HP Real User Monitor

for the Windows and Linux operating systems

Software Version: 9.21

Real User Monitor Installation and Upgrade

Document Release Date: November 2012
Software Release Date: November 2012

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Acknowledgements

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

This product includes software developed by the JDOM Project (**http://www.jdom.org**).

This product includes software developed by the MX4J project (**http://mx4j.sourceforge.net**).

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

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Table of Contents

Welcome to This Guide

This guide provides detailed instructions on how to install and upgrade the HP Real User Monitor data collector.

For details on administering and working with Real User Monitor, see the *Real User Monitor Administration* PDF.

Note: If you are an HP Software-as-a-Service customer, you must contact an HP Software Support representative to receive connection information that enables you to work with HP Real User Monitor.

This chapter includes:

How This Guide Is Organized

The guide contains the following parts:

Part I HP Real User Monitor System Requirements

Describes the system requirements necessary for installing HP Real User Monitor and the compatibility between the different versions of Real User Monitor and Business Service Management.

Part II Installing HP Real User Monitor

Explains how to install and uninstall the HP Real User Monitor engine. Also explains how to install one or more HP Real User Monitor probes.

Part III Upgrading HP Real User Monitor

Describes the procedures for upgrading the HP Real User Monitor engine and probe. Also includes upgrade notes and limitations.

Who Should Read This Guide

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

- HP Business Service Management administrators
- HP Business Service Management data collector administrators

Readers of this guide should be knowledgeable about enterprise system administration and HP Business Service Management data collectors.

How Do I Find the Information That I Need?

This installation information in this guide is also included in the *Real User Monitor Administration* PDF, part of the HP Business Service Management Documentation Library. This Documentation Library provides a single-point of access for all Business Service Management documentation.

You can access the Documentation Library by doing the following:

- In Business Service Management, select **Help** > **Documentation Library**.
- From a Business Service Management Gateway Server machine, select **Start** > **Programs** > **HP Business Service Management** > **Documentation**.

Additional Online Resources

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Part I

HP Real User Monitor System Requirements

1

Reviewing System Requirements

This section describes the recommended system requirements for running HP Real User Monitor.

Caution: For production systems, you must install the RUM Engine, Probe, and database on separate physical disks.

This chapter includes:

HP Real User Monitor Engine Requirements

	Minimum	Recommended
Computer/Processor	Dual-CPU Xeon 3.0 GHz Server	Dual-CPU Xeon 3.0 GHz Dual-Core Server
Operating System	**Windows:** Microsoft Windows Server 2008 SP2 (32/64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 (32/64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 SP1 (32/64 bit) Standard and Enterprise Editions	**Windows:** Microsoft Windows Server 2008 SP2 (64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 (64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 SP1 (64 bit) Standard and Enterprise Editions
Memory	**32 bit:** 2 GB **64 bit:** 4 GB	**32 bit:** 4 GB **64 bit:** 8 GB
Hard Drive	70 GB	70 GB
Network Card	Gigabit network adaptor	2 Gigabit network adaptors (one for database connectivity and one for probe connectivity)

HP Real User Monitor Repository (MySQL Database) Requirements

	Minimum	Recommended
Computer/Processor	Dual-CPU Xeon 3.0 GHz Server	Dual-CPU Xeon 3.0 GHz Server
Operating System	**Windows:** Microsoft Windows Server 2008 SP2 (32/64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 (32/64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 SP1 (32/64 bit) Standard and Enterprise Editions	**Windows:** Microsoft Windows Server 2008 SP2 (64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 (64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 SP1 (64 bit) Standard and Enterprise Editions
Memory	**32 bit:** 2 GB **64 bit:** 4 GB	**32 bit:** 4 GB **64 bit:** 8 GB
Hard Drive	200 GB fast hard drive	800 GB SCSI disks RAID 0 (RAID 0 + 1 for high availability)
Network Card	Gigabit network adaptor	Gigabit network adaptor
MySQL Version	5.5.27 (installed by the HP Real User Monitor installation program)	5.5.27 (installed by the HP Real User Monitor installation program)

Requirements for Installing the HP Real User Monitor Engine and Repository (MySQL Database) on the Same Machine

	Minimum	Recommended
Computer/Processor	Quad-CPU Xeon 3.0 GHz Server	Quad Core CPU Xeon 3.0 GHz Server
Operating System	**Windows:** Microsoft Windows Server 2008 SP2 (32/64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 (32/64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 SP1 (32/64 bit) Standard and Enterprise Editions	**Windows:** Microsoft Windows Server 2008 SP2 (64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 (64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 SP1 (64 bit) Standard and Enterprise Editions
Memory	**32 bit:** 4 GB **64 bit:** 4 GB	**32 bit:** 4 GB **64 bit:** 8 GB

