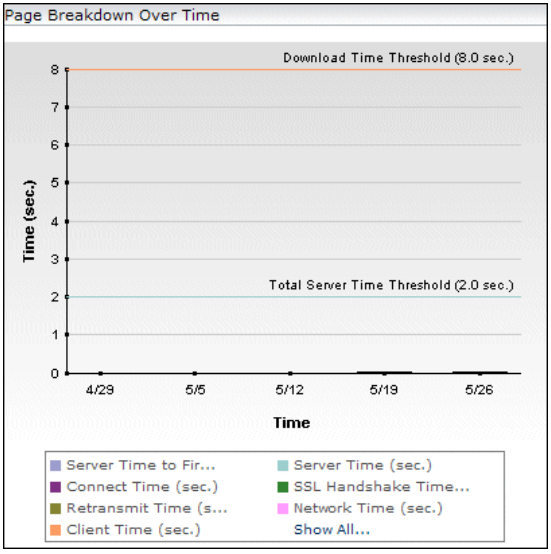


Important Information	If active filters are used to add more than one page to the report, the displayed data is the average of all the included pages.

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

GUI Element (A–Z)	Description
<Bars>	Display the total number of page hits at each point over the course of the defined time period. **Tooltip:** The average time, maximum time, minimum time, standard deviation, and total number of hits for the page at a given time.
<Horizontal Page Time Threshold line>	Displays the page time threshold you configured in End User Management Administration. **Note:** If active filters are used to add more than one page to the report, this line is not displayed.
<Legend>	Describes the color coding used in the graph.
<Lines connecting data points>	The three lines on the graph represent: ➤ the average page time ➤ the maximum page time ➤ the minimum page time over the course of the defined time period. **Tooltip:** Hold the cursor over the a data point on the graph to display the average time, maximum time, minimum time, standard deviation, and total number of hits for the page at a given time.
Hits <right y- axis>	The total number of page hits.
Time (secs) left <y-axis>	Page time units in seconds.
Time <x-axis>	Time division units for the time range you defined when generating the report.

Page Breakdown Over Time Graph



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

GUI Element (A–Z)	Description
<**Bars**>	Each bar represents the total page time over the course of the defined time period, broken down to client time, connection time, network time, retry time, server time, server time to first buffer, and SSL handshake time. Click a bar to display a menu from which you can select the following: ➤ **Time Resolution.** Click to display the graph with a higher time resolution. For example, if you click a bar that displays data for a day, the time resolution changes to hours for the specific day. ➤ **Diagnostics.** Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438. ➤ **View transaction tracking data.** Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440. ➤ **Drilldown to NNM.** Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443. **Tooltip:** The duration of each segment in the bar.
<**Horizontal Total Server Time Threshold line**>	Displays the server time threshold of the page as configured in End User Management Administration.
<**Horizontal Download Time Threshold line**>	Displays the download time threshold of the page, as configured in End User Management Administration.

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the graph. Click **Show All** to display the expanded legend in a new window.
Time (secs) <y-axis>	Time units in seconds.
Time <x-axis>	Time division units for the time range you defined when generating the report.

Page Availability Over Time Table

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

GUI Element (A–Z)	Description
Availability	Displays as a percentage, the number of successful hits, out of the total number of hits for the page.
Time	Displays the applicable date and time for the data displayed.

Page Hits Availability Over Time Table

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

GUI Element (A–Z)	Description
Availability	Displays as a percentage, the number of successful hits, out of the total number of hits for the page.
Available Hits	Displays the number of successful hits for the page.
Time	Displays the applicable date and time for the data displayed.
Total Hits	Displays the total number of hits for the page.
Unavailable Hits	Displays the number of unsuccessful hits for the page.

Page Performance Over Time Table

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

GUI Element (A–Z)	Description
Maximum Time	Displays the longest page download time.
Minimum Time	Displays the shortest page download time.
Page Time	Displays the average page download time.
STD	Displays the standard deviation of the page download time.
Time	Displays the applicable date and time for the data displayed.

Page Breakdown Over Time Table

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

GUI Element (A–Z)	Description
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.
Client Time	Displays the average client processing time during the page download.

GUI Element (A–Z)	Description
Connection Time	Displays the average amount of time, in seconds, that it took to establish an initial connection to the server from the first http request sent.
Network Time	Displays the average network time during the page download.
Retry Time	Displays the overall amount of time that passes from the moment an HTTP request is started until the moment an error message is returned. **Note:** Retry time only relates to errors that execute a retry after the error.
Server Time	Displays the average server processing time during the page download.
Server Time to First Buffer	Displays 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	Displays the average amount of time taken to establish an SSL connection. **Note:** SSL handshake time is applicable only for HTTPS communications.
Time	Displays the applicable date and time for the data displayed.
Total Time	Displays the average total page download time.

Page Summary Report

Description	Displays data for specific Web pages that were configured for Real User Monitor in End User Management Administration. For information on configuring Web pages to be monitored, see "New/Edit Page" on page 359. The Page Summary report contains the following tables, viewed by clicking the appropriate tab: ➤ General (see page 565) ➤ Availability (see page 569) ➤ Performance (see page 571) **To access:** ➤ Select **Applications** > **End User Management** > **Real User** > **Page Summary** ➤ Click the **Page Summary** button for a selected end-user group in the End User Summary Report (see page 489).
Important Information	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.

This section includes the following topics:

➤ "Report Settings" on page 564
➤ "General Table" on page 565
➤ "Availability Table" on page 569
➤ "Performance Table" on page 571

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Events ➤ Pages ➤ End User Groups ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

General Table

Description	Displays general data related to each configured Web page that was monitored.

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

GUI Element (A–Z)	Description
	End Users by Page button. Click to open the End Users by Page report, where you can view data for each end-user group that accessed a specific page. For details on the End Users by Page report, see "End Users by Page Report" on page 502.
	Page Over Time button. Click to open the Page Over Time report, where you can view data over a period of time for a page. For details on the Page Over Time report, see "Page Over Time Report" on page 552.
	Event Summary button. Click to open the Event Summary report, where you can view event summary data. For details on the Event Summary report, see "Event Summary Report" on page 534.
	Servers by Page Summary button. Click to open the Servers by Page Summary report, where you can view a summary of the servers used in accessing a page. For details on the Servers by Page Summary report, see "Servers by Page Summary Report" on page 608.
	Session Analyzer button. Click to open the Session Analyzer report for sessions that include the page. For details on the Session Analyzer report, see "Session Analyzer Report" on page 612.

GUI Element (A–Z)	Description
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.
Availability	Displays the percentage of requests for which each page was available. This column is color-coded, based on the page's availability in relation to the page availability threshold defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The page availability threshold you defined in End User Management Administration. **Note:** If a page is unavailable, its data is not included in the page performance calculations.
Average Number of Components	Displays the average number of page components that were downloaded for each page. **Note:** ➤ The average number of components may not always be an integer. This is caused by caching, which means that the components of a page may not all be downloaded each time the page is hit. ➤ The sum of all the average number of components that were downloaded for each page is displayed in the summary row.

GUI Element (A–Z)	Description
Informational Events	Displays the number of informational events that occurred on the page, based on the informational events you defined for the page, or application, in End User Management Administration. **Note:** The sum of all the informational events that occurred in each page is displayed in the summary row.
Page Name	Displays the names you assigned the Web pages in End User Management Administration. **Tooltip:** The URL of the page as configured in End User Management Administration, and the application in which the page is included.
Page Size	Displays the average downloaded size, in kilobytes, of each page. **Note:** The average page size of all pages is displayed in the summary row.
Page Time	Displays the average amount of time, in seconds, it took for each page to download. This column is color-coded, based on the page's download time in relation to the page time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The page time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the page time values. **Note:** The average page time of all pages is displayed in the summary row.

GUI Element (A–Z)	Description
Total Hits	Displays the total number of requests that each page received. **Note:** The sum of all the hits to each page is displayed in the summary row.
Total Server Time	Displays the average amount of time, in seconds, that it took the server to process the requests for each page. This column is color-coded, based on the page's server time in relation to the server time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the server time values. **Note:** The average server time of all pages is displayed in the summary row.

Availability Table

Description	Displays page availability data for each configured Web page that was monitored.

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

GUI Element (A–Z)	Description
	End Users by Page button. Click to open the ENd Users by Page report, where you can view data for each end-user group that accessed a specific page. For details on the End Users by Page report, see "End Users by Page Report" on page 502.
	Page Over Time button. Click to open the Page Over Time report, where you can view data over a period of time for a page. For details on the Page Over Time report, see "Page Over Time Report" on page 552.
	Event Summary button. Click to open the Event Summary report, where you can view event summary data. For details on the Event Summary report, see "Event Summary Report" on page 534.
	Servers by Page Summary button. Click to open the Servers by Page Summary report, where you can view a summary of the servers used in accessing a page. For details on the Servers by Page Summary report, see "Servers by Page Summary Report" on page 608.
	Session Analyzer button. Click to open the Session Analyzer report for sessions that include the page. For details on the Session Analyzer report, see "Session Analyzer Report" on page 612.

GUI Element (A–Z)	Description
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
Application Errors	Displays the number of application errors encountered by the page, based on the application errors you defined for the page, or the application, in End User Management Administration.
Availability	Displays the percentage of requests for which each page was available. This column is color-coded, based on the page's availability in relation to the page availability threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The page availability threshold you defined in End User Management Administration. **Note:** If a page is unavailable, its data is not included in the page performance calculations.
HTTP Errors	Displays the number of HTTP errors encountered by the page, based on the HTTP errors you defined for the Real User Monitor engine in End User Management Administration.
Page Name	Displays the names you assigned the Web pages in End User Management Administration. **Tooltip:** The URL of the page as configured in End User Management Administration, and the application in which the page is included.

GUI Element (A–Z)	Description
Stopped	Displays the number of hits for which each page was unavailable because page downloading was stopped.
Total Hits	Displays the total number of requests that each page received.
Unavailable Hits	Displays the number of hits for which each page was unavailable.

Performance Table

Description	Displays page performance data for each configured Web page that was monitored.

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

GUI Element (A–Z)	Description
	End Users by Page button. Click to open the End Users by Page report, where you can view data for each end-user group that accessed a specific page. For details on the End Users by Page report, see "End Users by Page Report" on page 502.
	Page Over Time button. Click to open the Page Over Time report, where you can view data over a period of time for a page. For details on the Page Over Time report, see "Page Over Time Report" on page 552.
	Event Summary button. Click to open the Event Summary report, where you can view event summary data. For details on the Event Summary report, see "Event Summary Report" on page 534.

GUI Element (A–Z)	Description
	Servers by Page Summary button. Click to open the Servers by Page Summary report, where you can view a summary of the servers used in accessing a page. For details on the Servers by Page Summary report, see "Servers by Page Summary Report" on page 608.
	Session Analyzer button. Click to open the Session Analyzer report for sessions that include the page. For details on the Session Analyzer report, see "Session Analyzer Report" on page 612.
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
Client Time	Displays the average amount of time, in seconds, that each page's requests were delayed on the client machine. **Tooltip:** Minimum client time, maximum client time, and standard deviation.
Connection Time	Displays the average amount of time, in seconds, that it took to establish an initial connection to the server from the first http request sent.
Max Page Time	Displays the longest download time for each page.
Page Name	Displays the names you assigned the Web pages in End User Management Administration. **Tooltip:** The URL of the page as configured in End User Management Administration, and the application in which the page is included.

GUI Element (A–Z)	Description
Page Time	Displays the average amount of time, in seconds, it took for each page to download. This column is color-coded, based on the page's download time in relation to the page time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The page time threshold you defined in End User Management Administration, as well as the minimum page time, maximum page time, and standard deviation.
Page Time of Slow Hits	Displays the average amount of time, in seconds, that it took to download each page's slow page requests.
Retry Time	Displays the overall amount of time that passes from the moment an HTTP request is started until the moment an error message is returned. **Note:** Retry time only relates to errors that execute a retry after the error.
Server Time of Slow Server Hits	Displays the average amount of time, in seconds, that it took the server to process the hits whose server time exceeded the configured server time threshold.
Server Time to First Buffer	Displays 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 Hits	Displays, for each page, the total number of hits whose page time exceeded the configured page time threshold.
Slow Server Hits	Displays, for each page, the total number of hits whose server time exceeded the configured server time threshold.

GUI Element (A–Z)	Description
SSL Handshake Time	Displays the average amount of time taken to establish an SSL connection. **Note:** SSL handshake time is applicable only for HTTPS communications.
Total Hits	Displays the total number of requests that each page received.
Total Network Time	Displays the average amount of time, in seconds, that each page's requests were delayed on the network. Connection, SSL handshaking, and retry times are also included in the total network time. **Tooltip:** Minimum network time, maximum network time, and standard deviation.
Total Server Time	Displays the average amount of time, in seconds, that it took the server to process the requests for each page. This column is color-coded, based on the page's server time in relation to the server time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server time threshold you defined in End User Management Administration, as well as the minimum server time, maximum server time, and standard deviation.

Pages by Server Summary Report

Description	Displays a table showing each page hit by the server for which you are viewing data. The Pages by Server Summary report contains the following tables, viewed by clicking the appropriate tab: ➤ General (see page 577) ➤ Availability (see page 581) ➤ Performance (see page 583) **To access:** Click the **Pages by Server Summary** button for the server in the Server Summary Report (see page 600).
Important Information	➤ The report uses the same time range as that selected for the main Server Summary report, but cannot exceed 24 hours. If the time range selected is greater than 24 hours, the last 24 hour period of the time range is used. ➤ The report uses raw Real User Monitor data.

This section includes the following topics:

➤ "Report Settings" on page 576
➤ "General Table" on page 577
➤ "Availability Table" on page 581
➤ "Performance Table" on page 583

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Events ➤ Pages ➤ End User Groups ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

General Table

Description	Displays general data related to each configured Web page that was monitored.

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

GUI Element (A–Z)	Description
	End Users by Page button. Click to open the ENd Users by Page report, where you can view data for each end-user group that accessed a specific page. For details on the End Users by Page report, see "End Users by Page Report" on page 502.
	Page Over Time button. Click to open the Page Over Time report, where you can view data over a period of time for a page. For details on the Page Over Time report, see "Page Over Time Report" on page 552.
	Event Summary button. Click to open the Event Summary report, where you can view event summary data. For details on the Event Summary report, see "Event Summary Report" on page 534.
	Servers by Page Summary button. Click to open the Servers by Page Summary report, where you can view a summary of the servers used in accessing a page. For details on the Servers by Page Summary report, see "Servers by Page Summary Report" on page 608.
	Session Analyzer button. Click to open the Session Analyzer report for sessions that include the page. For details on the Session Analyzer report, see "Session Analyzer Report" on page 612.

GUI Element (A–Z)	Description
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
Availability	Displays the percentage of requests for which each page was available. This column is color-coded, based on the page's availability in relation to the page availability threshold defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The page availability threshold you defined in End User Management Administration. **Note:** If a page is unavailable, its data is not included in the page performance calculations.
Average Number of Components	Displays the average number of page components that were downloaded for each page. **Note:** ➤ The average number of components may not always be an integer. This is caused by caching, which means that the components of a page may not all be downloaded each time the page is hit. ➤ The sum of all the average number of components that were downloaded for each page is displayed in the summary row.

GUI Element (A–Z)	Description
Informational Events	Displays the number of informational events that occurred on the page, based on the informational events you defined for the page, or application, in End User Management Administration. **Note:** The sum of all the informational events that occurred in each page is displayed in the summary row.
Page Name	Displays the names you assigned the Web pages in End User Management Administration. **Tooltip:** The full name and URL of the page.
Page Size	Displays the average downloaded size, in kilobytes, of each page. **Note:** The average page size of all pages is displayed in the summary row.
Page Time	Displays the average amount of time, in seconds, it took for each page to download. This column is color-coded, based on the page's download time in relation to the page time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The page time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the page time values. **Note:** The average page time of all pages is displayed in the summary row.

