



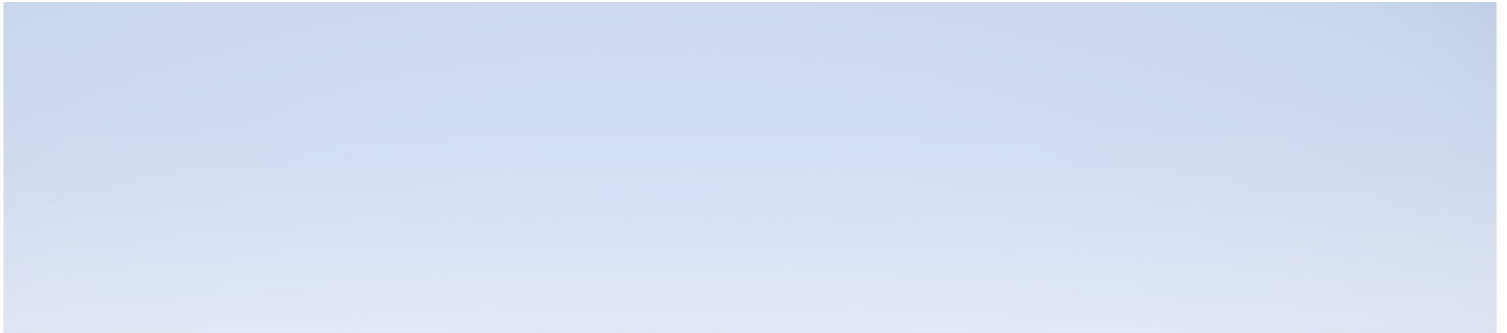
**Hewlett Packard**  
Enterprise

# Diagnostics

Version 9.40, Released August 2017

## RUM Client Monitor - Diagnostics Integration Guide

Published August 2017



## Legal Notices

### Warranty

The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HPE shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

### Restricted Rights Legend

Confidential computer software. Valid license from HPE required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

### Copyright Notice

© Copyright 2005 - 2017 Hewlett Packard Enterprise Development LP

### Trademark Notices

Adobe™ is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark of The Open Group.

Java is a registered trademark of Oracle and/or its affiliates.

Oracle® is a registered trademark of Oracle and/or its affiliates.

## Acknowledgements

This product includes software developed by the Apache Software Foundation (<http://www.apache.org/>).

This product includes software developed by the Spice Group (<http://spice.codehaus.org>).

For information about open source and third-party license agreements, see the *Open Source and Third-Party Software License Agreements* document in the Documentation directory on the product installation media.

### Support

Visit the HPE Software Support website at: <https://softwaresupport.hpe.com>

This website provides contact information and details about the products, services, and support that HPE Software offers.

HPE Software Support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support website to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HPE support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HPE Passport user and sign in. Many also require a support contract. To register for an HPE Passport ID, go to <https://softwaresupport.hpe.com> and click **Register**.

To find more information about access levels, go to:

<https://softwaresupport.hpe.com/web/softwaresupport/access-levels>

## HPE Software Integrations and Solutions

Visit the Integrations and Solutions Catalog at <https://softwaresupport.hpe.com/km/KM01702731> to explore how the products in the HPE Software catalog work together, exchange information, and solve business needs.

## Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to:

<https://softwaresupport.hpe.com/group/softwaresupport/search-result?keyword=>.

This site requires an HPE Passport account. If you do not have one, click the **Create an account** button on the HPE Passport Sign in page.

# Contents

Welcome to This Guide .....	5
Chapter 1: Introduction to the Integration of Diagnostics with RUM .....	6
Overview .....	6
Architecture .....	7
How Data is Collected .....	7
System Requirements .....	8
Documentation .....	8
Chapter 2: Setting Up an Integration Between RUM Client Monitor and Diagnostics	9
Task 1: Enable Page Component Breakdown in APM .....	9
Task 2: Configure the Integration for the Java Agent .....	10
Task 3: Configure the Integration for the .NET Agent .....	12
Task 4: Verify the JavaScript .....	15
Chapter 3: Viewing Monitored Data .....	16
Send Documentation Feedback .....	19

# Welcome to This Guide

Welcome to the HPE RUM - Diagnostics Integration Guide. This guide describes how to set up and verify an integration of Diagnostics with Real User Monitor (RUM).