	Minimum	Recommended
Hard Drive	2 Disks: ➤ 70 GB for the Real User Monitor engine installation ➤ 200 GB fast hard drive for the Real User Monitor repository	2 Disks: ➤ 70 GB for the Real User Monitor engine installation ➤ 800 GB SCSI disks RAID 0 (RAID 0 + 1 for high availability) for the Real User Monitor repository.
	Note: It is important not to install the Real User Monitor engine on the same disk as the Real User Monitor repository. You must select a different disk for the Real User Monitor repository during the installation.	
Network Card	Gigabit network adaptor	Gigabit network adaptor

Client Requirements for Viewing the RUM Egninge Web Console

	Minimum	Recommended
Supported Browsers	Microsoft Internet Explorer (IE) 8.0	Microsoft Internet Explorer (IE) 8.0

HP Real User Monitor Probe Requirements

Hardware and Operating System Requirements

	Minimum	Recommended
Computer/Processor	Dual-CPU Xeon 3.0 GHz Server	Dual-CPU Xeon 3.0 GHz Server
Operating System	**Linux:** Red Hat Enterprise Linux Version 5.x (RHEL5) – 64 and 32 bit versions Red Hat Enterprise Linux Version 6.x (RHEL6) – 64 bit version **Windows:** Microsoft Windows Server 2008 SP2 (32/64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 (32/64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 SP1 (32/64 bit) Standard and Enterprise Editions	**Linux:** Red Hat Enterprise Linux Version 5.x (RHEL5) – 64 and 32 bit versions Red Hat Enterprise Linux Version 6.x (RHEL6) – 64 bit version **Windows:** Microsoft Windows Server 2008 SP2 (64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 (64 bit) Standard and Enterprise Editions Microsoft Windows Server 2008 R2 SP1 (64 bit) Standard and Enterprise Editions
Memory	**32 bit:** 2 GB **64 bit:** 4 GB	**32 bit:** 4 GB **64 bit:** 8 GB

	Minimum	Recommended
Hard Drive	70 GB IDE/SATA	150 GB SCSI SCSI required for high traffic levels of more than 15 MB. Large disk space required for more than one page back on Snapshot on Error (SSOE).
	Note: For Linux installations, it is recommended to allocate most of the disk space to the **/var/spool/rum_probe** directory, as this directory contains the majority of the probe data. It is sufficient to allocate 10 GB of space each to the **/var/log/rum_probe** and **/etc/rum_probe** directories.	

	Minimum	Recommended
Network Card **Note:** Dedicated network cards are only required for the RUM Sniffer Probe.	**For connecting port mirrored cable:** 1 standard network card of either 1 or 10 Gb. **For connecting to management port (used by RUM engine):** 1 Intel Pro/100 (10/100 auto-sensing) set for full duplex For copper connections, MT type card required. For fiber optic connections, MF type card required.	**For connecting tap:** 2 standard network cards of either 1 or 10 Gb. **Caution:** Two network cards are required if the TAP to which the Real User Monitor probe is connected uses different ports for transmitting and receiving data. You can also use two network cards to monitor traffic from two separate sources, providing bandwidth restrictions are not exceeded. **For connecting to management port (used by RUM engine):** 1 Intel Pro/100 (10/100 auto-sensing) set for full duplex For copper connections, MT type card required. For fiber optic connections, MF type card required.
PCI Slot		1 free 133/100/66 MHz 64 bit PCI slot

Environment and System Requirements

Requirement	Description
Linux installations only:	
Probe watchdog prerequisites	The following are required for the probe watchdog and must be installed on the Linux machine prior to installing the RUM probe: ➤ libcrypto.so ➤ libssl.so **Note:** These libraries are part of the openssl package. ➤ Perl must be installed with the following libraries: ➤ LWP::UserAgent ➤ URI::URL
rum_probe user	A user called **rum_probe** is automatically created during installation, but you must manually configure a password for this user. When entering the HP Real User Monitor probe user and password in End User Management Administration, you must use either the **root** or **rum_probe** user (for details, see "New/Edit Real User Monitor Engine Page" in the *BSM Application Administration Guide*).
Permissions	The following directories must have **2770** permissions, be owned by **rum_probe** and belong to the **rum_probe** group: ➤ /var/spool/rum_probe (and subdirectories) ➤ /etc/rum_probe ➤ /var/log/rum_probe
Linux and Windows installation:	
Probe console port	Port 2020 is the default port used for accessing the HP Real User Monitor probe console. By default, HTTPS with client certificate is used.