GUI Element (A–Z)	Description
Total Hits	Displays the total number of requests that each page received. **Note:** The sum of all the hits to each page is displayed in the summary row.
Total Server Time	Displays the average amount of time, in seconds, that it took the server to process the requests for each page. This column is color-coded, based on the page's server time in relation to the server time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the server time values. **Note:** The average server time of all pages is displayed in the summary row.

Availability Table

Description	Displays page availability data for each configured Web page that was monitored.

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

GUI Element (A–Z)	Description
	End Users by Page button. Click to open the End Users by Page report, where you can view data for each end-user group that accessed a specific page. For details on the End Users by Page report, see "End Users by Page Report" on page 502.
	Page Over Time button. Click to open the Page Over Time report, where you can view data over a period of time for a page. For details on the Page Over Time report, see "Page Over Time Report" on page 552.
	Event Summary button. Click to open the Event Summary report, where you can view event summary data. For details on the Event Summary report, see "Event Summary Report" on page 534.
	Servers by Page Summary button. Click to open the Servers by Page Summary report, where you can view a summary of the servers used in accessing a page. For details on the Servers by Page Summary report, see "Servers by Page Summary Report" on page 608.
	Session Analyzer button. Click to open the Session Analyzer report for sessions that include the page. For details on the Session Analyzer report, see "Session Analyzer Report" on page 612.

GUI Element (A–Z)	Description
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
Application Errors	Displays the number of application errors encountered by the page, based on the application errors you defined for the page, or the application, in End User Management Administration.
Availability	Displays the percentage of requests for which each page was available. This column is color-coded, based on the page's availability in relation to the page availability threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The page availability threshold you defined in End User Management Administration. **Note:** If a page is unavailable, its data is not included in the page performance calculations.
HTTP Errors	Displays the number of HTTP errors encountered by the page, based on the HTTP errors you defined for the Real User Monitor engine in End User Management Administration.
Page Name	Displays the names you assigned the Web pages in End User Management Administration. **Tooltip:** The full name and URL of the page.
Stopped	Displays the number of hits for which each page was unavailable because page downloading was stopped.

GUI Element (A–Z)	Description
Total Hits	Displays the total number of requests that each page received.
Unavailable Hits	Displays the number of hits for which each page was unavailable.

Performance Table

Description	Displays page performance data for each configured Web page that was monitored.

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

GUI Element (A–Z)	Description
	End Users by Page button. Click to open the End Users by Page report, where you can view data for each end-user group that accessed a specific page. For details on the End Users by Page report, see "End Users by Page Report" on page 502.
	Page Over Time button. Click to open the Page Over Time report, where you can view data over a period of time for a page. For details on the Page Over Time report, see "Page Over Time Report" on page 552.
	Event Summary button. Click to open the Event Summary report, where you can view event summary data. For details on the Event Summary report, see "Event Summary Report" on page 534.
	Servers by Page Summary button. Click to open the Servers by Page Summary report, where you can view a summary of the servers used in accessing a page. For details on the Servers by Page Summary report, see "Servers by Page Summary Report" on page 608.

GUI Element (A–Z)	Description
	Session Analyzer button. Click to open the Session Analyzer report for sessions that include the page. For details on the Session Analyzer report, see "Session Analyzer Report" on page 612.
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
Client Time	Displays the average amount of time, in seconds, that each page's requests were delayed on the client machine. **Tooltip:** Minimum client time, maximum client time, and standard deviation.
Connection Time	Displays the average amount of time, in seconds, that it took to establish an initial connection to the server from the first HTTP request sent.
Max Page Time	Displays the longest download time for each page.
Page Name	Displays the names you assigned the Web pages in End User Management Administration. **Tooltip:** The full name and URL of the page.

GUI Element (A–Z)	Description
Page Time	Displays the average amount of time, in seconds, it took for each page to download. This column is color-coded, based on the page's download time in relation to the page time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The page time threshold you defined in End User Management Administration, as well as the minimum page time, maximum page time, and standard deviation.
Page Time of Slow Hits	Displays the average amount of time, in seconds, that it took to download each page's slow page requests.
Retry Time	Displays the overall amount of time that passes from the moment an HTTP request is started until the moment an error message is returned. **Note:** Retry time only relates to errors that execute a retry after the error.
Server Time of Slow Server Hits	Displays the average amount of time, in seconds, that it took the server to process the hits whose server time exceeded the configured server time threshold.
Server Time to First Buffer	Displays 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 Hits	Displays, for each page, the total number of hits whose page time exceeded the configured page time threshold.
Slow Server Hits	Displays, for each page, the total number of hits whose server time exceeded the configured server time threshold.

GUI Element (A–Z)	Description
SSL Handshake Time	Displays the average amount of time taken to establish an SSL connection. **Note:** SSL handshake time is applicable only for HTTPS communications.
Total Hits	Displays the total number of requests that each page received.
Total Network Time	Displays the average amount of time, in seconds, that each page's requests were delayed on the network. Connection, SSL handshaking, and retry times are also included in the total network time. **Tooltip:** Minimum network time, maximum network time, and standard deviation.
Total Server Time	Displays the average amount of time, in seconds, that it took the server to process the requests for each page. This column is color-coded, based on the page's server time in relation to the server time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server time threshold you defined in End User Management Administration, as well as the minimum server time, maximum server time, and standard deviation.

Selected URLs with Meaningful Names Dialog Box

Description	Enables you to select unconfigured URLs with meaningful names to include in the **Pages** active filter for Real User Monitor reports. **To access:** Click the **Selected URLs with meaningful names** link in the **Pages** tab of the **Active Filters** dialog box.

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

GUI Element (A–Z)	Description
All	Select the **All** radio button to include all pages with meaningful names in the report.
None	Select the **None** radio button to exclude all pages with meaningful names from the report.
Results	Lists the pages with meaningful names that match the search criteria. Select the check box for each page you want to include in the report. **Note:** This element is only visible when the **Selected** radio button is chosen.
Search	Click the **Search** button to find all the pages with meaningful names that match the search criteria. **Note:** This element is only visible when the **Selected** radio button is chosen.
Search for	Enter the string to be matched when searching for pages with meaningful names. Any page whose name includes the string you enter is included in the search results. **Note:** This element is only visible when the **Selected** radio button is chosen.
Selected	Select the **Selected** radio button to display the fields that you use to search for pages with meaningful names that match a specific search criteria. From the search results you select the pages you want to include in the report.

Server Over Time Report

Description	Displays graphs and tables of the server's availability, traffic, requests, and errors over the course of time. You can view the Server Over Time report as graphs or tables, by clicking the appropriate tab. **To access:** Click the **Server Over Time** button in the Server Summary Report (see page 600).
Important Information	➤ The available graphs and tables in the report depend on the types of the applications for which you generate the report. For details on this topic, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430. ➤ Data for servers is aggregated by the Real User Monitor engine for each five minute period. This means that you do not see a real picture of such data if you view this report using a time breakdown of less than five minutes. ➤ In each graph, you can drill down to a higher time resolution, by clicking a bar or data point. For example, if you click a bar that displays data for a day, the time resolution changes to hours for the specific day.

This section includes the following topics:

➤ "Report Settings" on page 589

➤ "Component Hits Over Time Graph" on page 590

➤ "HTTP Traffic Over Time Graph" on page 591

➤ "Server Availability Over Time Graph" on page 592

➤ "Server Requests Over Time Graph" on page 593

➤ "TCP Server Errors Over Time Graph" on page 594

➤ "Traffic Throughput Over Time Graph" on page 595

➤ "HTTP Table" on page 596

➤ "Network Connections Table" on page 598

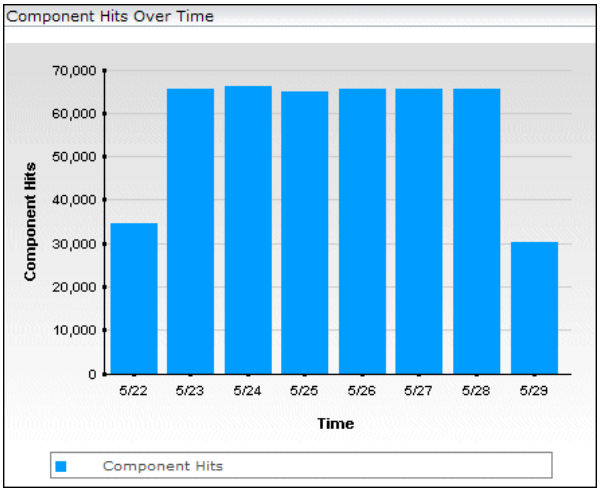
➤ "Request–Response Table" on page 598

Report Settings

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

GUI Element (A–Z)	Description
<**Common report elements**>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The **Servers** active filters tab is enabled for this report.
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

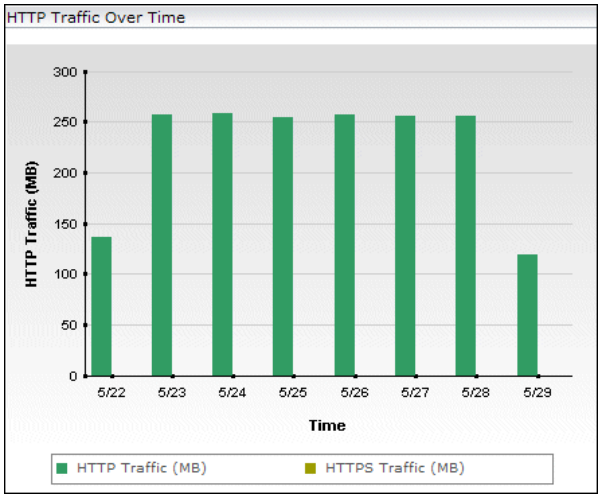
Component Hits Over Time Graph



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

GUI Element (A–Z)	Description
<Bars>	Indicate the total number of component hits for the applications on the server, at each point over the course of the defined time period. **Tooltip:** The number of component hits and the relevant time.
<Legend>	Describes the color coding used in the graph.
Component Hits <y-axis>	Displays the number of component hits.
Time <X-axis>	Displays the time division units for the time range that you defined when generating the report.

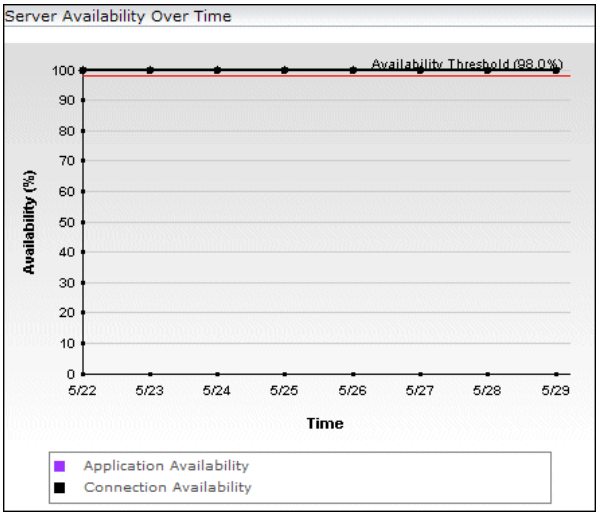
HTTP Traffic Over Time Graph



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

GUI Element (A–Z)	Description
<Bars>	Indicate the total amount of traffic throughput, in megabytes, for the applications on the server, at each point over the course of the defined time period. The bars are divided into two sections, one indicating HTTP traffic throughput and the other indicating HTTPS traffic throughput. **Tooltip:** The amount of HTTP or HTTPS traffic throughput, in megabytes, and the relevant time.
<Legend>	Describes the color coding used in the graph.
HTTP Traffic (MB) <y-axis>	Displays the amount of traffic in megabytes.
Time <X-axis>	Displays the time division units for the time range that you defined when generating the report.

Server Availability Over Time Graph

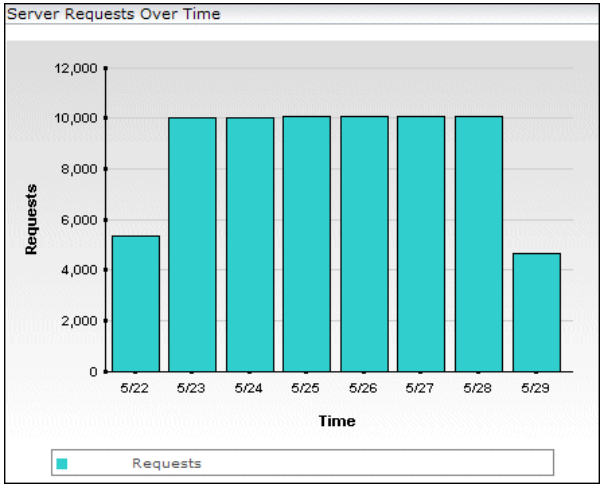


The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the graph.
Application Availability data points	Indicate the percentage of HTTP requests for which each server was available at each point over the course of the defined time period. **Tooltip:** The application availability percentage and the relevant time.
Application Availability Threshold	Displays the server availability threshold that you configured in End User Management Administration.
Availability <y-axis>	Displays server availability percentage units.
Availability Threshold	If the application and connection availability thresholds are the same, they are displayed together as this one threshold line.

GUI Element (A–Z)	Description
Connection Availability data points	Indicate the percentage of total connections that were successful for each server at each point over the course of the defined time period. **Tooltip:** The connection availability percentage and the relevant time.
Connection Availability Threshold	Displays the server connection availability threshold that you configured for the application in End User Management Administration.
Time <X-axis>	Displays the time division units for the time range that you defined when generating the report.

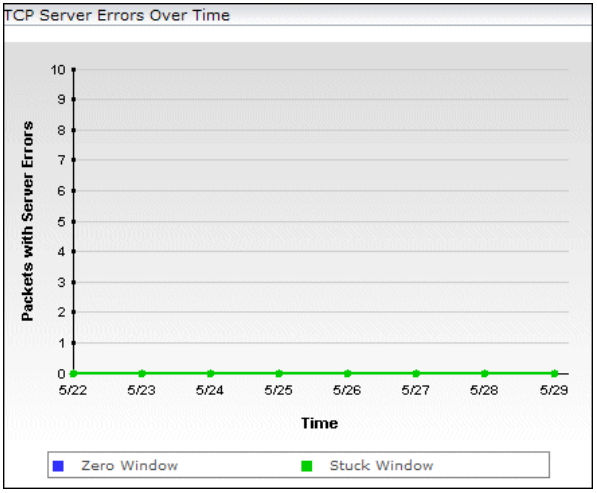
Server Requests Over Time Graph



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

GUI Element (A–Z)	Description
<Bars>	Indicate the total number of requests for the applications on the server, at each point over the course of the defined time period. **Tooltip:** The number of requests and the relevant time.
<Legend>	Describes the color coding used in the graph.
Requests <y-axis>	Displays the number of server requests.
Time <X-axis>	Displays the time division units for the time range that you defined when generating the report.

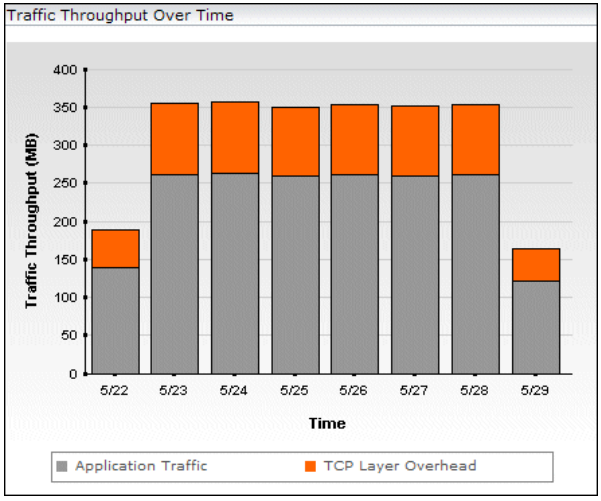
TCP Server Errors Over Time Graph



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

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the graph.
Packets with Server Errors <y-axis>	Displays the number of packets with server errors.
Stuck Window error data points	Indicate the number of packets with Stuck Window errors at each point over the course of the defined time period. **Tooltip:** The number of packets and the relevant time.
Time <X-axis>	Displays the time division units for the time range that you defined when generating the report.
Zero Window error data points	Indicate the number of packets with Zero Window errors at each point over the course of the defined time period. **Tooltip:** The number of packets and the relevant time.