For details on the tested environments, see ["System Requirements" on page 8](#).

# Chapter 1: Introduction to the Integration of Diagnostics with RUM

General information is provided about the integration between HPE RUM and HPE Diagnostics.

This section includes:

- ["Overview" below](#)
- ["Architecture" on the next page](#)
- ["How Data is Collected" on the next page](#)
- ["System Requirements" on page 8](#)
- ["Documentation" on page 8](#)

## Overview

Integrating HPE Real User Monitor (RUM) with HPE Diagnostics combines RUM's end-user experience monitoring with Diagnostic's backend monitoring, which provides:

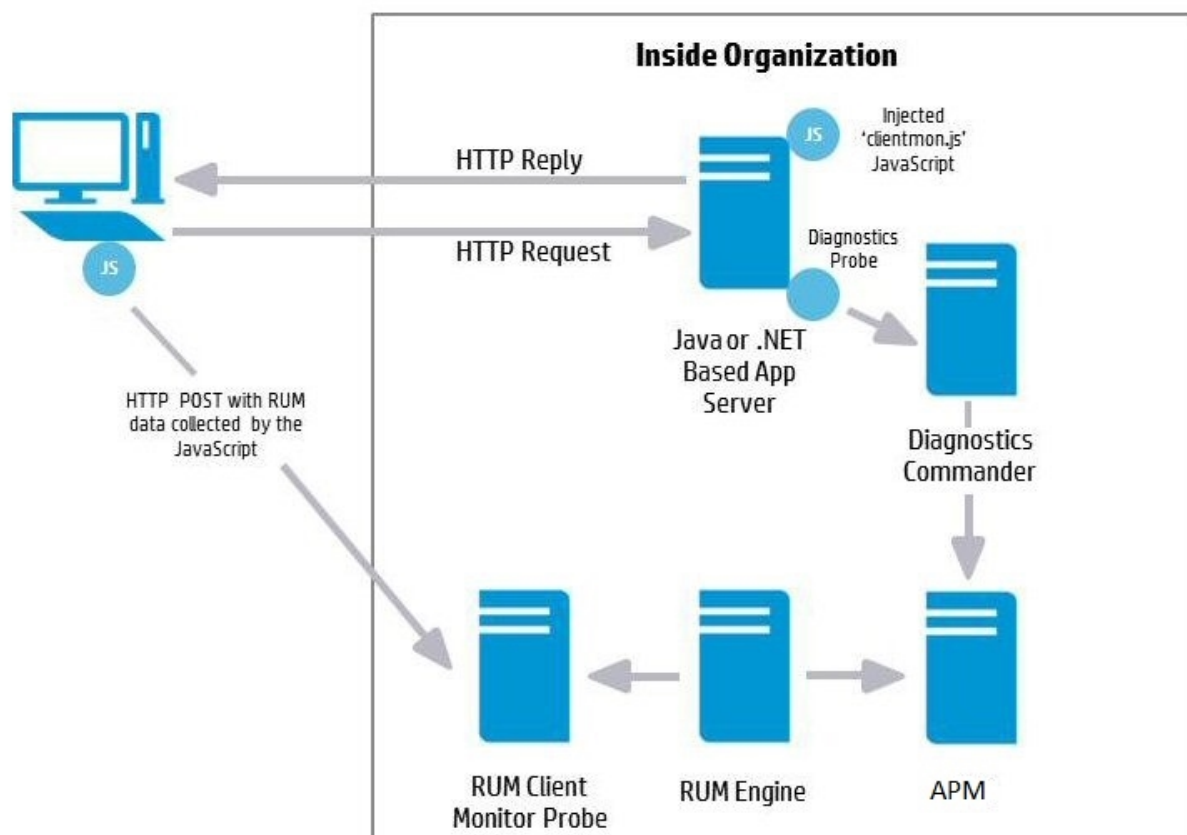
- Visualization of the end-user experience using RUM's capabilities (such as locations, actions, external domains, global statistics, events, content extractions, and so forth).
- An end to end problem isolation tool that can help detect problems in the end-user experience, with the ability to drill down to Diagnostics.

Applications are often required to exchange information with back-end servers. For example, to get the status of a user's bank account, receive updates from friends, or post a new picture to a blog. In all cases, the response time of such network communication has a direct effect on the overall user experience and satisfaction from the application. Various parameters can affect these response times, from the network load to hardware problems on back-end servers. Identifying slow response times and pinpointing the problematic area is an important step in improving performance.