Real User Monitor on Virtual Platforms

You can install both the Real User Monitor Engine and Probe on a virtual platform. The following virtualization platforms are supported:

- VMware ESX 3.x
- VMware ESX 4.x
- VMware ESXi 5.x

For details on duplicating traffic for a Real User Monitor Probe on a virtual machine, see "Duplicating Traffic for HP Real User Monitor with VMware" in the *Real User Monitor Administration* PDF.

Note: For production systems, you must install the RUM Engine, Probe, and database on separate physical disks, or on any high performance storage system.

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HP Real User Monitor Compatibility Matrix

The following table shows the compatibility between the different versions of Real User Monitor and Business Service Management:

Compatibility Matrix	HP Business Service Management								
	9.21	9.20	9.13	9.12	9.10	9.0x	8.0x	7.5x	7.0x
Real User Monitor 9.21	✔	✔	✔	✔	✔	x	x	x	x
Real User Monitor 9.20	x	✔	✔	✔	✔	x	x	x	x
Real User Monitor 9.13	x	x	✔	✔	✔	x	x	x	x
Real User Monitor 9.12	x	x	x	✔	✔	x	x	x	x
Real User Monitor 9.10	x	x	x	x	✔	x	x	x	x
Real User Monitor 9.02	x	x	x	x	x	✔	x	x	x
Real User Monitor 9.01	x	x	x	x	x	✔	x	x	x
Real User Monitor 9.00	x	x	x	x	x	✔	x	x	x
Real User Monitor 8.0x	x	x	x	x	x	x	✔	x	x

Compatibility Matrix	HP Business Service Management								
	9.21	**9.20**	**9.13**	**9.12**	**9.10**	**9.0x**	**8.0x**	**7.5x**	**7.0x**
Real User Monitor 7.5x	x	x	x	x	x	x	x	✔	x
Real User Monitor 7.0	x	x	x	x	x	x	x	x	✔

Note: Real User Monitor 7.01 works only with Business Availability Center 7.01.

Part II

Installing HP Real User Monitor

3

Installing the HP Real User Monitor Engine

To monitor real user activity, you must first install the HP Real User Monitor (RUM) engine on a Windows platform. The RUM engine Setup file can be accessed from one of the following locations:

- The RUM installation package.
- The HP Software Support Online web site (http://www.hp.com/go/hpsoftwaresupport). Go to **Software Support Online** > **Downloads** > **Software Patches** and select Application Performance Management as the product. For each version, check for Real User Monitor as a sub-product.
- The Downloads page in HP Business Service Management Platform Administration. For details, see the *HP Business Service Management Platform Administration Guide* PDF.

Note: There may be more recent versions of RUM than the version included in the BSM Downloads page. For details, check the HP Software Support Online web site (http://www.hp.com/go/hpsoftwaresupport).

The RUM installation procedure installs both the RUM engine and the MySQL database. You can install both the engine and the database on the same machine, or on different machines. To install the engine and database on different machines, install the MySQL database first and then install the engine and connect it to the database.

Note: Before beginning the installation, review the information in the RUM Readme file for any last minute notes and limitations, as well as for upgrade and service pack install instructions.

This chapter includes:

Installing the HP Real User Monitor Engine

For details on the system requirements for installing the HP Real User Monitor (RUM) engine, see "HP Real User Monitor Engine Requirements" on page 18.

Note:

- ➤ For production systems, you must install the RUM Engine, Probe, and database on separate physical disks.
- ➤ For better performance, we recommend installing the RUM Engine and the RUM Probe on the same local area network (LAN).
- ➤ Before installing the RUM engine on Windows 2008 using Windows Remote Desktop, refer to "Installing Real User Monitor on Windows 2008 Using Windows Remote Desktop" on page 54.

To install the RUM engine:

1. Save the RUM Setup file for Windows on the machine on which you are installing RUM. For more details on the location of the RUM Setup file, see "Installing the HP Real User Monitor Engine" on page 31.
2. On this machine, navigate to the downloaded file and double click **HPRUMEngine_<version number>_setup.exe**.
3. When prompted, select the installation language (default English) and click **OK**. The HP Real User Monitor Engine Setup wizard begins.
4. When the Introduction page is displayed, click **Next**.
5. Accept the terms of the license agreement and click **Next**.
6. Select whether to run a typical installation (which installs both the RUM engine and the MySQL database), or a custom installation (in which you select specific features to install). Click **Next**.

   If you select **Typical** installation, skip to step 8 on page 34 to continue.

Note: You are able to select the installation path in both types of installations (typical and custom).