Traffic Throughput Over Time Graph



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

GUI Element (A–Z)	Description
<Bars>	Indicate the total traffic throughput for the applications on the server at each point over the course of the defined time period, broken down to application traffic and TCP layer overhead. **Tooltip:** The amount of TCP layer overhead or application traffic depending on which segment of the bar you cursor is over, as well as the total amount of traffic and the relevant time.
<Legend>	Describes the color coding used in the graph.
Time <X-axis>	Displays the time division units for the time range that you defined when generating the report.
Traffic Throughput <y-axis>	Displays the traffic throughput in megabytes.

HTTP Table

Important Information	➤ If you generate the Server Over Time report for both pure Web (HTTP) or SOAP applications and Web (HTTP) or SOAP applications with TCP settings, by default the **HTTP Traffic** and **HTTPS Traffic** columns are not displayed. You can configure HP Business Availability Center to display these fields in such situations. For details, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430. ➤ If you generate the Server Over Time report only for Web (HTTP) applications with TCP settings, the HTTP and Network Connections tables are displayed. The HTTP table includes the Application Availability column, as well as the Requests and Application Traffic columns from the Request-Response table.

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

GUI Element (A–Z)	Description
Application Availability (%)	Displays the percentage of application connections that were successful for the server at each point over the course of the defined time period. This column is color-coded, based on the application availability in relation to the server availability threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical
Component Hits	Displays the total number of component hits for the applications on the server, at each point over the course of the defined time period.
HTTP Traffic (MB)	Displays the total HTTP traffic throughput, in megabytes, for the applications on the server at each point over the course of the defined time period.
HTTPS Traffic (MB)	Displays the total HTTPS traffic throughput, in megabytes, for the applications on the server at each point over the course of the defined time period.
Time	Displays the time division units for the time range that you defined when generating the report.

Network Connections Table

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

GUI Element (A–Z)	Description
Application Traffic	Displays, in megabytes, the amount of application traffic on the server at each point over the course of the defined time period.
Connection Availability	Displays the percentage of total connections that were successful for each server at each point over the course of the defined time period.
Network Traffic	Displays, in megabytes, the total amount of traffic on the server at each point over the course of the defined time period.
Stuck Windows	Displays the number of packets with Stuck Window errors at each point over the course of the defined time period.
Time	Displays the time division units for the time range that you defined when generating the report.
Zero Windows	Displays the number of packets with Zero Window errors at each point over the course of the defined time period.

Request–Response Table

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

GUI Element (A–Z)	Description
Application Traffic	Displays, in megabytes, the amount of application traffic on the server at each point over the course of the defined time period.

GUI Element (A–Z)	Description
Requests	Displays the total number of requests for the applications on the server, at each point over the course of the defined time period.
Time	Displays the time division units for the time range that you defined when generating the report.

Server Summary Report

Description	Displays data for the servers that are monitored by the Real User Monitor probe. **To access:** Select **Applications** > **End User Management** > **Real User** > **Server Summary**
Important Information	➤ The available tabs in the report depend on the types of the applications for which you generate the report. For details on this topic, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430. ➤ You can assign a specific name to a monitored server. For details on the user interface, see "New/Edit Server Name Page" on page 372. ➤ 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. ➤ Data for servers is aggregated by the Real User Monitor engine for each five minute period. This means that you do not see a real picture of such data if you view this report using a time breakdown of less than five minutes.

This section includes the following topics:

➤ "Report Settings" on page 601
➤ "HTTP Tab" on page 601
➤ "Request–Response Tab" on page 604
➤ "Network Connections Tab" on page 606

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The **Servers** active filters tab is enabled for this report.
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

HTTP Tab

Important Information	If you generate the Server Summary report for both pure Web (HTTP) or SOAP applications and Web (HTTP) or SOAP applications with TCP settings, by default the **HTTP Traffic** and **HTTPS Traffic** columns are not displayed. You can configure HP Business Availability Center to display these fields in such situations. For details, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430.

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

GUI Element (A–Z)	Description
	Server Over Time button. Click to open the Server Over Time report, where you can view data over a period of time for a server. For details on the Server Over Time report, see "Server Over Time Report" on page 588.
	Pages by Server Summary Report button. Click to open the Page by Server Summary report, where you can view a summary of the pages accessed on each server. For details on the Pages by Server Summary report, see "Pages by Server Summary Report" on page 575.
	TCP Poor Requests Summary button. Click to open the TCP Poor Requests Summary report, where you can view a summary of the selected applications' TCP requests that were slow or had network errors, broken down by servers and end users, for a selected end-user group. For details on the user interface, see "TCP Poor Requests Summary Report" on page 655.
Component Hits	Displays the total number of component requests received by each server. **Note:** The sum of all the component hits to each server is displayed in the summary row.
Components Causing Server Errors	Displays, for each server, the total number of component requests that encountered internal server problems. **Note:** The sum of all the components causing server errors for each server is displayed in the summary row.
Hits	Displays the total number of page requests received by each server. **Note:** The sum of all the hits to each server is displayed in the summary row.

GUI Element (A–Z)	Description
HTTP Traffic	Displays the number of megabytes transmitted to and from each server via HTTP. **Note:** The sum of all the sent and received HTTP megabytes for each server is displayed in the summary row.
HTTPS Traffic	Displays the number of megabytes transmitted to and from each server via HTTPS. **Note:** The sum of all the sent and received HTTPS megabytes for each server is displayed in the summary row.
IP Address	Displays the IP address of each server.
Server Availability	Displays the percentage of requests for which each server was available. This column is color-coded, based on the server's availability in relation to the server availability threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Note:** The average availability of all servers (that is, the total number of successful hits for all servers divided by the total number of hits for all servers) is displayed in the summary row.
Server Name	Displays the names you assigned the monitored servers in End User Management Administration.

Request–Response Tab

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

GUI Element (A–Z)	Description
	Server Over Time button. Click to open the Server Over Time report, where you can view data over a period of time for a server. For details on the Server Over Time report, see "Server Over Time Report" on page 588.
	TCP Poor Requests Summary button. Click to open the TCP Poor Requests Summary report, where you can view a summary of the selected applications' TCP requests that were slow or had network errors, broken down by servers and end users, for a selected end-user group. For details on the user interface, see "TCP Poor Requests Summary Report" on page 655.
Average Response Time	Displays the average response time for a single request, in seconds, for each server. This column is color-coded, based on the average response time in relation to the component time threshold (for Web applications), or request time threshold (for TCP applications) you defined for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The minimum, maximum, and standard deviation of the response time values, as well as the component time threshold (for Web applications), or request time threshold (for TCP applications) you configured for the application in End User Management Administration. **Note:** The average response time of all servers (that is, the total response times for all servers divided by the total number of requests for all servers) is displayed in the summary row.

GUI Element (A–Z)	Description
Average Server Time	Displays the average amount of time, in seconds, that the requests for the selected applications were delayed on each server. This column is color-coded, based on the average server time in relation to the component server time threshold you defined for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The minimum, maximum, and standard deviation of the server time values, as well as the component server time threshold you configured for the application in End User Management Administration. **Note:** The average server time of all servers (that is, the total server time of all requests for all servers divided by the total number of requests for all servers) is displayed in the summary row.
Average Server Time to First Buffer	Displays the average amount of time, in seconds, from when a server received a request until it started sending the response. **Note:** The average server time to first buffer of all servers (that is, the total server time to first buffer of all requests for all servers divided by the total number of requests for all servers) is displayed in the summary row.
IP Address	Displays the IP address of each server.
Max Response Time	Displays the maximum response time, in seconds, for each server. **Note:** The highest maximum response time is displayed in the summary row.
Server Name	Displays the names you assigned the monitored servers in End User Management Administration.

GUI Element (A–Z)	Description
Slow Server Requests	Displays the total number of requests whose server time was higher than the component time threshold (for Web applications), or request server time threshold (for TCP applications) you configured for the application in End User Management Administration, for each server. **Note:** The sum of all slow server requests for each server is displayed in the summary row.
Total Requests	Displays the total number of requests for each server **Note:** The sum of all requests for each server is displayed in the summary row.

Network Connections Tab

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

GUI Element (A–Z)	Description
	Server Over Time button. Click to open the Server Over Time report, where you can view data over a period of time for a server. For details on the Server Over Time report, see "Server Over Time Report" on page 588.
Application Traffic	Displays the number of megabytes that each server sent and received for the selected applications. **Note:** The sum of the application traffic for each server is displayed in the summary row.
Average Connect Time (sec.)	Displays the average time taken to establish a connection with each server at each point over the course of the defined time period. **Note:** The average time taken to establish a connection for all servers is displayed in the summary row.

GUI Element (A–Z)	Description
Average SSL Handshake Time (sec.)	Displays the average time for SSL handshaking for each server at each point over the course of the defined time period. **Note:** The average SSL handshaking time for all servers is displayed in the summary row.
Connection Availability	Displays the percentage of connections that were successful for each server. This column is color-coded, based on the connection availability in relation to the server connection availability threshold you defined for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server connection availability threshold you configured for the application in End User Management Administration. **Note:** The average connection availability of all servers (that is, the total number of successful connections for all servers divided by the total number of connections for all servers) is displayed in the summary row.
IP Address	Displays the IP address of each server.
Packets with Server Errors	Displays the percentage of packets sent by each server for which there were server errors. **Tooltip:** The number of zero window and stuck window errors, as well as the packets with server errors threshold you configured for the application in End User Management Administration. **Note:** The average percentage of packets with server errors for all servers (that is, the total number of packets with server errors for all servers divided by the total number of packets for all servers) is displayed in the summary row.

GUI Element (A–Z)	Description
Refused Connections	Displays the number of connections that were refused for each server. **Note:** The sum of all the refused connections for each server is displayed in the summary row.
Server Name	Displays the names you assigned the monitored servers in End User Management Administration.
Timed-out connections	Displayed the number of connections that timed out for each server. **Note:** The sum of all the timed-out connections for each server is displayed in the summary row.
Total Connection Attempts	Displays the total number of connection attempts for each server. **Note:** The sum of all the connection attempts to each server is displayed in the summary row.
Total Traffic	Displays the total amount of network traffic (application traffic and TCP layer overhead traffic), in megabytes, for each server. **Note:** The sum of the total traffic for each server is displayed in the summary row.

Servers by Page Summary Report

Description	Displays a table showing each server used in accessing the page for which you are viewing data. **To access:** Click the **Servers by Page Summary** button for the page in the Page Summary Report (see page 563).
Important Information	➤ The report uses the same time range as that selected for the main Page Summary report, but cannot exceed 24 hours. If the time range selected is greater than 24 hours, the last 24 hour period of the time range is used. ➤ The report uses raw Real User Monitor data.

This section includes the following topics:

➤ "Report Settings" on page 609

➤ "Report Content" on page 610

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Events ➤ Pages ➤ End User Groups ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

Report Content

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

GUI Element (A–Z)	Description
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
Hits	Displays the total number of requests that the page received.
Page Threshold	Displays the page time threshold configured for the page in End User Management Administration.
Page Time	Displays the average amount of time, in seconds, it took for the page to download. This column is color-coded, based on the page's download time in relation to the page time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical
Server IP	Displays the IP address of the server.
Server Name	Displays the name of the server as defined in End User Management Administration.

GUI Element (A–Z)	Description
Server Time	Displays the average amount of time, in seconds, that it took the server to process the requests for the page. This column is color-coded, based on the page's server time in relation to the server time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical
Server Time Slow Hits	Displays the average server time, in seconds, for the page's slow hits.
Server Time Threshold	Displays the server time threshold configured for the page in End User Management Administration.
Server Time to First Buffer	Displays 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 Hits	Displays the total number of hits whose page time exceeded the configured page time threshold.

Session Analyzer Report

Description	Displays session data for specific applications that were configured for Real User Monitor in End User Management Administration. Sessions in applications that have not been configured for monitoring are also reported as part of a default entity for other applications, called **<engine name>'s other applications**. For example, for a configured Real User Monitor engine called **myengine**, the default entity for non-monitored applications is **myengine's other applications**. **To access:** Select **Applications** > **End User Management** > **Real User** > **Session Analyzer**
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.
Useful Links	For details on viewing session details, see "Viewing Session Details in the Session Analyzer Report" on page 437.

This section includes the following topics:

- "Report Settings" on page 613
- "Report Content" on page 614

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Events ➤ Pages ➤ Transactions ➤ End User Groups ➤ Session Properties ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

Report Content

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

GUI Element (A–Z)	Description
	View Session Details button. Click to open the Session Details page, where you can view property, event, and page data for the session. For details on the Session Details page, see "Session Details Report" on page 616.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the pages within the session. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
Active	Displays whether the session is still active or not.
Application Errors	Displays the number of application errors encountered during the session, based on the application error events you defined for the application in End User Management Administration. If the number of application errors is greater than 0 it is displayed in red.
Duration	Displays the length of time that the session was active.
End User	Displays 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. **Tooltip:** The user's name, IP address, and host machine name.
End User Group	Displays the end-user group to which the end-user who initiated the session belongs, as configured in End User Management Administration. **Tooltip:** The group's name, IP range, and location.

GUI Element (A–Z)	Description
Events	Displays the number of application events encountered during the session, based on the a events you defined for the application in End User Management Administration.
Hits	Displays the total number of page hits generated during each session.
HTTP Errors	Displays the number of HTTP errors encountered during the session, based on the global HTTP error events you defined in End User Management Administration. If the number of HTTP errors is greater than 0, it is displayed in red.
Slow Hits	Displays, for each session, the total number of pages whose page time exceeded its configured threshold. If the number of slow pages is greater than 0, it is displayed in red.
Start Time	Displays the date and time the session was started.

Session Details Report

Description	Displays details of a session and includes panes showing data for Properties (see page 617), General Events (see page 618), and Pages (see page 618). **To access:** Click the **View Session Details** button in the Session Analyzer Report (see page 612).
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 Session Analyzer report was generated, the data included in the Session Detail page is more up to date, and may differ from that included in the Session Analyzer report for the same session. ➤ When viewing session details, all the pages 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 details on this topic, see "Viewing Session Details in the Session Analyzer Report" on page 437. ➤ Events displayed when viewing session details are the events that occurred only on the pages configured in End User Management Administration as being part of the application. ➤ When clicking on the breadcrumb to return to the Session Analyzer report, the report is not regenerated and the original Session Analyzer report is redisplayed.

This section includes the following topics:

➤ "Properties" on page 617

➤ "General Events" on page 618

➤ "Pages" on page 618

Properties

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

GUI 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.
Arrived From	Displays the page from which the end user reached the session.
Browser	Displays the browser used by the end user to initiate the session.
Client IP	Displays the IP address of the end user who initiated the session.
Computer Name	Displays the host name of the machine of the end user who initiated the session.
Duration	Displays the total time that the session was open.
End User Group	Displays the end-user group to which the end user who initiated the session belongs, as configured by you in End User Management Administration.
Hits	Displays the number of frame unit hits for the selected application.
Location	Displays the name of the location of the end user who initiated the session.
Operating System	Displays the operating system of the machine on which the end user initiated the session.

GUI Element (A–Z)	Description
Overall Traffic	Displays the total number of kilobytes sent from and received by the session.
Server IP	Displays the IP address of the server (or load balancer) reached by the end user.
Start Time	Displays the date and time the session was started.
User Name	Displays the name of the end user who initiated the session.