The RUM Client Monitor Probe provides a real end-user perspective on application health, as users interact with an application. It collects performance and exception data from the user's browser almost in real time. The RUM Client Monitor Probe solution uses a JavaScript that is injected into the relevant pages of an application to gather the required data. When RUM and Diagnostics are integrated, Diagnostics can enable the automatic injection of this JavaScript into the relevant pages, thereby reducing the need for manual configuration.

# Architecture

The following diagram shows how RUM and Diagnostics integrate so that an application's performance and availability data is collected through a client's browser.



## How Data is Collected

Client monitoring is enabled for the RUM Client Monitor Probe by the injection of a RUM JavaScript (clientmon.js) into the relevant pages of an application.

**Note:** The JavaScript is injected into JSP and ASP.NET pages, but not into html pages which are static files.

When RUM and Diagnostics are integrated, you can configure the Diagnostics client monitor (by changing the path to the JavaScript it applies) so that it uploads the RUM JavaScript (clientmon.js) to the application server, and thereby to an application's JSP pages, for monitoring by a RUM Client Monitor Probe. (In addition

to initializing the machine's IP address.) As users interact with the application in their browser, relevant performance and exception metrics are sent as server requests to Diagnostics, and as HTTP POSTs to the RUM Client Monitor Probe.

This data is included in Diagnostics and RUM reports. When RUM and Diagnostics are integrated, in Application Performance Management (BSM/APM), you can drill down from various RUM reports to relevant Diagnostics reports for a specific request.

## System Requirements

Integrating the RUM Client Monitor and Diagnostics can be done in versions 9.23 and later.

For more information on system requirements, refer to the Diagnostics System Requirements Guide and the Real User Monitor Installation and Upgrade Guide. These guides are located on the HPE Software Support site. Access requires an HPE Passport login ([register](#) for an HPE Passport).

## Documentation

The following documentation can be useful when setting up the integration between RUM and Diagnostics:

- Business Service Management Installation Guide
- Diagnostics Server Installation and Administration Guide
- Diagnostics Java Agent Guide
- Diagnostics .NET Agent Guide
- Diagnostics APM-Diagnostics Integration Guide
- Real User Monitor Installation and Upgrade Guide (refer to the chapters for Installing the RUM Engine and the RUM Client Monitor Probe)



# Chapter 2: Setting Up an Integration Between RUM Client Monitor and Diagnostics

Information is provided on setting up the integration between HPE RUM and HPE Diagnostics.

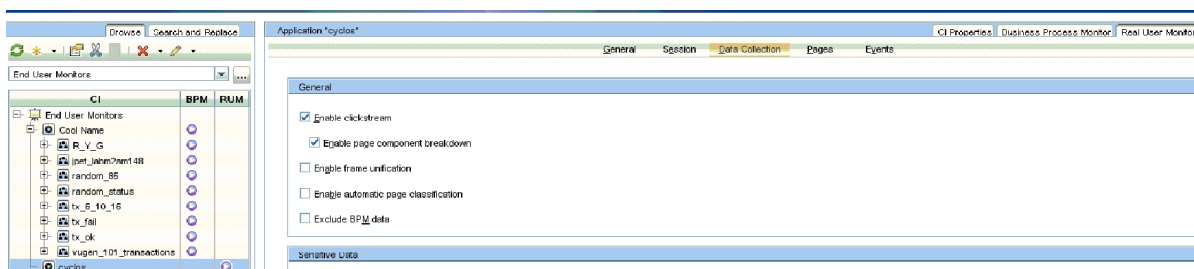
This section includes:

- ["Task 1: Enable Page Component Breakdown in APM" below](#)
- ["Task 2: Configure the Integration for the Java Agent" on the next page](#)
- ["Task 3: Configure the Integration for the .NET Agent" on page 12](#)
- ["Task 4: Verify the JavaScript" on page 15](#)

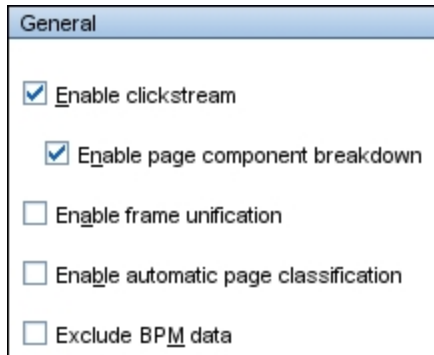
## Task 1: Enable Page Component Breakdown in APM

In APM, enable Page Component Breakdown for an application.

1. Select the **Admin > End User Management > Monitoring** tab.
2. Select the relevant application CI in the tree.
3. In the Application view, select the **Real User Monitor > Data Collection** tab.



4. In the General pane, select the **Enable page component breakdown** check box.



## Task 2: Configure the Integration for the Java Agent

We recommend that you configure the integration for the Java Agent when installing a Java Agent on Windows using **setup.cmd**. For details, see "Installing and Configuring Java Agents" in the Java Agent Guide.

### To configure the integration for the Java Agent manually:

1. Copy the RUM JavaScript (clientmon.js) from the RUM installation package. Save it on the Web server, in the **webApps** directory and in the same domain as the application server. The following is an example of the path for an application called **cyclos**:

```
C:\tomcat7\webapps\cyclos\clientmon.js
```

2. On the Web Application Server machine, change the dynamic configuration parameters in the C:\JavaAgent\DiagnosticsAgent\etc\dynamic.properties file.
  - a. Edit the **html.cm.inst** tag and replace the original JavaScript snippet:

```
html.cm.inst = <!-- -->\n\n<!--script>\n\nif (window.t_firstbyte === undefined) {\n    var t_firstbyte = Number(new Date());\n}\n\n</script>\n\n<script type='text/javascript' src='/DiagnosticsCM/boomerang-min.js'>\n</script>\n\n<script>\n    BOOMR.init({beacon_url:"/DiagnosticsCM/B",RT:{cookie:"X-HP-CM-RT",cookie_exp:600,expandFrames:true,hashURLs:true},HP:{cookie:"X-HP-CM-GUID"}});\n</script-->
```

with the following JavaScript snippet required for the integration:

```
html.cm.inst = <!-- -->\n\
<script type="text/javascript" src="/[full_url_path]/clientmon.js" id="id_hp_
cmMonitorJsEl"></script>\n\
<script type="text/javascript">\n\
    cm_impl.init({\n\
        enableCbd: true,\n\
        probeURL: "http://[RUM CM probe URL]:8080/hpclientmon/
data",\n\
        sProbeURL: "https://[RUM CM probe URL]:2021/hpclientmon/
data",\n\
        cmHpCamColor: "V=1;ServerAddr=6wZpZK3g0lDz0t+stkKBmA==;
GUID="+BOOMR.utils.getCookie("X-HP-CM-GUID")\n\
    });\n\
</script>
```

The following table describes the parameters used in the JavaScript snippet:

Parameter Name	Description
<b>src</b>	The full URL address accessible from the end-user browser to the file source containing the RUM Client Monitor Probe JavaScript. The default file name is <b>clientmon.js</b> .
<b>probeURL</b>	The URL of the RUM Client Monitor Probe to which the monitored client data is sent. The format for the parameter is: <protocol>://<host>:<port>/hpclientmon/data  <b>Note:</b> The value must be enclosed with quotation marks ("value"). For example: "http://probeHostName:8080/hpclientmon/data"
<b>sProbeURL</b>	The URL of the RUM Client Monitor Probe to which the monitored client data is sent, if using https. The format for the parameter is: <protocol>://<host>:<port>/hpclientmon/data  <b>Note:</b> The value must be enclosed with quotation marks ("value"). For example: "https://probeHostName:2021/hpclientmon/data"
<b>enableCbd</b>	If set to true, collects component breakdown information for each page.
<b>cmHpCamColor</b>	HTTP header field. Encodes the same information as X-HP-CM-GUID as well as the host IP address.

Parameter Name	Description
<b>X-HP-CM-GUID</b>	A cookie used by Diagnostics Client Monitoring. It is used to identify the probe group, probe, host, and server request in an opaque way. It is not processed by the boomerang-min.js on the client side in any way, but is sent back when reporting client side latency.

- b. Increase sampling by setting the **client.monitoring.sampling.percent** tag to 100.
  - c. Force instrumentation activation by setting the **html.cm.activation.forced** tag to **true**.
  - d. To enable client monitoring HTML/JSP auto-instrumentation, set the **html.cm.enable** tag to **true**.
  - e. To enable client monitoring, set the **client.monitoring.enabled** tag to **true**.
3. Restart Tomcat to update the above changes.