General Events

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

GUI Element (A–Z)	Description
Description	Displays the event description
Name	Displays the event name

Pages

Important Information	➤ You can view page data in the following formats, by clicking the relevant tab at the top of the report: ➤ **View as Tree.** The Page column 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. You cannot sort the displayed data. ➤ **View as Table.** The data is displayed as a flat table (that is, not as a tree) and you can sort the data by any of the columns, by clicking a column heading. ➤ Measurements for pages that are configured for frame unification use calculated totals of the page's children. For details on frame unification, see "Frame Unification" on page 295.

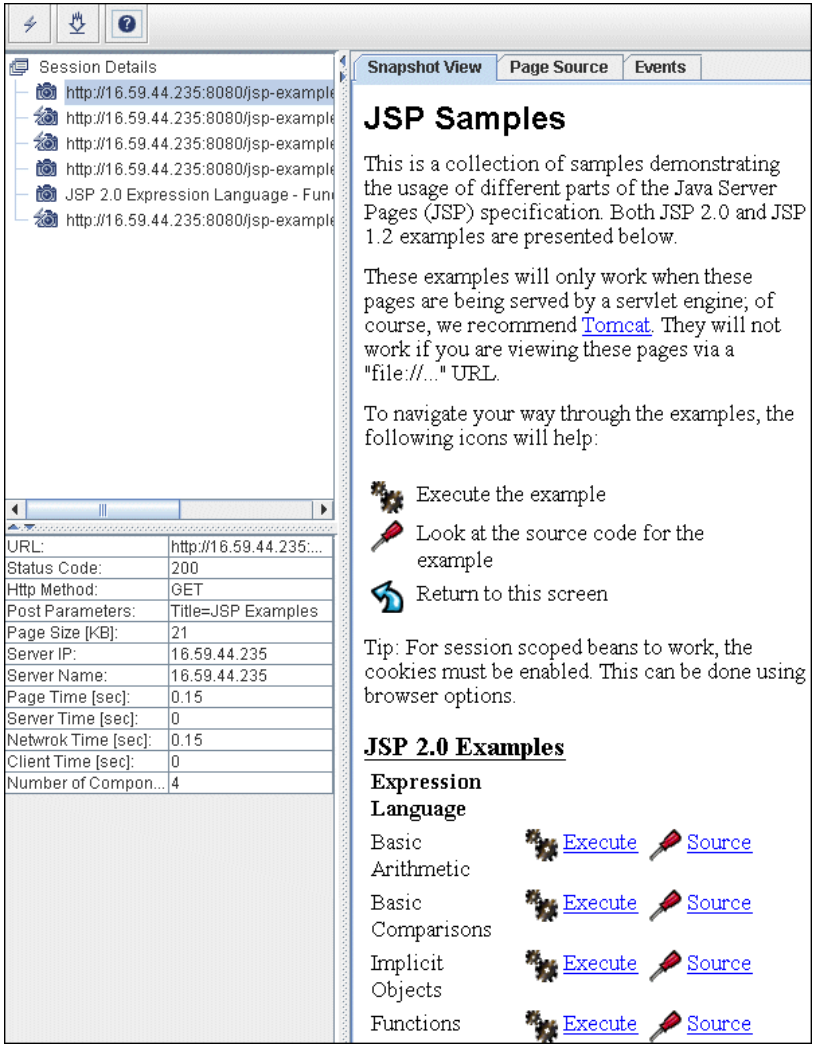
The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
	View Page Details button. Click to open the Page Details page, where you can view the properties, events, and URL parameters of the page. For details on the Page Details page, see "Page Details Page" on page 549.
	View Snapshot button. Click to open the Snapshot Viewer page, where you can view a snapshot of the page. For details on the Snapshot Viewer page, see "Snapshot Viewer Page" on page 628. **Note:** If no snapshot exists for the page, the View Snapshot button is disabled.
	Define Page button. Click to open the Define Page dialog box, where you add an undefined page to the list of configured pages in End User Management Administration. For details on the Define Page dialog box, see "Define Page Dialog Box" on page 473.
	View Diagnostics data button. Click to drill down to HP Diagnostics for a specific page. For details on this topic, see "Viewing HP Diagnostics Data From Real User Monitor Reports" on page 438.
	View transaction tracking data button. Click to view TransactionVision's Transaction Tracking report, where you can see detailed information of the page at component level. For details on this topic, see "Viewing TransactionVision Data From Real User Monitor Reports" on page 440.
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.

GUI Element (A–Z)	Description
Application	Displays the application session in which the page was hit. This field is highlighted for the selected application session.
Events	Displays an icon and the name of events that occurred on the page, based on the events you defined for the page in End User Management Administration. If there are multiple events on a page, 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 HTTP errors, application errors, and informational events. **Tooltip:** For single errors, the event type is displayed and for multiple errors, the event names are displayed.
Page	Displays the name of the page that was hit, as defined by you in End User Management Administration, or its URL if no name is defined. **Note:** For those pages of an application for which frame unification is enabled, click the page name to display its children in the hierarchical tree. **Tooltip:** The URL of the page.
Page Time	Displays the amount of time, in seconds, it took for the page to download.
Session Replay	Click the **Session Replay** button to open the **Session Viewer** page, where you can view a session flow page by page. For details on the Session Viewer page, see “Session Viewer Page” on page 621.
Server Time	Displays the amount of time, in seconds, that it took the server to process the request for the page.
Start Time	Displays the date and time the page was hit.

Session Viewer Page

The following is an example of the Session Viewer page.



Description	Enables you to view a session flow page by page. **To access:** Click the **Session Replay** button in the "Session Details Report" on page 616.
Important Information	➤ You can view snapshots of pages if the Real User Monitor engine has been configured to take snapshots of pages on errors and events, and the application has been configured to enable snapshots. You configure the Real User Monitor engine and applications in End User Management Administration. For details, see "Real User Monitor Administration User Interface" on page 335. ➤ Snapshots are opened as an applet, which requires Sun JRE version 6u4 or later (version 6u10 is recommended). If a suitable version is not installed on your machine, you are prompted to install one. If session replay does not work with the recommended versions, copy the **stax-api-1.0.1.jar** file from the **HPBAC\AppServer\webapps\site.war\static\eum\applets\snapshotreplay** directory on the Gateway Server to the **<jre directory>\lib\endorsed** directory on your client machine. ➤ You can configure how the Snapshot applet communicates with the Real User Monitor engine to retrieve snapshots. For details, see "Change How the Real User Monitor Snapshot Applet Retrieves Snapshots" on page 449. ➤ If the source machine from which snapshots are retrieved (either through the HP Business Availability Center Gateway Server or directly from the Real User Monitor 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 Java Runtime Environment to Work With Client/Server Certificates" in the *HP Business Availability Center Hardening Guide* PDF.
Useful Links	"Snapshot Settings" on page 307

This section includes the following topics:

- "Upper Left Pane" on page 623
- "Lower Left Pane" on page 624
- "Right Pane" on page 626

Upper Left Pane

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

GUI Element (A–Z)	Description
	Go to Next Event button. Click to go to the next item in the tree that includes an event.
	Download button. Click to download 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 icon. When displayed preceding the session name in the hierarchical tree, indicates that the session does not include any events.
	Session With Events icon. When displayed preceding the session name in the hierarchical tree, indicates that the session includes events.
	Page With Events icon. When displayed preceding a page or component name in the hierarchical tree, indicates that the page or component includes events.
	Page With Snapshot icon. When displayed preceding a page or component name in the hierarchical tree, indicates that there is a snapshot of the page or component.

GUI Element (A–Z)	Description
	Page With Events and Snapshot icon. 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

Description	The Lower Left 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

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

GUI Element (A–Z)	Description
Client Time	Displays the amount of time, in seconds, that the page was active on the client machine.
HTTP Method	Displays the HTTP method used to access the page.
Network Time	Displays the amount of time, in seconds, that the page was active on the network.
Number of Components	Displays the number of components included in the page.
Page Size	Displays the downloaded size, in kilobytes, of the page.

GUI Element (A–Z)	Description
Page Time	Displays the total amount of time, in seconds, from when the page was requested until it finished loading.
Server IP	Displays the IP address of the server on which the page was located.
Server Name	Displays the name of the server on which the page was located.
Server Time	Displays the amount of time, in seconds, that it took the server to process the request for the page.
URL	Displays the URL of the page.

Session Details

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

GUI Element (A–Z)	Description
Arrived From	Displays the page from which the end user reached the session.
Browser	Displays the browser used by the end user to initiate the session.
Client IP	Displays the IP address of the end user who initiated the session.
Computer Name	Displays the host name of the machine of the end user who initiated the session.
Duration	Displays the total time that the session was open.
End User Group	Displays the end-user group to which the end user who initiated the session belongs, as configured by you in End User Management Administration.
Location	Displays the name of the location of the end user who initiated the session.

GUI Element (A–Z)	Description
Operating System	Displays the operating system of the machine on which the end-user initiated the session.
Overall Traffic	Displays the total number of kilobytes sent from and received by the session.
Server IP	Displays the IP address of the server (or load balancer) reached by the end-user.
Start Time	Displays the date and time the session was started.
User Name	Displays the name of the end-user who initiated the session.

Right Pane

Description	The Right pane includes the following tabs: ➤ "Snapshot View" on page 626 ➤ "Page Source" on page 627 ➤ "Request View" on page 627 ➤ "Events" on page 627
Important Information	If Session Details has been selected in the Upper Left pane, only the Events tab is enabled.

Snapshot View

Description	Displays a picture of the page accessed by the user for Web (HTML) applications, or the XML code of the response for SOAP applications.

Page Source

Description	Displays the HTML source code of the snapshot. Within a page, press CTRL + F to open the **Find** dialog box, which you use to search for a specific string in the source code. For details on the user interface, see "Find Dialog Box" on page 538.

Request View

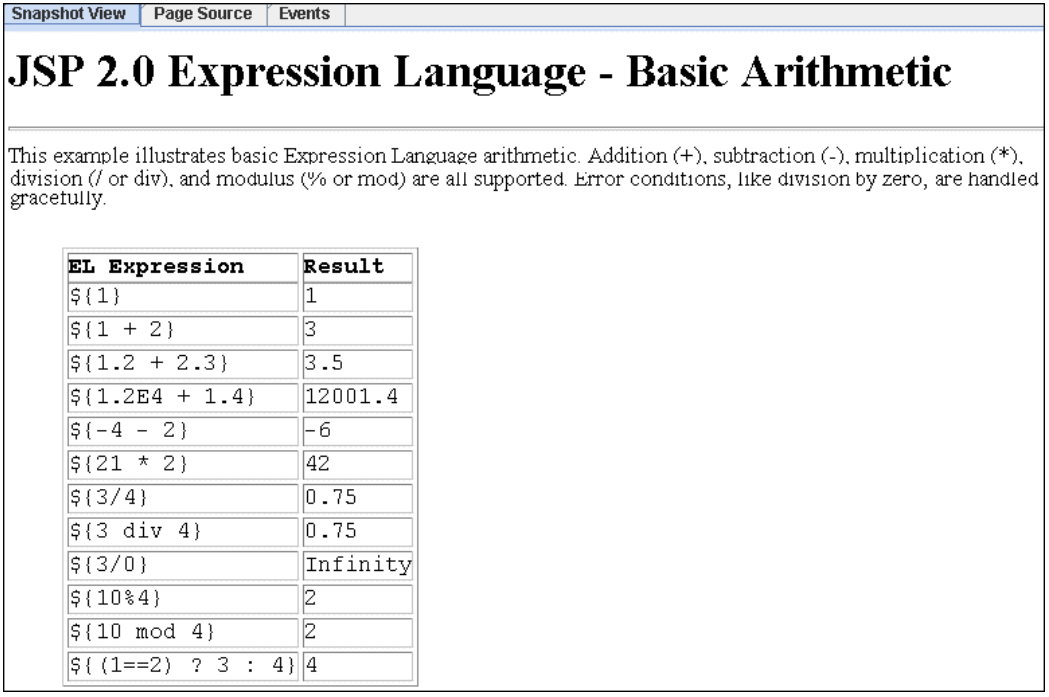
Description	Displays the XML code of the request for SOAP applications. **Note:** This tab is visible only for SOAP applications.

Events

Description	Displays the configured events that occurred on the page, or in the session.

Snapshot Viewer Page

The following is an example of the Snapshot Viewer page.



Description	Displays a snapshot of the selected page, as well as the HTML source code of the page and details of events that occurred on the page. **To access:** Click the **View Snapshot** button in the "Session Details Report" on page 616.

Important Information	➤ You can view snapshots of pages if the Real User Monitor engine has been configured to take snapshots of pages on errors and events, and the application has been configured to enable snapshots. You configure the Real User Monitor engine and applications in End User Management Administration. For details, see "Real User Monitor Administration User Interface" on page 335. ➤ Snapshots are opened as an applet, which requires Sun JRE version 6u4 or later (version 6u10 is recommended). If a suitable version is not installed on your machine, you are prompted to install one. If the snapshot viewer does not work with the recommended versions, copy the **stax-api-1.0.1.jar** file from the **HPBAC\AppServer\webapps\site.war\static\eum\applets\snapshotreplay** directory on the Gateway Server to the **<jre directory>\lib\endorsed** directory on your client machine. ➤ You can configure how the Snapshot applet communicates with the Real User Monitor engine to retrieve snapshots. For details, see "Change How the Real User Monitor Snapshot Applet Retrieves Snapshots" on page 449. ➤ If the source machine from which snapshots are retrieved (either through the HP Business Availability Center Gateway Server or directly from the Real User Monitor 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 Java Runtime Environment to Work With Client/Server Certificates" in the *HP Business Availability Center Hardening Guide* PDF. **Note:** You can add this report as a portlet in My BSM. For details, see "Add Portlets to <page_name>/Add Portlets Dialog Box" in *Using My BSM*.
Useful Links	"Snapshot Settings" on page 307

This section includes the following topics:

- "Snapshot View" on page 630
- "Page Source" on page 630
- "Request View" on page 630
- "Events" on page 630

Snapshot View

Description	Displays a picture of the page accessed by the user for Web (HTML) applications, or the XML code of the response for SOAP applications.

Page Source

Description	Displays the HTML source code of the snapshot. Within a page, press CTRL + F to open the Find dialog box, which you use to search for a specific string in the source code. For details on the user interface, see "Find Dialog Box" on page 538.

Request View

Description	Displays the XML code of the request for SOAP applications. **Note:** This tab is visible only for SOAP applications.

Events

Description	Displays the events that occurred on the page.

TCP Application Over Time Report

Description	Displays a selected application's traffic, errors, load, and response times over the course of time. The data in the TCP Application Over Time report can be viewed either as graphs or as tables, by clicking the appropriate tab. **To access:** Click the **TCP Application Over Time** button for a selected application in the TCP Application Summary Report (see page 641).
Important Information	➤ The available graphs and tables in the report depend on the types of the applications for which you generate the report. For details on this topic, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430. ➤ In each graph, you can drill down to a higher time resolution, by clicking a bar or data point. For example, if you click a bar that displays data for a day, the time resolution changes to hours for the specific day.

This section includes the following topics:

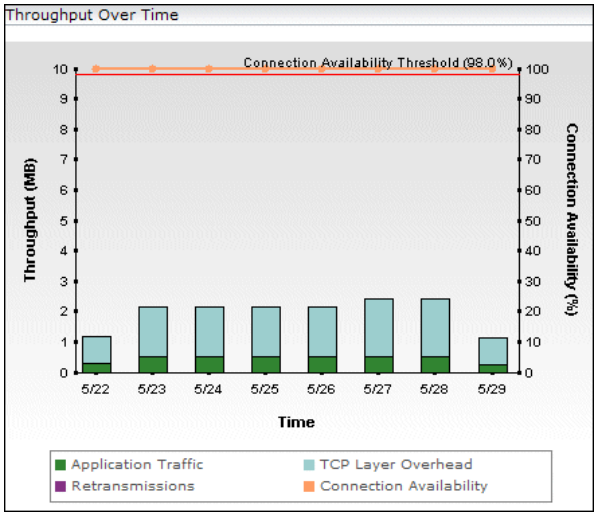
- "Report Settings" on page 632
- "Throughput Over Time Graph" on page 633
- "TCP Errors Over Time Graph" on page 634
- "Application Load Over Time Graph" on page 636
- "Response Time Breakdown Over Time Graph" on page 637
- "Network Connections Table" on page 639
- "Request-Response Application Table" on page 639

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The **End User Groups** active filters tab is enabled for this report.
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

Throughput Over Time Graph

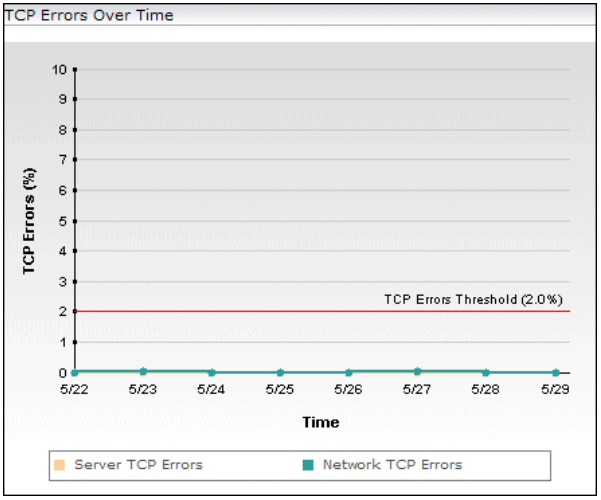


The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the graph.
Connection Availability <right y-axis>	Displays the connection availability percentage.
Connection Availability 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:** The connection availability percentage, the total number of connection attempts, the number of timed-out and refused connections, and the relevant time.
Connection Availability Threshold line	Displays the server connection availability threshold that you configured for the application in End User Management Administration.

GUI Element (A–Z)	Description
Throughput (MB) <left y-axis>	Displays the amount of traffic in megabytes.
Throughput bars	Indicate the total amount of application traffic at each point over the course of the defined time period, broken down to application traffic, TCP layer overhead, and retransmissions. **Tooltip:** The amount of total traffic for the bar your cursor is over and the relevant time.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.

TCP Errors Over Time Graph

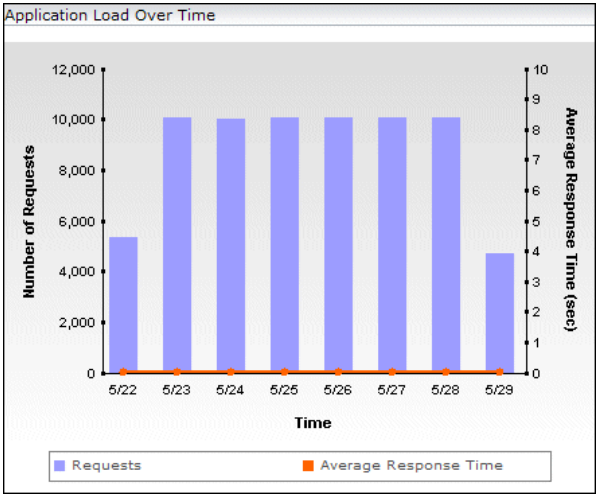


The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the graph.
Network TCP Errors data points	Indicate the percentage of packets sent for an application that had network TCP errors, at each point over the course of the defined time period. To drill down to HP Network Node Manager, click a data point and select **Drilldown to NNM** from the displayed menu. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443. **Tooltip:** The percentage of packets with network errors and the relevant time.
Packets with Network Errors Threshold	Displays the packets with network errors threshold you defined for the application in End User Management Administration.
Packets with Server Errors Threshold	Displays the packets with server errors threshold you defined for the application in End User Management Administration.
Server TCP Errors data points	Indicate the percentage of packets sent for an application that had server TCP errors, at each point over the course of the defined time period. To drill down to HP Network Node Manager, click a data point and select **Drilldown to NNM** from the displayed menu. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443. **Tooltip:** The percentage of packets with server errors and the relevant time.
TCP Errors <y-axis>	Displays the percentage of TCP errors.

GUI Element (A–Z)	Description
TCP Errors Threshold	If the packets with server errors and packets with network errors thresholds are the same, they are displayed together as this one threshold line.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.

Application Load Over Time Graph

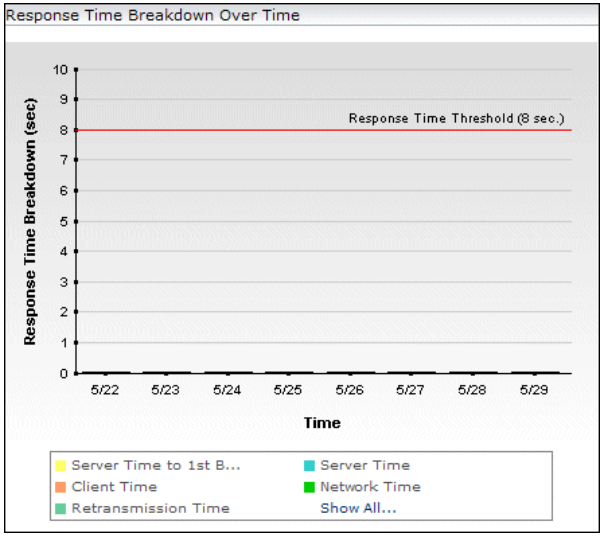


The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Legend>	Describes the color coding used in the graph.
Average Response Time <right y- axis>	Displays the average response time in seconds.

GUI Element (A–Z)	Description
Average Response Time data points	Indicate the average response time, in seconds, of all the requests for the application at each point over the course of the defined time period. **Tooltip:** The average response time and the relevant time.
Number of Requests <left y-axis>	Displays the number of requests.
Number of Requests bars	Indicate the total number of requests for the application at each point over the course of the defined time period. **Tooltip:** The number of requests and the relevant time.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.

Response Time Breakdown Over Time Graph



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

GUI Element (A–Z)	Description
<Bars>	Indicate the average response time, in seconds, for the application's requests, broken down to server time to first buffer, server time, retransmission time, client time, and network time. To drill down to HP Network Node Manager, click a bar and select **Drilldown to NNM** from the displayed menu. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443. **Tooltip:** The average response time, in seconds, for the segment of the bar your cursor is over and the relevant time. The time displayed in the tooltip for the server time segment includes the time of the server time to first buffer segment. **Note:** The network time includes the average connect and SSL handshake times, which are the average times per request (in other Real User Monitor reports, they are the average times per connection).
<Legend>	Describes the color coding used in the graph.
Response Time Breakdown <y-axis>	Displays the response time breakdown in seconds.
Response Time Threshold line	Displays the component time threshold you configured for the application in End User Management Administration.
Time <x-axis>	Displays the time division units for the time range that you defined when generating the report.

Network Connections Table

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

GUI Element (A–Z)	Description
Application Traffic	Displays the total amount of application traffic, in megabytes, at a given point of time.
Connection Availability	Displays the percentage of total connections that were successful for the application at a give point of time.
Network TCP Errors	Displays the percentage of packets sent for an application that had network TCP errors, at a given point of time.
Retransmissions (MB)	Displays the total amount of retransmission traffic, in megabytes, at a given point of time.
Server TCP Errors	Displays the percentage of packets sent for an application that had server TCP errors, at a given point of time.
TCP Layer Overhead	Displays the total amount of TCP layer overhead traffic, in megabytes, at a given point of time.
Time	Displays the time division units for the time range that you defined when generating the report.

Request-Response Application Table

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

GUI Element (A–Z)	Description
Average Response Time	Displays the average response time, in seconds, of an application's requests at a given point of time.
Client Time	Displays the average client time, in seconds, of an application's requests at a given point of time.

GUI Element (A–Z)	Description
Connect Time	Displays the average time, in seconds, taken to establish a connection with the application servers for an application at a given point of time.
Network Time	Displays the average network time, in seconds, of an application's requests at a given point of time.
Requests	Displays the total number of requests for an application at a given point of time.
Retransmission Time	Displays the average retransmission time, in seconds, for an application at a given point of time.
Server Time	Displays the average server time, in seconds, of an application's requests at a given point of time.
Server Time to 1st Buffer	Displays the average server time to first buffer, in seconds, of an application's requests at a given point of time.
SSL Handshake Time	Displays the average amount of time, in seconds, taken to establish an SSL connection for an application at a given point of time. **Note:** SSL handshake time is applicable only for HTTPS communications.
Time	Displays the time division units for the time range that you defined when generating the report.

TCP Application Summary Report

Description	Displays data for specific TCP applications, as well as for Web (HTTP) applications with TCP settings, that were configured for Real User Monitor in End User Management Administration. For information on configuring applications to be monitored, see "New/Edit TCP Application Page" on page 377 and "New/Edit Web or SOAP Application Page" on page 396. The TCP Application Summary report enables you to monitor application performance and status and to pinpoint problems with specific applications or application types. You can also use the report to determine load distribution between different applications. **To access:** Select **Applications** > **End User Management** > **Real User** > **TCP Application Summary**
Important Information	The available graphs and tables in the report depend on the types of the applications for which you generate the report. For details on this topic, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430.

This section includes the following topics:

- "Report Settings" on page 642
- "General Tab" on page 643
- "Availability Tab" on page 648
- "Performance Tab" on page 650

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ End User Groups ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468. **Note:** Applications that are Web (HTTP) only (that is, without any TCP settings) are not displayed as available applications in the Applications Dialog box.
Restore Default Settings	Click to clear any active filters that have been previously set.

General Tab

Description	Displays general data related to each configured application that was monitored.

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

GUI Element (A–Z)	Description
	End User Summary button. Click to open the End User Summary report, where you can view data for each end-user group that accessed a specific application. For details on the End User Summary report, see "End User Summary Report" on page 489.
	TCP Application Over Time button. Click to open the TCP Application Over Time report, where you can view data over a period of time for an application. For details on the TCP Application Over Time report, see "TCP Application Over Time Report" on page 631.
	Server Summary button. Click to open the Server Summary report, where you can view a summary of the servers for a specific application. For details on the Server Summary report, see "Server Summary Report" on page 600.
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.
	TCP Poor Requests Summary button. Click to open the TCP Poor Requests Summary report, where you can view a summary of the selected applications' TCP requests that were slow or had network errors, broken down by servers and end users. For details on the user interface, see "TCP Poor Requests Summary Report" on page 655.
Application	Displays the application name.

GUI Element (A–Z)	Description
Application Traffic	Displays the total amount of application traffic, in megabytes, for each application. **Note:** The sum of the application traffic for each application is displayed in the summary row.
Average Response Time	Displays the average response time for a single request, in seconds, for each application. This column is color-coded, based on the average response time in relation to the component time threshold (for Web applications), or request time threshold (for TCP applications) you defined for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The minimum, maximum, and standard deviation of the response time values, as well as the component time threshold (for Web applications), or request time threshold (for TCP applications) you configured for the application in End User Management Administration. **Note:** ➤ This column is not displayed for TCP streaming applications. ➤ The average response time of all applications (that is, the total response times for all applications divided by the total number of requests for all applications) is displayed in the summary row.

GUI Element (A–Z)	Description
Average Server Time	Displays the average amount of time, in seconds, that the requests for the selected applications were delayed on each server. This column is color-coded, based on the average server time in relation to the component server time threshold you defined for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The minimum, maximum, and standard deviation of the server time values, as well as the component server time threshold you configured for the application in End User Management Administration. **Note:** ➤ This column is not displayed for TCP streaming applications. ➤ The average server time of all applications (that is, the total server time of all requests for all applications divided by the total number of requests for all applications) is displayed in the summary row.

GUI Element (A–Z)	Description
Connection Availability	Displays the percentage of connections that were successful for each application. This column is color-coded, based on the connection availability in relation to the server connection availability threshold you defined for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server connection availability threshold you configured for the application in End User Management Administration. **Note:** The average connection availability of all applications (that is, the total number of successful connections for all applications divided by the total number of connections for all applications) is displayed in the summary row.
Packets with Network Errors	Displays the percentage of packets sent for each application for which there were network errors. This column is color-coded, based on the application's percentage of packets with network errors in relation to the packets with network errors threshold you configured for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The percent and total number of duplicate packets, the percent and total number of duplicate Acks received, and the network errors threshold you configured for the application in End User Management Administration. **Note:** The average percentage of packets with network errors for all applications (that is, the total number of packets with network errors for all applications divided by the total number of packets for all applications) is displayed in the summary row.

GUI Element (A–Z)	Description
Packets with Server Errors	Displays the percentage of packets sent for each application for which there were server errors. **Tooltip:** The number of zero window and stuck window errors, as well as the packets with server errors threshold you configured for the application in End User Management Administration. **Note:** The average percentage of packets with server errors for all applications (that is, the total number of packets with server errors for all applications divided by the total number of packets for all applications) is displayed in the summary row.
Throughput	Displays, in bits per second, the average throughput for each application (that is, the total traffic for the applications divided by the number of seconds in the report's time range). **Note:** The average total throughput for all applications (that is, the sum of the total throughput for all applications, divided by the number of seconds in the report's time range) is displayed in the summary row.
Total Requests	Displays the total number of requests for each application. **Note:** ➤ This column is not displayed for TCP streaming applications. ➤ The sum of all the requests for each application is displayed in the summary row.
Total Traffic	Displays the total amount of network traffic (application traffic and TCP layer overhead traffic), in megabytes, for each application. **Note:** The sum of the total traffic for each application is displayed in the summary row.

Availability Tab

Description	Displays network availability data for each configured application that was monitored.

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

GUI Element (A–Z)	Description
	End User Summary button. Click to open the End User Summary report, where you can view data for each end-user group that accessed a specific application. For details on the End User Summary report, see "End User Summary Report" on page 489.
	TCP Application Over Time button. Click to open the TCP Application Over Time report, where you can view data over a period of time for an application. For details on the TCP Application Over Time report, see "TCP Application Over Time Report" on page 631.
	Server Summary button. Click to open the Server Summary report, where you can view a summary of the servers for a specific application. For details on the Server Summary report, see "Server Summary Report" on page 600.
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.
	TCP Poor Requests Summary button. Click to open the TCP Poor Requests Summary report, where you can view a summary of the selected applications' TCP requests that were slow or had network errors, broken down by servers and end users. For details on the user interface, see "TCP Poor Requests Summary Report" on page 655.
Application	Displays the application name.

GUI Element (A–Z)	Description
Application Traffic	Displays the total amount of application traffic, in megabytes, for each application. **Note:** The sum of the application traffic for each application is displayed in the summary row.
Average Connect Time (sec.)	Displays the average time taken to establish a connection with the application servers for each application. **Note:** The average connect time for all applications is displayed in the summary row.
Average SSL Handshake Time (sec.)	Displays the average time for SSL handshaking for each applications. **Note:** The average SSL handshake time for all applications is displayed in the summary row.
Connection Availability	Displays the percentage of connections that were successful for each application. This column is color-coded, based on the connection availability in relation to the server connection availability threshold you defined for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server connection availability threshold you configured for the application in End User Management Administration. **Note:** The average connection availability of all applications (that is, the total number of successful connections for all applications divided by the total number of connections for all applications) is displayed in the summary row.
Refused Connections	Displays the number of connections that were refused for each application. **Note:** The sum of the refused connections for each application is displayed in the summary row.

GUI Element (A–Z)	Description
Timed-out Connections	Displays the number of connections that timed out for each application. **Note:** The sum of the timed-out connections for each application is displayed in the summary row.
Total Connection Attempts	Displays the total number of connection attempts for each application. **Note:** The sum of the total connection attempts for each application is displayed in the summary row.
Total Traffic	Displays the total amount of network traffic (application traffic and TCP layer overhead traffic), in megabytes, for each application. **Note:** The sum of the total traffic for each application is displayed in the summary row.