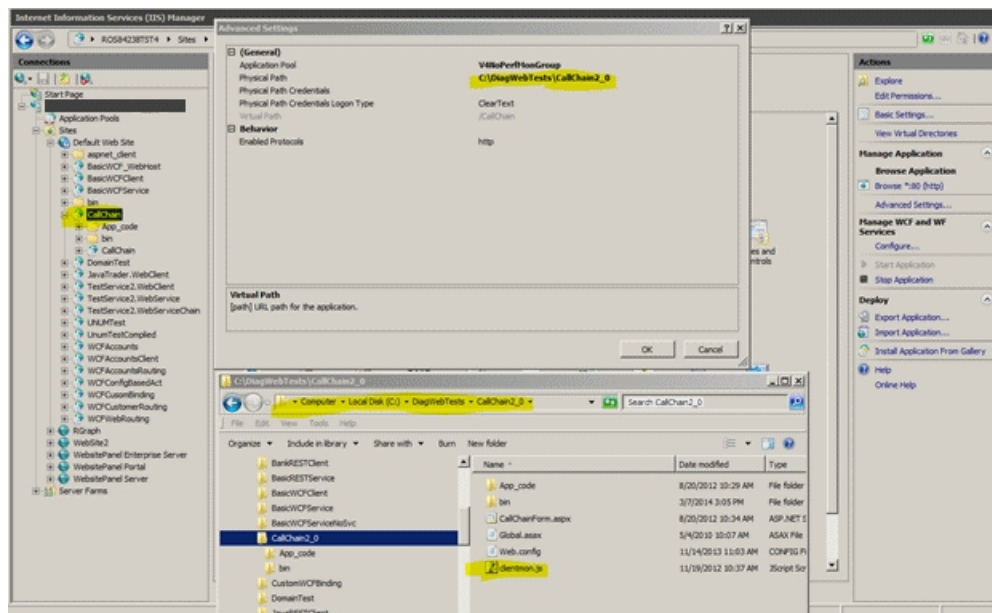
## Task 3: Configure the Integration for the .NET Agent

We recommend that you configure the integration automatically as part of the .NET Agent installation. For details, see "Installing .NET Agents" in the HPE Diagnostics .NET Agent Guide.

### To configure the integration for the .NET Agent manually:

1. Copy the RUM JavaScript (clientmon.js) from the RUM installation package. Save it on the .NET IIS Application Server in the root directory of the web application which is being monitored. The following is an example of the path for an application called **CallChain**:

```
C:\DiagWebTests\CallChain2_0\clientmon.js
```



2. Disable and enable the HP .NET Probe.
3. On the Diagnostics .NET Agent machine:
  - a. Create and Edit the file **C:\MercuryDiagnostics\.NET Probe\etc\HPDefaultInst.hpcm** with the following JavaScript snippet required for the integration:

```
<script type="text/javascript" src="clientmon.js" id="id_hp_cmMonitorJsEl"></script>
<script type="text/javascript">
cm_impl.init({
enableCbd: true,
probeURL: "http://[RUM CM probe URL]:8080/hpclientmon/data",
sProbeURL: "https://[RUM CM probe URL]:2021/hpclientmon/data",
cmHpCamColor: "V=1;ServerAddr=6wZpZK3g01Dz0t+stkKBmA==;
GUID="+BOOMR.utils.getCookie("X-HP-CM-GUID")\n\
});
</script>
```

The following table describes the parameters used in the JavaScript snippet:

Parameter Name	Description
<b>src</b>	The full path to the file source containing the RUM Client Monitor Probe JavaScript. The default file name is <b>clientmon.js</b> .

Parameter Name	Description
<b>probeURL</b>	The URL of the RUM Client Monitor Probe to which the monitored client data is sent. The format for the parameter is: <protocol>://<host>:<port>/hpclientmon/data  <b>Note:</b> The value must be enclosed with quotation marks ("value"). For example: "http://probeHostName:8080/hpclientmon/data"
<b>sProbeURL</b>	The URL of the RUM Client Monitor Probe to which the monitored client data is sent, if using https. The format for the parameter is: <protocol>://<host>:<port>/hpclientmon/data  <b>Note:</b> The value must be enclosed with quotation marks ("value"). For example: "https://probeHostName:2021/hpclientmon/data"
<b>enableCbd</b>	If set to true, collects component breakdown information for each page.
<b>cmHpCamColor</b>	HTTP header field. Encodes the same information as X-HP-CM-GUID as well as the host IP address.
<b>X-HP-CM-GUID</b>	A cookie used by Diagnostics Client Monitoring. It is used to identify the probe group, probe, host, and server request in an opaque way. It is not processed by the boomerang-min.js on the client side in any way, but is sent back when reporting client side latency.

- b. The table below describes the parameters in the **Probe\_config.xml** file that you can configure for client monitoring. Ensure that:
- o The clientmonitoring enabled parameter is set to **true**.
  - o The clientmonitoring > htmlinstrumentation file parameter is set to **HPDefaultInst.hpcm**.

Configuration	Description	Values	Default
clientmonitoring enabled	Turns client monitoring on/off	<ul style="list-style-type: none"> <li>o true</li> <li>o false</li> </ul>	false
clientmonitoring samplemethod	Specifies which method to use for sampling	<ul style="list-style-type: none"> <li>o percent</li> <li>o count</li> <li>o period</li> </ul>	percent

Configuration	Description	Values	Default
clientmonitoring samplerate	Specifies the rate for sampling	<ul style="list-style-type: none"> <li>○ for percent rate must be 0-100</li> <li>○ for count rate must be &gt;1</li> <li>○ for period rate must be one of standard Diagnostics time strings (3m for 3 minutes, 4s for 4 seconds, and so forth)</li> </ul>	100
clientmonitoring > htminstrumentation file	The name of the file containing alternate client monitoring instrumentation, placed in the etc folder	HPRUMCMIInst.hpcm	null
clientmonitoring > filter type	Specifies whether Web pages should be included or excluded from client monitoring	<ul style="list-style-type: none"> <li>○ include</li> <li>○ exclude</li> </ul>	exclude
clientmonitoring > filter > url name	Specifies which Web pages should be included or excluded from client monitoring. Accepts regular expressions.	/CallChain.*	include every page

4. Restart IIS to update the above changes.

## Task 4: Verify the JavaScript

To verify that the JavaScript has been successfully injected into your application pages:

1. Open a browser and access one of the relevant application pages (for example, `http://[server name]:8080/cyclos/CallChain`).
2. In the page's source code, search for the injected Javascript.

# Chapter 3: Viewing Monitored Data

To view data monitored by both RUM and Diagnostics:

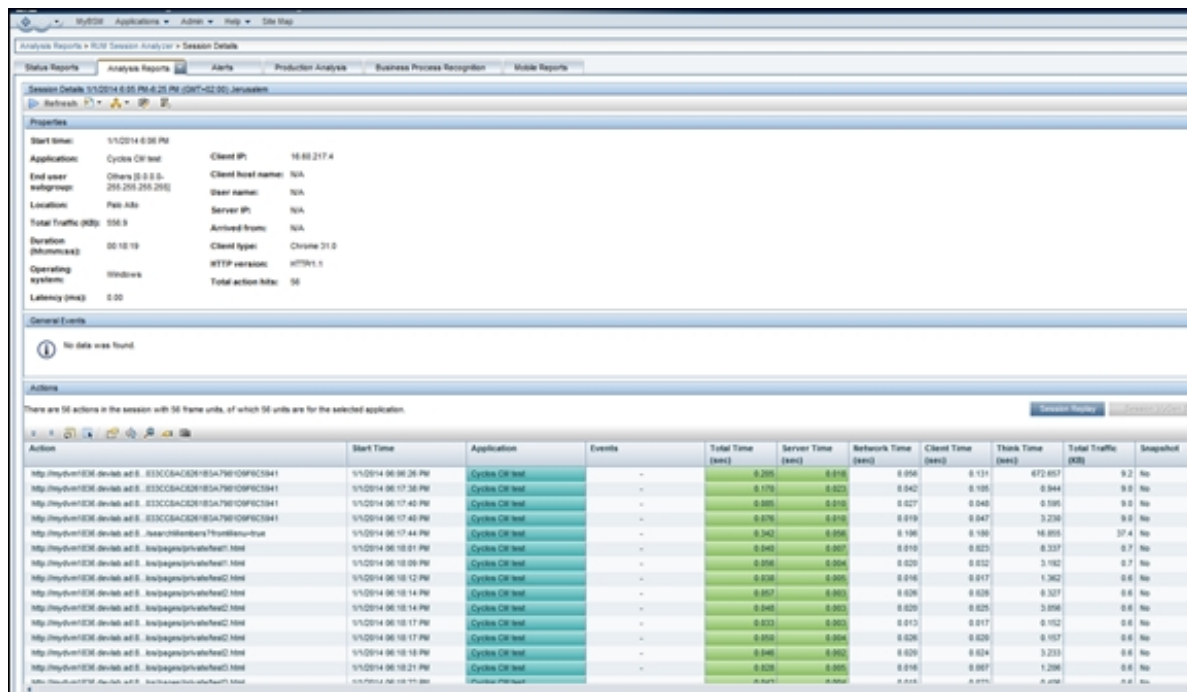
1. Browse the application to generate data.
2. In APM, select **Applications > End User Management > Analysis Reports > RUM Session Analyzer**. (You can also view the RUM Action Summary report.)