Performance Tab

Description	Displays application performance data for each configured application that was monitored.

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

GUI Element (A–Z)	Description
	End User Summary button. Click to open the End User Summary report, where you can view data for each end-user group that accessed a specific application. For details on the End User Summary report, see "End User Summary Report" on page 489.
	TCP Application Over Time button. Click to open the TCP Application Over Time report, where you can view data over a period of time for an application. For details on the TCP Application Over Time report, see "TCP Application Over Time Report" on page 631.

GUI Element (A–Z)	Description
	Server Summary button. Click to open the Server Summary report, where you can view a summary of the servers for a specific application. For details on the Server Summary report, see "Server Summary Report" on page 600.
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.
	TCP Poor Requests Summary button. Click to open the TCP Poor Requests Summary report, where you can view a summary of the selected applications' TCP requests that were slow or had network errors, broken down by servers and end users. For details on the user interface, see "TCP Poor Requests Summary Report" on page 655.
Application	Displays the application name.
Average Client Time	Displays the average amount of time, in seconds, that each application's requests were delayed on the client machine. **Tooltip:** Minimum client time, maximum client time, and standard deviation. **Note:** The average client time of all applications (that is, the total client time of all requests for all applications divided by the total number of requests for all applications) is displayed in the summary row.
Average Network Time	Displays the average time, in seconds, that the requests for each application were delayed on the network. **Tooltip:** The minimum, maximum, and standard deviation of the network time values. **Note:** The average network time of all applications (that is, the total network time of all requests for all applications divided by the total number of requests for all applications) is displayed in the summary row.

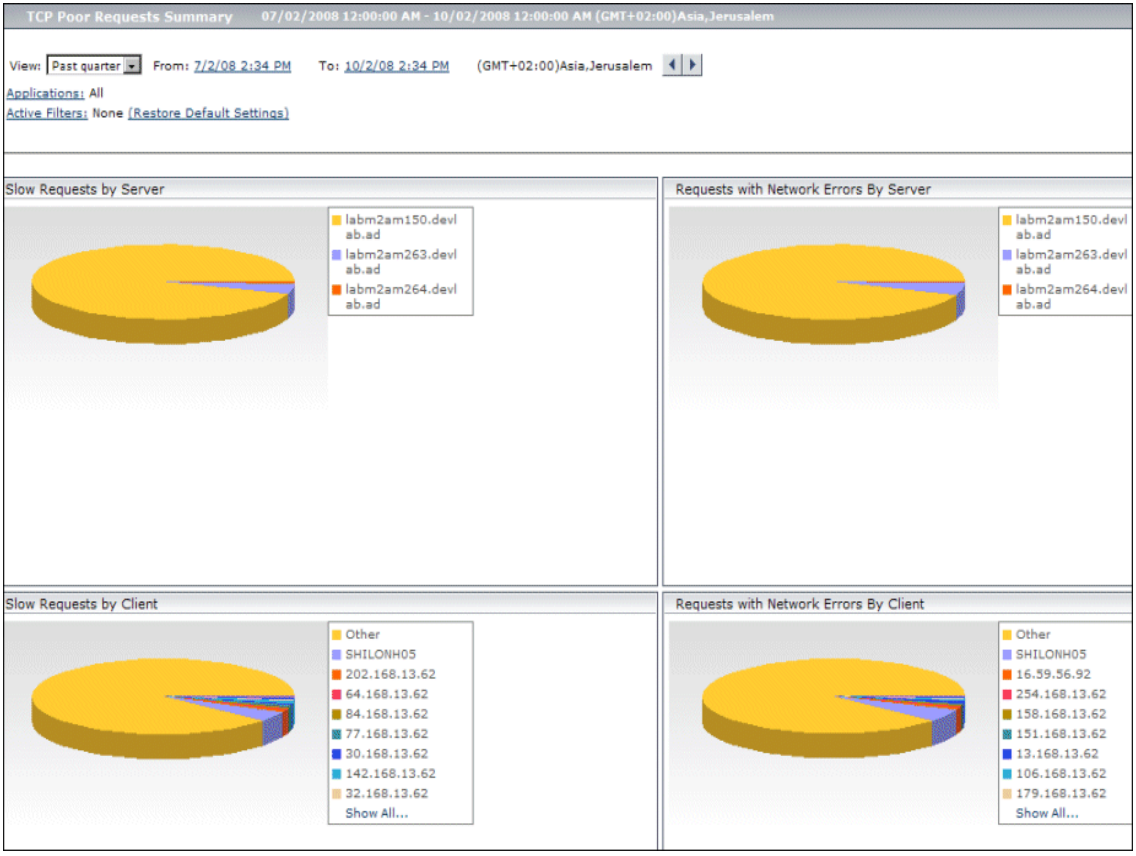
GUI Element (A–Z)	Description
Average Response Time	Displays the average response time for a single request, in seconds, for each application. This column is color-coded, based on the average response time in relation to the component time threshold (for Web applications), or request time threshold (for TCP applications) you defined for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The minimum, maximum, and standard deviation of the response time values, as well as the component time threshold (for Web applications), or request time threshold (for TCP applications) you configured for the application in End User Management Administration. **Note:** ➤ This column is not displayed for TCP streaming applications. ➤ The average response time of all applications (that is, the total response times for all applications divided by the total number of requests for all applications) is displayed in the summary row.
Average Retransmission Time	Displays the average retransmission time, in seconds, for each application. **Note:** ➤ The retransmission time is included in the average network time. ➤ The average retransmission time for all applications is displayed in the summary row.

GUI Element (A–Z)	Description
Average Server Time	Displays the average amount of time, in seconds, that the requests for the selected applications were delayed on the server. This column is color-coded, based on the average server time in relation to the component server time threshold you defined for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The minimum, maximum, and standard deviation of the server time values, as well as the component server time threshold you configured for the application in End User Management Administration. **Note:** ➤ This column is not displayed for TCP streaming applications. ➤ The average server time of all applications (that is, the total server time of all requests for all applications divided by the total number of requests for all applications) is displayed in the summary row.
Average Server Time to First Buffer	Displays the average amount of time, in seconds, from when a server received a request for the application, until it started sending the response. **Tooltip:** Minimum server time to first buffer, maximum server time to first buffer, and standard deviation. **Note:** The average server time to first buffer of all servers for the application (that is, the total server time to first buffer of all requests for all servers for the application, divided by the total number of requests for all servers for the application) is displayed in the summary row.

GUI Element (A–Z)	Description
Max Response Time	Displays the maximum response time, in seconds, for each application. **Note:** The highest maximum response time is displayed in the summary row.
Slow Requests	Displays for each application, the number of requests that exceeded the component time threshold (for Web applications), or request time threshold (for TCP applications) you configured for the application in End User Management Administration. **Note:** The sum of all slow requests for each application is displayed in the summary row.
Total Requests	Displays the total number of requests sent for each application. **Note:** The sum of all requests for each end-user group is displayed in the summary row.

TCP Poor Requests Summary Report

The following is an example of the TCP Poor Requests Summary report.



Description	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 **TCP Poor Requests Summary** button in the **TCP Application Summary**, **End User Summary**, or **Server Summary** reports.
Important Information	➤ Slow requests are requests whose time was less than the component time threshold configured for the application in End User Management 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 End User Management Administration. ➤ The report displays data for only TCP applications or Web (HTTP) and SOAP applications with TCP settings. ➤ When accessed from the End User Summary report, the data is filtered for a specific end-user group.
Useful Links	➤ "New/Edit TCP Application Page" on page 377 ➤ "New/Edit Web or SOAP Application Page" on page 396

This section includes the following topics:

➤ "Report Settings" on page 657

➤ "Slow Requests by Server Graph" on page 658

➤ "Slow Requests by Client Graph" on page 659

➤ "Requests with Network Errors by Server Graph" on page 660

➤ "Requests with Network Errors by Client Graph" on page 661

Report Settings

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

GUI Element (A-Z)	Description
<**Common report elements**>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ End User Groups ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468. **Note:** Applications that are Web (HTTP) only (that is, without any TCP settings) are not displayed as available applications in the Applications Dialog box.
Restore Default Settings	Click to clear any active filters that have been previously set.

Slow Requests by Server Graph

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

GUI Element (A-Z)	Description
<Legend>	Describes the color coding used in the pie chart.
<Pie chart>	The complete pie chart represents the total number of slow TCP requests for the selected applications, broken down by servers. **Note:** When accessed from the End User Summary report, the data is filtered for a specific end-user group.
<Slice>	Each slice of the pie chart represents the total number of slow TCP requests for the selected applications for a specific server. Click a slice to drill down to the TCP Slow Requests Analyzer report, where you can see details of the slow TCP requests for the server. For detail on the user interface, see "TCP Requests Analyzer Report" on page 662. **Tooltip:** The server name and IP address, the number of slow TCP requests for the server, and the percentage of slow TCP requests for the server out of the total number of slow TCP requests for the application. **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

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

GUI Element (A-Z)	Description
<Legend>	Describes the color coding used in the pie chart.
<Pie chart>	The complete pie chart represents the total number of slow TCP requests for the selected applications, broken down by end users (clients). **Note:** When accessed from the End User Summary report, the data is filtered for a specific end-user group.
<Slice>	Each slice of the pie chart represents the total number of slow TCP requests for the selected applications for a specific end user. Click a slice to drill down to the TCP Slow Requests Analyzer report, where you can see details of the slow TCP requests for the end user. For details on the user interface, see "TCP Requests Analyzer Report" on page 662. **Tooltip:** The end user name and IP address, the number of slow TCP requests for the end user, and the percentage of slow TCP requests for the end user out of the total number of slow TCP requests for the application. **Note:** Up to 10 different slices can be displayed per chart. If there are more than 10 end users to be displayed, the end users with the least number of slow TCP requests are grouped together in a slice called **Other**.

Requests with Network Errors by Server Graph

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

GUI Element (A-Z)	Description
<Legend>	Describes the color coding used in the pie chart.
<Pie chart>	The complete pie chart represents the total number of TCP requests with network errors for the selected applications, broken down by servers. **Note:** When accessed from the End User Summary report, the data is filtered for a specific end-user group.
<Slice>	Each slice of the pie chart represents the total number of TCP requests with network errors for the selected applications for a specific server. Click a slice to drill down to the TCP Requests with Network Errors Analyzer report, where you can see details of the TCP requests with network errors for the server. For details on the user interface, see "TCP Requests Analyzer Report" on page 662. **Tooltip:** The server name and IP address, the number of TCP requests with network errors for the server and the percentage of TCP requests with network errors for the server out of the total number of TCP requests with network errors for the application, the number of retransmitted data packets and the percentage of retransmitted data packets for the server out of the total number of retransmitted data packets for the application, and the number of retransmitted Ack packets and the percentage of retransmitted Ack packets for the server out of the total number of retransmitted Ack packets for the application. **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

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

GUI Element (A-Z)	Description
<Legend>	Describes the color coding used in the pie chart.
<Pie chart>	The complete pie chart represents the total number of TCP requests with network errors for the selected applications, broken down by end users (clients). **Note:** When accessed from the End User Summary report, the data is filtered for a specific end-user group.
<Slice>	Each slice of the pie chart represents the total number of TCP requests with network errors for the selected applications for a specific end user. Click a slice to drill down to the TCP Requests with Network Errors Analyzer report, where you can see details of the TCP requests with network errors for the end-user. For details on the user interface, see "TCP Requests Analyzer Report" on page 662. **Tooltip:** The end user name and IP address, the number of TCP requests with network errors for the end user and the percentage of TCP requests with network errors for the end user out of the total number of TCP requests with network errors for the application, the number of retransmitted data packets and the percentage of retransmitted data packets for the end user out of the total number of retransmitted data packets for the application, and the number of retransmitted Ack packets and the percentage of retransmitted Ack packets for the end user out of the total number of retransmitted Ack packets for the application. **Note:** Up to 10 different slices can be displayed per chart. If there are more than 10 end users to be displayed, the end users with the least number of TCP requests with network errors are grouped together in a slice called **Other**.

TCP Requests Analyzer Report

Description	Displays detailed data about the slow requests or requests with network errors for selected applications for a specific server or end user. **To access:** Click a pie slice for a specific server or end user in the **TCP Poor Requests Summary** report.
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 End User Management 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 End User Management Administration. ➤ The report displays data for only TCP applications or Web (HTTP) and SOAP applications with TCP settings.
Useful Links	➤ "New/Edit TCP Application Page" on page 377 ➤ "New/Edit Web or SOAP Application Page" on page 396

Report Settings

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

GUI Element (A-Z)	Description
<**Common report elements**>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ End User Groups ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468. **Note:** Applications that are Web (HTTP) only (that is, without any TCP settings) are not displayed as available applications in the Applications Dialog box.
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** graphs in the **TCP Poor Requests Summary** report.
Restore Default Settings	Click to clear any active filters that have been previously set.

Report Content

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

GUI Element (A-Z)	Description
	Click the button to download 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 Thresholds" on page 381 for TCP applications, and "TCP Settings" on page 415 for Web and SOAP applications.
	Click the button to display a snippet of the selected request to the application in text format, in a new window. For protocols for which Real User Monitor 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" on page 453. **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.
Application Traffic (KB)	Displays the total amount of application traffic, in kilobytes, for the request.

GUI Element (A-Z)	Description
Capture File	Click the button to download a capture file of the 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 displayed 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 Thresholds" on page 381 for TCP applications, and "TCP Settings" on page 415 for Web and SOAP applications.
Client	The name of the end user. **Tooltip:** The IP address of the end user.
Client TIme (sec.)	Displays the amount of time, in seconds, that the request was delayed on the client machine.
Network Time (sec.)	Displays the time, in seconds, that the request was delayed on the network.

GUI Element (A-Z)	Description
Packets with Network Errors (%)	Displays 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 End User Management 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 **Tooltip:** The total number of request packets, the total number and percentage of retransmitted data packets, the total number and percentage of retransmitted Ack packets, and the configured threshold. **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 Real User Monitor), packet 5 is counted as a retransmitted packet by both Real User Monitor and Wireshark, and packet 6 is counted as a retransmitted packet by Real User Monitor (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

GUI Element (A-Z)	Description
Packets with Server Errors (%)	Displays 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 End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The total number of request packets, the total number and percentage of packets with zero window errors, the total number and percentage of packets with stack window errors, and the configured threshold.
Request Name	For protocols for which Real User Monitor supports parsing, a request name is displayed. The name includes the protocol and a summary of the request showing the type of action. For other protocols, a dash (-) is displayed. For a list of supported protocols, see "Parsing Supported Protocols" on page 453.
Request Snippet	Click the button to display a snippet of the request to the application in text format, in a new window. For protocols for which Real User Monitor 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" on page 453. **Note:** ➤ The button is displayed only if a snippet exists for the request. ➤ You cannot display a snippet for requests transmitted over an SSL connection.
Request Time Stamp	Displays the date and time of the request.

GUI Element (A-Z)	Description
Response Time (sec.)	Displays 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 (for Web applications), or request time threshold (for TCP applications) you configured for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The configured threshold.
Retransmit Time (sec.)	Displays the retransmit time for the request, in seconds.
Server	The name of the server. **Tooltip:** The IP address of the application server.
Server Time (sec.)	Displays 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 (for Web applications), or server time threshold (for TCP applications) you configured for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The configured threshold. **Note:** The color coding does not indicate whether the request is a slow request or not.
Server Time to First Buffer (sec.)	Displays 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	Displays a check mark if the request was sent over an SSL connection.