The screenshot shows the 'RUM Session Analyzer' interface. At the top, there are navigation tabs: 'Status Reports', 'Analysis Reports' (selected), 'Utilities', 'Alerts', 'Production Analysis', and 'Business Process Recognition'. Below the tabs, the title bar reads 'RUM Session Analyzer 01/28/2014 10:10:33 AM-02/04/2014 10:10:33 AM (GMT+02:00)'. A toolbar contains icons for search, refresh, and a 'Run' button. Below the toolbar, there are icons for print, list, and zoom. The main content area is a table with the following data:

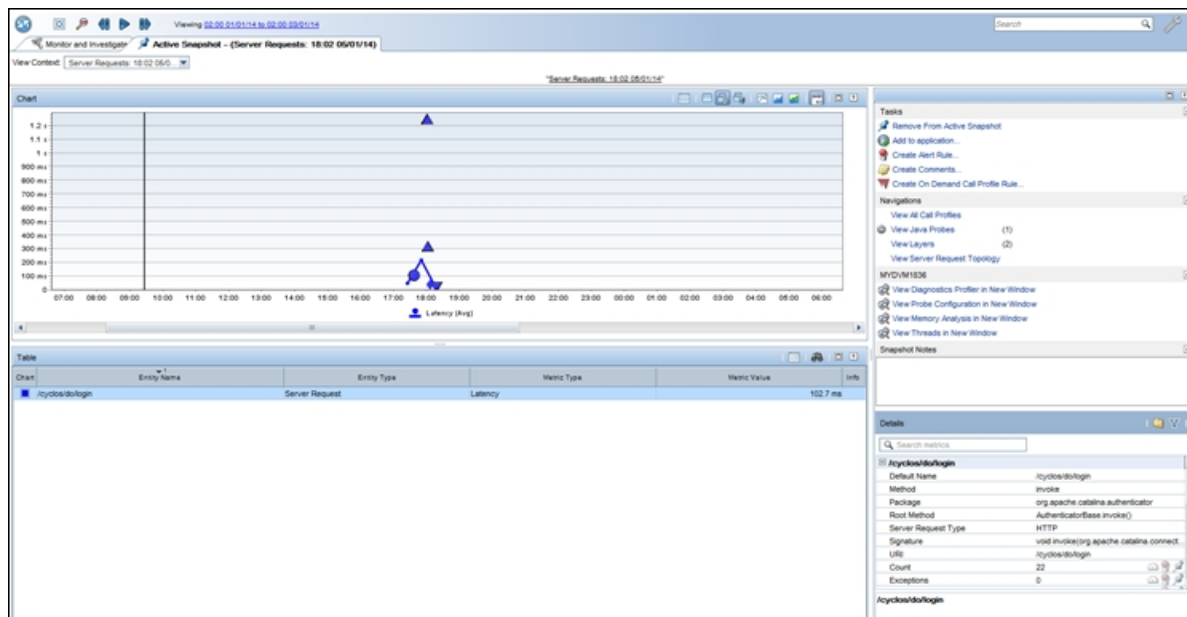
Start Time	Tier	End User Subgroup	Client	User Name	Location	Ac
2/3/2014 6:02 PM	HTTP-Web	Others [0.0.0.0-255.2	22.22.2.88	-	USA	No
2/3/2014 6:02 PM	HTTP-Web	Others [0.0.0.0-255.2	22.22.2.77	-	USA	No
2/3/2014 6:02 PM	HTTP-Web	Others [0.0.0.0-255.2	22.22.2.66	-	USA	No
2/3/2014 6:02 PM	HTTP-Web	Others [0.0.0.0-255.2	22.22.2.55	-	USA	No
2/3/2014 6:02 PM	HTTP-Web	Others [0.0.0.0-255.2	22.22.2.44	-	USA	No
2/3/2014 6:02 PM	HTTP-Web	Others [0.0.0.0-255.2	22.22.2.33	-	USA	No
2/3/2014 6:02 PM	HTTP-Web	Others [0.0.0.0-255.2	22.22.2.22	-	USA	No
2/3/2014 6:02 PM	HTTP-Web	Others [0.0.0.0-255.2	22.22.2.11	-	USA	No