Transaction Over Time Report

Description	Displays details of the availability, page times, run availability, and breakdown for the selected transaction, over the course of time. The data in the Transaction Over Time report can be viewed either as graphs or as tables, by clicking the appropriate tab. **To access:** ➤ Click the **Transaction Over Time** button for the transaction in the Transaction Summary Report (see page 679). ➤ Click the **Transaction Over Time** button for the transaction in the End Users by Transaction Report (see page 512).
Important Information	➤ When accessing the Transaction Over Time report from the End Users by Transaction Report, the report is filtered for the end-user group for which you selected the report. ➤ In each 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. In some of the graphs, to drill down to a higher time resolution, click a data point or bar and then select **Time Resolution** from the displayed menu.

This section includes the following topics:

- "Report Settings" on page 670
- "Transaction Availability Over Time Graph" on page 671
- "Transaction Hits Availability Over Time Graph" on page 672
- "Transaction Performance Over Time Graph" on page 673
- "Transaction Breakdown Over Time Graph" on page 675
- "Transaction Availability Over Time Table" on page 676

➤ "Transaction Hits Availability Over Time Table" on page 677

➤ "Transaction Performance Over Time Table" on page 677

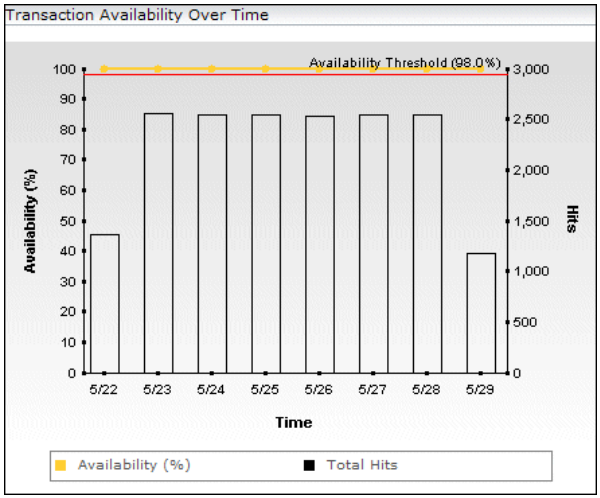
➤ "Transaction Breakdown Over Time Table" on page 678

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Transactions ➤ End User Groups ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

Transaction Availability Over Time Graph

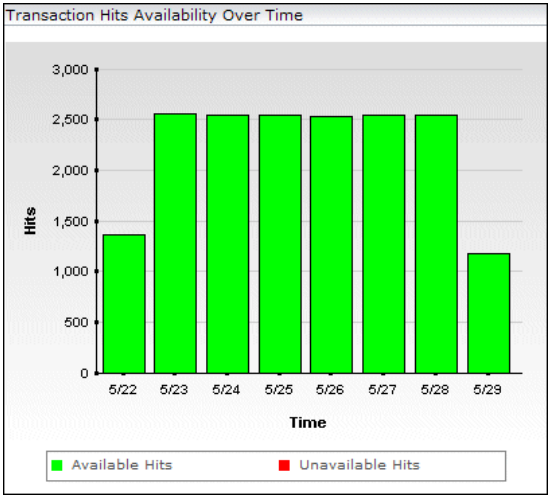


The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Bars>	Display the total number of transaction hits at each point over the course of the defined time period. **Tooltip:** The relevant time period, the total number of transaction hits, and the percentage of available transactions.
<Horizontal Availability Threshold line>	Displays the transaction availability threshold you configured in End User Management Administration.
<Legend>	Describes the color coding used in the graph.
<Line connecting data points>	Displays the percentage of available transactions at each point over the course of the defined time period. **Tooltip:** Hold the cursor over a data point on the graph to display the relevant time period, the total number of transaction hits, and the percentage of available transactions.

GUI Element (A–Z)	Description
Availability <left y-axis>	Transaction availability percentage units.
Hits <right y-axis>	The total number of transaction hits.
Time <x-axis>	Time division units for the time range you defined when generating the report.

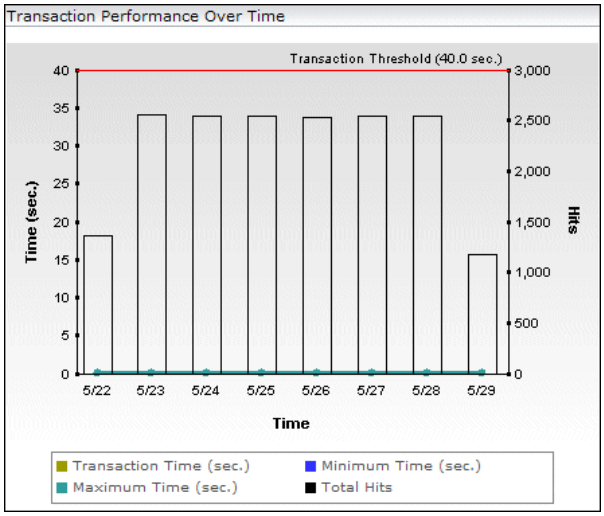
Transaction Hits Availability Over Time Graph



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

GUI Element (A–Z)	Description
<Bars>	Each bar represents the number of the selected transaction over the course of the defined time period. The bars are divided into the number of available transactions (colored green), and the number of unavailable transactions (colored red). **Tooltip:** The number and percentage of available and unavailable transactions.
<Legend>	Describes the color coding used in the graph.
Hits <y-axis>	Number of transactions.
Time <x-axis>	Time division units for the time range you defined when generating the report.

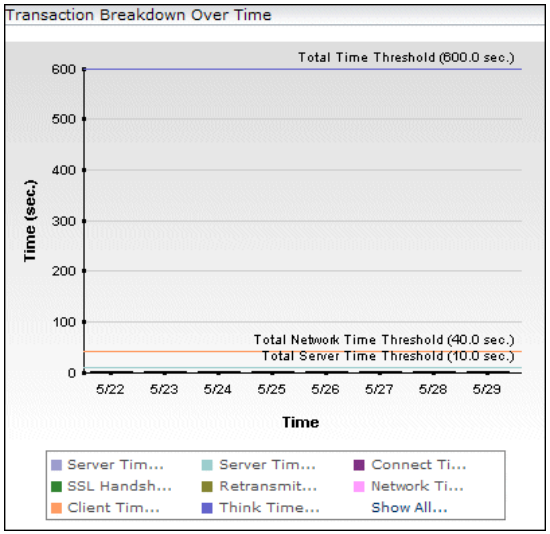
Transaction Performance Over Time Graph



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

GUI Element (A–Z)	Description
<Bars>	Display the total number of transaction hits at each point over the course of the defined time period. **Tooltip:** The average time, maximum time, minimum time, standard deviation, and total number of hits for the transaction at a given time.
<Horizontal Transaction Threshold line>	Displays the transaction time threshold you configured in End User Management Administration.
<Legend>	Describes the color coding used in the graph.
<Lines connecting data points>	The three lines on the graph represent: ➤ the average transaction time ➤ the maximum transaction time ➤ the minimum transaction time over the course of the defined time period. **Tooltip:** Hold the cursor over the a data point on the graph to display the average time, maximum time, minimum time, standard deviation, and total number of hits for the transaction at a given time.
Hits <right y-axis>	The total number of transaction hits.
Time (secs) <left y-axis>	Transaction time units in seconds.
Time <x-axis>	Time division units for the time range you defined when generating the report.

Transaction Breakdown Over Time Graph



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

GUI Element (A–Z)	Description
<Bars>	Each bar represents the total transaction time over the course of the defined time period, and is divided into segments showing client time, connection time, network time, retry time, server time, server time to first buffer, SSL handshake time, and think time for the transaction. To drill down to HP Network Node Manager, click a bar and select **Drilldown to NNM** from the displayed menu. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443. **Tooltip:** The duration of each segment in the bar.
<Horizontal Total Server Time Threshold line>	Displays the server time threshold of the page as configured in End User Management Administration.

GUI Element (A–Z)	Description
<Horizontal Total Network Time Threshold line>	Displays the network time threshold of the page, as configured in End User Management Administration.
<Horizontal Total Time Threshold line>	Displays the total time threshold of the page, as configured in End User Management Administration.
<Legend>	Describes the color coding used in the graph. Click **Show All** to display the expanded legend in a new window.
Time (secs) <y-axis>	Time units in seconds.
Time <x-axis>	Time division units for the time range you defined when generating the report.

Transaction Availability Over Time Table

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

GUI Element (A–Z)	Description
Availability	Displays as a percentage, the number of successful transaction runs, out of the total number of runs for the transaction, for the defined time period.
Time	Displays the applicable date and time for the data displayed.

Transaction Hits Availability Over Time Table

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

GUI Element (A–Z)	Description
Availability	Displays as a percentage, the number of successful transaction runs, out of the total number of runs for the transaction, for the defined time period.
Available Hits	Displays the number of runs that completed successfully.
Time	Displays the applicable date and time for the data displayed.
Total Hits	Displays the total number of occurrences of the transaction.
Unavailable Hits	Displays the number of runs that failed.

Transaction Performance Over Time Table

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

GUI Element (A–Z)	Description
Maximum Time	Displays the longest transaction time, in seconds.
Minimum Time	Displays the shortest transaction time, in seconds.
STD	Displays the standard deviation of the transaction run time, in seconds.
Time	Displays the applicable date and time for the data displayed.
Transaction Time	Displays the average transaction run time, in seconds.

Transaction Breakdown Over Time Table

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

GUI Element (A–Z)	Description
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.
Client Time	Displays the average client processing time during the transaction runs.
Connection Time	Displays the average amount of time, in seconds, that it took to establish an initial connection to the server from the first http request sent during the transaction runs.
Network Time	Displays the average network time during the transaction runs.
Retry Time	Displays the overall amount of time that passes from the moment an HTTP request is started until the moment an error message is returned. **Note:** Retry time only relates to errors that execute a retry after the error.
Server Time	Displays the average server processing time during the transaction runs.
Server Time to First Buffer	Displays 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	Displays the average amount of time taken to establish an SSL connection. **Note:** SSL handshake time is applicable only for HTTPS communications.

GUI Element (A–Z)	Description
Think Time	Displays the average think time during the transaction runs.
Time	Displays the applicable date and time for the data displayed.
Total Time	Displays the average transaction run time.

Transaction Summary Report

Description	Displays data for specific transactions that were configured for Real User Monitor in End User Management Administration. **To access:** ➤ Select **Applications** > **End User Management** > **Real User** > **Transaction Summary** ➤ Click the **Transaction Summary** button for a selected end-user group in the End User Summary report.
Important Information	The report uses calculated totals of all the unified parts of a page for the measurements of those pages that have been configured for frame unification in a transaction. For details on configuring pages for frame unification in a transaction, see "New/Edit Transaction Page" on page 387.

This section includes the following topics:

➤ "Report Settings" on page 680
➤ "General Tab" on page 680
➤ "Availability Tab" on page 684
➤ "Performance Tab" on page 685

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The active filters tabs enabled for this report are: ➤ Transactions ➤ End User Groups ➤ User Properties ➤ Servers
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

General Tab

Description	Displays general data related to each configured transaction that was monitored.

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

GUI Element (A–Z)	Description
	End Users by Transaction button. Click to open the End Users by Transaction report, where you can view data for each end-user group that ran a specific transaction. For details on the End Users by Transaction report, see "End Users by Transaction Report" on page 512.
	Transaction Over Time button. Click to open the Transaction Over Time report, where you can view data over a period of time for a transaction. For details on the Transaction Over Time report, see "Transaction Over Time Report" on page 669.
	Session Analyzer button. Click to open the Session Analyzer report for sessions that include a selected transaction. For details on the Session Analyzer report, see "Session Analyzer Report" on page 612.
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.

GUI Element (A–Z)	Description
Availability	Displays the percentage of transaction runs for which there were no availability problems. This column is color-coded, based on the transaction's availability in relation to the transaction availability threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The transaction availability threshold. **Note:** ➤ If a transaction is unavailable, its data is not included in the transaction performance calculations ➤ The average availability of all transactions (that is, the total number of successful transaction runs for all transactions divided by the total number of transaction run requests for all transactions) is displayed in the summary row.
Net Time	Displays the net time, in seconds, of the transaction (that is, server time + network time + client time of all the pages included in the transaction). This column is color-coded, based on the transaction's net time in relation to the net time threshold you configured in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The net transaction time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the net time values. **Note:** The average net time of all transactions is displayed in the summary row.
Runs	Displays the total number of run instances for each transaction. **Note:** The sum of all the transaction run instances for each transaction is displayed in the summary row.

GUI Element (A–Z)	Description
Total Server Time	Displays the total server time of all the pages included in the transaction. This column is color-coded, based on the transaction's server time in relation to the transaction server time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the server time values. **Note:** The average server time of all transactions is displayed in the summary row.
Total Time	Displays an average of the overall transaction time (from the start of the first page to the end of the last page), in seconds, for each transaction. This column is color-coded, based on the transaction's total time in relation to the total time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The total transaction time threshold. **Note:** The average total transaction time of all transactions is displayed in the summary row.
Transaction Name	Displays the name you assigned the transaction in End User Management Administration. **Tooltip:** The full transaction name
Transaction Size	Displays the total size, in kilobytes, of all the pages in each transaction. **Note:** The average transaction size of all transactions is displayed in the summary row.

Availability Tab

Description	Displays transaction availability data for each configured transaction that was monitored.

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

GUI Element (A–Z)	Description
	End Users by Transaction button. Click to open the End Users by Transaction report, where you can view data for each end-user group that ran a specific transaction. For details on the End Users by Transaction report, see "End Users by Transaction Report" on page 512.
	Transaction Over Time button. Click to open the Transaction Over Time report, where you can view data over a period of time for a transaction. For details on the Transaction Over Time report, see "Transaction Over Time Report" on page 669.
	Session Analyzer button. Click to open the Session Analyzer report for sessions that include a selected transaction. For details on the Session Analyzer report, see "Session Analyzer Report" on page 612.
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.

GUI Element (A–Z)	Description
Availability	Displays the percentage of transaction runs for which there were no availability problems. This column is color-coded, based on the transaction's availability in relation to the transaction availability threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The transaction availability threshold. **Note:** If a transaction is unavailable, its data is not included in the transaction performance calculations.
Runs	Displays the total number of run instances for each transaction.
Transaction Name	Displays the name you assigned the transaction in End User Management Administration. **Tooltip:** The full transaction name
Unavailable Runs	Displays, for each transaction, the total number of transaction run instances for which availability problems occurred.

Performance Tab

Description	Displays data about the duration of each configured transaction that was monitored.

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

GUI Element (A–Z)	Description
	End Users by Transaction button. Click to open the End Users by Transaction report, where you can view data for each end-user group that ran a specific transaction. For details on the End Users by Transaction report, see "End Users by Transaction Report" on page 512.
	Transaction Over Time button. Click to open the Transaction Over Time report, where you can view data over a period of time for a transaction. For details on the Transaction Over Time report, see "Transaction Over Time Report" on page 669.
	Session Analyzer button. Click to open the Session Analyzer report for sessions that include a selected transaction. For details on the Session Analyzer report, see "Session Analyzer Report" on page 612.
	Drilldown to NNM button. Click to drill down to HP Network Node Manager. For details on this topic, see "Viewing HP Network Node Manager Data From Real User Monitor Reports" on page 443.
Client Time	Displays the total time, in seconds, that each page included in the transaction was delayed on the client machine. **Tooltip:** The minimum, maximum, and standard deviation of the client time values.
Connection Time	Displays the average amount of time, in seconds, that it took to establish an initial connection to the server from the first http request sent.

GUI Element (A–Z)	Description
Net Time	Displays the net time, in seconds, of the transaction (that is, server time + network time + client time of all the pages included in the transaction). This column is color-coded, based on the transaction's net time in relation to the net time threshold you configured in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The net transaction time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the net time values.
Retry Time	Displays the overall amount of time that passes from the moment an HTTP request is started until the moment an error message is returned. **Note:** Retry time only relates to errors that execute a retry after the error.
Runs	Displays the total number of run instances for each transaction.
Server Time to First Buffer	Displays 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	Displays the number of run instances whose total transaction time exceeded the configured total time threshold
Slow Transaction Net Time	Displays the average net transaction time, in seconds, of each transaction's runs that exceeded the net time threshold configured for the transaction.