3. Select a session and click the **View Session Details** button to drill down to the Session Details report.

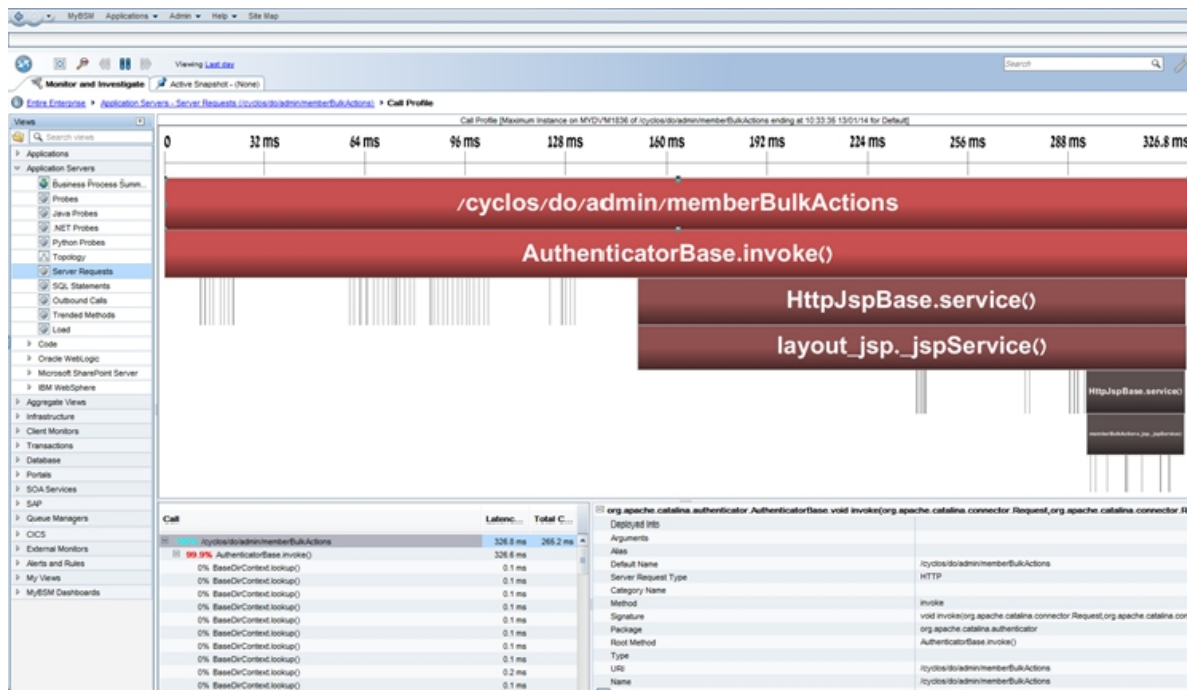




- Select one of the dynamic actions in the list and click the **Drill down to Diagnostics details** button to view service request details for the action. The Diagnostics Server Request view opens in a new window with the relevant request selected.



- From the graph, drill down to the selected request.



**Note:** If server request data is trimmed, the drilldown from RUM to Diagnostics for that request will fail as such server request data is not captured by Diagnostics.

# Send Documentation Feedback

If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

**Feedback on RUM Client Monitor - Diagnostics Integration Guide (Diagnostics 9.40)**

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to [docteam@hpe.com](mailto:docteam@hpe.com).

We appreciate your feedback!