GUI Element (A–Z)	Description
Slow Transaction Server Time	Displays 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	Displays 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	Displays the average amount of time taken to establish an SSL connection. **Note:** SSL handshake time is applicable only for HTTPS communications.
Think Time	Displays the average think time for each transaction (that is, the time between page downloads which is calculated as transaction time - server time - network time - client time).

GUI Element (A–Z)	Description
Total Network Time	Displays the total time, in seconds, that each page included in the transaction was delayed on the network. Connection, SSL handshaking, and retry times are also included in the total network time. **Tooltip:** The minimum, maximum, and standard deviation of the network time values.
Total Server Time	Displays the total server time of all the pages included in the transaction. This column is color-coded, based on the transaction's server time in relation to the transaction server time threshold you defined in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The server time threshold you defined in End User Management Administration, as well as the minimum, maximum, and standard deviation of the server time values.
Total Time	Displays an average of the overall transaction time (from the start of the first page to the end of the last page), in seconds, for each transaction. This column is color-coded, based on the transaction's total time in relation to the total time threshold you configured in End User Management Administration. ➤ **Green**. OK ➤ **Red.** Critical **Tooltip:** The total transaction time threshold you defined in End User Management Administration.
Transaction Name	Displays the name you assigned the transaction in End User Management Administration. **Tooltip:** The full transaction name.

Unconfigured End Users by Country/State, City, or IP

Description	Displays data for the end users included in: ➤ an unconfigured end-user group selected in the End User Summary report, grouped by country and state. ➤ a country or state selected in the Unconfigured End Users by Country/State report, grouped by city. ➤ a city selected in the Unconfigured End Users by City report, grouped by IP address. **To access:** ➤ Click the **Unconfigured End Users by Country/State** button for a selected, unconfigured end-user group in the End User Summary Report (for details, see page 489), to display the Unconfigured End Users by Country/State report. ➤ Click the **Unconfigured End Users by City** button for a selected country and state in the Unconfigured End Users by Country/State report, to display the Unconfigured End Users by City report. ➤ Click the **Unconfigured End Users by IP** button for a selected city in the Unconfigured End Users by City report, to display the Unconfigured End Users by IP report.
Important Information	The available tabs in the report depend on the types of the applications for which you generate the report. For details on this topic, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430.
Useful Links	"Displaying End-User Names in Reports" on page 445

This section includes the following topics:

- "Report Settings" on page 691
- "HTTP Tab" on page 692
- "Request–Response Tab" on page 695
- "Network Connections Tab" on page 699

Report Settings

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

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see "Common Report Elements" in *Reports*.
Active Filters	Indicates which active filters have been set. To set active filters, click the **Active Filters** link. For details, see "Active Filters Dialog Box" on page 455. **Note:** The **End User Groups** active filters tab is enabled for this report.
Applications	Indicates the name of the selected application for which data is included in the report. If more than one application is selected, the number of selected applications out of the total number of applications is displayed. To select applications, click the **Applications** link. For details, see "Applications Dialog Box" on page 468.
Restore Default Settings	Click to clear any active filters that have been previously set.

HTTP Tab

Important Information	If you generate the Unconfigured End User report for both pure Web (HTTP) or SOAP applications and Web (HTTP) or SOAP applications with TCP settings, by default the **HTTP Traffic**, **HTTPS Traffic**, and **Latency** columns are not displayed. You can configure HP Business Availability Center to display these fields in such situations. For details, see "Viewing Data for Different Application Types in Real User Monitor Reports" on page 430.

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

GUI Element (A–Z)	Description
	Unconfigured End Users by City button. In the Unconfigured End Users by Country/State report, click to open the Unconfigured End Users by City report, where you can view data for a selected country and state. **Unconfigured End Users by IP button.** In the Unconfigured End Users by City report, click to open the Unconfigured End Users by IP report, where you can view data for a selected IP range.
	Define End User button. Click to open the Define End-User Group dialog box, where you add an undefined end-user group to the list of configured end-user groups in End User Management Administration. For details on configuring end-user groups in End User Management Administration, see "New/Edit End-User Group Page" on page 349. For details on the Define End-User Group dialog box, see "Define End-User Group Dialog Box" on page 471. **Note:** This button is available only in the Unconfigured End Users by IP report.

GUI Element (A–Z)	Description
Available Page Hits	Displays the total number of available page hits generated by the end users in each country and state, city, or IP range. **Note:** The sum of all the available page hits for each country and state, city, or IP range is displayed in the summary row.
End User	Displays the IP range and name, if available, of the IP addresses included in the Unconfigured End Users by IP report. **Note:** This element is not included in the Unconfigured End Users by Country/State or City reports.
HTTP Traffic	Displays the number of kilobytes that the end users in each country and state, city, or IP range sent to, and received from, the servers via HTTP. **Note:** The sum of all the sent and received HTTP kilobytes for each country and state, city, or IP range is displayed in the summary row.
HTTPS Traffic	Displays the number of kilobytes that the end users in each country and state, city, or IP range sent to, and received from, the servers via HTTPS. **Note:** The sum of all the sent and received HTTPS kilobytes for each country and state, city, or IP range is displayed in the summary row.
Latency	Displays the average network latency, in milliseconds, for each country and state, city, or IP range. This column is color-coded, based on the country and state, city, or IP range's latency in relation to the default end-user group latency threshold that is configured. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The default, end-user group latency threshold in milliseconds. **Note:** The average latency for all countries and states, cities, or IP ranges is displayed in the summary row.

GUI Element (A–Z)	Description
Location	Displays the name of each country, state or city included in the report. If the geographic location is unknown, **OTHER** is displayed. **Note:** This element is not included in the Unconfigured End Users by IP report.
Pages with Errors	Displays the total number of pages hit that had errors for the end users in each country and state, city, or IP range. **Note:** The sum of all the pages with errors for each country and state, city, or IP range is displayed in the summary row.
Pages with High Latency	Displays the total number of pages whose average network latency exceeded the configured latency threshold, for the end users in each country and state, city, or IP range. **Note:** The sum of all the slow page hits for all the end-users in each country and state, city, or IP range is displayed in the summary row.
Pages with Performance Problems	Displays the total number of pages hit that had performance events for the end users in each country and state, city, or IP range. **Note:** The sum of all the pages with performance problems for each country and state, city, or IP range is displayed in the summary row.
Slow Pages Latency	Displays the average latency, in milliseconds, for the end users in each country and state, city, or IP range. **Note:** The average latency for all the end users in each country and state, city, or IP range is displayed in the summary row.
Unavailable Page Hits	Displays the total number of unavailable page hits generated by the end users in each country and state, city, or IP range. **Note:** The sum of all the unavailable page hits for each country and state, city, or IP range is displayed in the summary row.

Request–Response Tab

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

GUI Element (A–Z)	Description
	Unconfigured End Users by City button. In the Unconfigured End Users by Country/State report, click to open the Unconfigured End Users by City report, where you can view data for a selected country and state. **Unconfigured End Users by IP button.** In the Unconfigured End Users by City report, click to open the Unconfigured End Users by IP report, where you can view data for a selected IP range.
	Define End User button. Click to open the Define End-User Group dialog box, where you add an undefined end-user group to the list of configured end-user groups in End User Management Administration. For details on configuring end-user groups in End User Management Administration, see “New/Edit End-User Group Page” on page 349. For details on the Define End-User Group dialog box, see “Define End-User Group Dialog Box” on page 471. **Note:** This button is available only in the Unconfigured End Users by IP report.
Application Traffic	Displays the number of kilobytes that the end users in each country and state, city, or IP range sent to, and received from, the application servers for the selected applications. **Note:** The sum of the application traffic for the end users in each country and state, city, or IP range is displayed in the summary row.

GUI Element (A–Z)	Description
Average Client Time	Displays the average amount of time, in seconds, that the requests for the selected applications were delayed on the client machines of the end users in each country and state, city, or IP range. **Tooltip:** The minimum, maximum, and standard deviation of the client time values. **Note:** The average client time of all countries and states, cities, or IP ranges (that is, the total client time of all requests for all countries and states, cities, or IP ranges divided by the total number of requests for all countries and states, cities, or IP ranges) is displayed in the summary row.
Average Network Time	Displays the average time, in seconds, that the requests for the selected application were delayed on the network for each country and state, city, or IP range. **Tooltip:** The minimum, maximum, and standard deviation of the network time values. **Note:** The average network time of all countries and states, cities, or IP ranges (that is, the total network time of all requests for all countries and states, cities, or IP ranges divided by the total number of requests for all countries and states, cities, or IP ranges) is displayed in the summary row.

GUI Element (A–Z)	Description
Average Response Time	Displays the average response time for a single request, in seconds, for each country and state, city, or IP range. This column is color-coded, based on the country and state, city, or IP range's average response time in relation to the component time threshold (for Web applications), or request time threshold (for TCP applications) you configured for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The minimum, maximum, and standard deviation of the response time values, as well as the component time threshold (for Web applications), or request time threshold (for TCP applications) you configured for the application in End User Management Administration. **Note:** The average response time of all countries and states, cities, or IP ranges (that is, the total response times for all countries and states, cities, or IP ranges divided by the total number of requests for all countries and states, cities, or IP ranges) is displayed in the summary row.
Average Retransmit Time	Displays the average retransmission time, in seconds, for each country and state, city, or IP range. **Note:** ➤ The retransmission time is included in the average network time. ➤ The average retransmission time for all countries and states, cities, or IP ranges is displayed in the summary row.
End User	Displays the IP range and name, if available, of the IP addresses included in the Unconfigured End Users by IP report. **Note:** This element is not included in the Unconfigured End Users by Country/State or City reports.

GUI Element (A–Z)	Description
Location	Displays the name of each country, state or city included in the report. If the geographic location is unknown, **OTHER** is displayed. **Note:** This element is not included in the Unconfigured End Users by IP report.
Slow Requests	Displays for each country and state, city, or IP range, the number of requests that exceeded the component time threshold (for Web applications), or request time threshold (for TCP applications) you configured for the application in End User Management Administration. **Note:** The sum of all slow requests for each country and state, city, or IP range is displayed in the summary row.
Total Requests	Displays the total number of requests send by each country and state, city, or IP range for the selected applications. **Note:** The sum of all requests for each country and state, city, or IP range is displayed in the summary row.

Network Connections Tab

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

GUI Element (A–Z)	Description
	Unconfigured End Users by City button. In the Unconfigured End Users by Country/State report, click to open the Unconfigured End Users by City report, where you can view data for a selected country and state. **Unconfigured End Users by IP button.** In the Unconfigured End Users by City report, click to open the Unconfigured End Users by IP report, where you can view data for a selected IP range.
	Define End User button. Click to open the Define End-User Group dialog box, where you add an undefined end-user group to the list of configured end-user groups in End User Management Administration. For details on configuring end-user groups in End User Management Administration, see “New/Edit End-User Group Page” on page 349. For details on the Define End-User Group dialog box, see “Define End-User Group Dialog Box” on page 471. **Note:** This button is available only in the Unconfigured End Users by IP report.
Application Traffic	Displays the number of kilobytes that the end users in each country and state, city, or IP range sent to, and received from, the application servers for the selected applications. **Note:** The sum of the application traffic for the end users in each country and state, city, or IP range is displayed in the summary row.

GUI Element (A–Z)	Description
Average Connect Time (sec.)	Displays the average time taken for each country and state, city, or IP range to establish a connection with the application servers for the selected applications. **Note:** The average connect time for all countries and states, cities, or IP ranges is displayed in the summary row.
Average SSL Handshake Time (sec.)	Displays the average time for SSL handshaking for the selected applications, for each country and state, city, or IP range. **Note:** The average SSL handshake time for all countries and states, cities, or IP ranges is displayed in the summary row.
Connection Availability	Displays the percentage of connections that were successful for each country and state, city, or IP range. This column is color-coded, based on the country and state, city, or IP range's connection availability in relation to the server connection availability threshold you configured for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Note:** The average connection availability of all countries and states, cities, or IP ranges (that is, the total number of successful connections for all countries and states, cities, or IP ranges divided by the total number of connections for all countries and states, cities, or IP ranges) is displayed in the summary row.
End User	Displays the IP range and name, if available, of the IP addresses included in the Unconfigured End Users by IP report. **Note:** This element is not included in the Unconfigured End Users by Country/State or City reports.

GUI Element (A–Z)	Description
Latency	Displays the average network latency, in milliseconds, for each country and state, city, or IP range. This column is color-coded, based on the country and state, city, or IP range's latency in relation to the default end-user group latency threshold that is configured. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The default, end-user group latency threshold in milliseconds. **Note:** The average latency for all countries and states, cities, or IP ranges is displayed in the summary row.
Location	Displays the name of each country, state or city included in the report. If the geographic location is unknown, **OTHER** is displayed. **Note:** This element is not included in the Unconfigured End Users by IP report.
Packets with Client Errors	Displays the percentage of packets sent by each country and state, city, or IP range for which there were client errors. This column is color-coded, based on the country and state, city, or IP range's percentage of packets with client errors in relation to the packets with client errors threshold you configured for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The number of zero window and stuck window errors, as well as the **Packets with client errors** threshold configured for the application. **Note:** The average percentage of packets with client errors for all countries and states, cities, or IP ranges (that is, the total number of packets with client errors for all countries and states, cities, or IP ranges divided by the total number of packets for all countries and states, cities, or IP ranges) is displayed in the summary row.

GUI Element (A–Z)	Description
Packets with Network Errors	Displays the percentage of packets sent by each country and state, city, or IP range for which there were network errors. This column is color-coded, based on the country and state, city, or IP range's percentage of packets with network errors in relation to the packets with network errors threshold you configured for the application in End User Management Administration. ➤ **Green.** OK ➤ **Red.** Critical **Tooltip:** The total number of retries and the total number of duplicate Acks received. **Note:** The average percentage of packets with network errors for all countries and states, cities, or IP ranges (that is, the total number of packets with network errors for all countries and states, cities, or IP ranges divided by the total number of packets for all countries and states, cities, or IP ranges) is displayed in the summary row.
Refused Connections	Displays the number of connections that were refused for each country and state, city, or IP range. **Note:** The sum of the refused connections for each country and state, city, or IP range is displayed in the summary row.
Timed-out Connections	Displays the number of connections that timed out for each country and state, city, or IP range. **Note:** The sum of the timed-out connections for each country and state, city, or IP range is displayed in the summary row.

GUI Element (A–Z)	Description
Total Connection Attempts	Displays the total number of connection attempts for each country and state, city, or IP range. **Note:** The sum of the total connection attempts for each country and state, city, or IP range is displayed in the summary row.
Total Traffic	Displays the total amount of network traffic (application traffic and TCP layer overhead traffic), in kilobytes, for each country and state, city, or IP range. **Note:** The sum of the total traffic for each country and state, city, or IP range is displayed in the summary row.

Troubleshooting and Limitations

This chapter includes troubleshooting and limitations for Business Process Monitor reports.

No Data is Displayed When Drilling Down to HP Diagnostics or TransactionVision From Real User Monitor Reports

If you cannot see data in HP Diagnostics or TransactionVision when you drill down from a Real User Monitor report, ensure that the Diagnostics server or TransactionVision sensor probe is set to the same time as the Real User Monitor engine (including the resolution in minutes).

Tip: You can use the Network Time protocol (NTP) to ensure that the systems are synchronized.

For details on drilling down to HP Diagnostics, see “Viewing HP Diagnostics Data From Real User Monitor Reports” on page 438. For details on drilling down to TransactionVision, see “Viewing TransactionVision Data From Real User Monitor Reports” on page 440.

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