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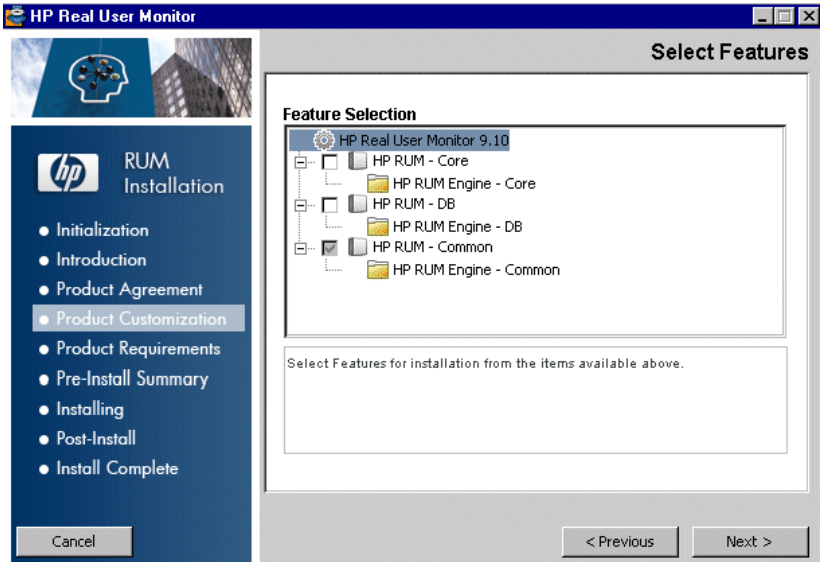
7. Select the features you want to install from the following, by checking the box to the left of the required feature:
   - **HP RUM - Core.** Installs the RUM engine.
   - **HP RUM - DB.** Installs the MySQL database.

➤ **HP RUM - Common.** Installs common components required by both the RUM engine and the MySQL database. (This feature is selected by default and you cannot change the selection.)



Click **Next**.

Note: If you select **HP RUM DB** only, the MySQL database is installed in the specified location, but no database schema is created.

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8 Select the path of the folder in which you want to install the RUM engine. Either accept the default path (**C:\HPRUM**), or click **Browse** to create a new folder in a different path. (You can reset the path to the default folder by clicking **Reset**.) Click **Next**.

Note:

- Do not use non-ASCII characters in the RUM installation path.
- Do not select an existing folder.

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9 The Setup wizard verifies the following system parameters and displays the verification details:

- Free disk space
- Previous RUM installations
- Selected components for installation
- The installation directory (which should be a new directory)

If any of the verification checks fail, go back and make the necessary corrections according to the information displayed (for example, free up more disk space, or change the selected components).

10 Read the pre-install summary information. If it is correct, click **Install** to continue with the installation. If it is not correct, click **Previous** to correct the information you previously provided.

11 The installation begins and its progress is displayed. You can choose whether to view summary or detailed progress data, by clicking the appropriate tab.

When the installation has finished, the HP Real User Monitor Configuration wizard is automatically started. The wizard includes the following pages:

Page	Enables you to ...	For user interface details, see ...
Import User Configuration Data	Select whether you want to import user data settings from a previous RUM installation.	"Import User Configuration Data Page" on page 39
Import Source Directory	Select the path from which to import user data settings from a previous RUM installation.	"Import Source Directory Page" on page 41
MySQL Database Properties	Configure the path in which the MySQL database is installed, as well as the user name and password for accessing the database.	"MySQL Database Properties Page" on page 45

Page	Enables you to ...	For user interface details, see ...
Connect to Database	Configure whether to connect the RUM engine to a MySQL database.	"Connect to Database Page" on page 47
RUM Database Connection Parameters	Configure the parameters used by the RUM engine to connect to its MySQL database.	"RUM Database Connection Parameters Page" on page 49
RUM Engine Credentials	Configure the credentials that the RUM engine uses to connect to the JMX and Web consoles.	"RUM Engine Credentials Page" on page 51
Finish	View the status of the Configuration wizard.	"Finish Page" on page 53

12 When the Real User Monitor Configuration wizard has finished, the status of the HP Real User Monitor Engine Setup wizard is displayed. You can choose whether to view summary or detailed status data. You can view the installation log file by clicking the **View log file** link.

13 Click **Done** to exit the Setup wizard.

After successfully installing the RUM engine and connecting the engine to the MySQL database, start RUM on the machine on which it is installed and configure the connection settings to BSM.

To start RUM and configure connection settings:

1 Start RUM by selecting **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Enable HP Real User Monitor**.

Note: You can stop RUM by selecting **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Disable HP Real User Monitor**.

For additional information on starting and stopping RUM, see "Administering HP Real User Monitor" in the *Real User Monitor Administration* PDF.

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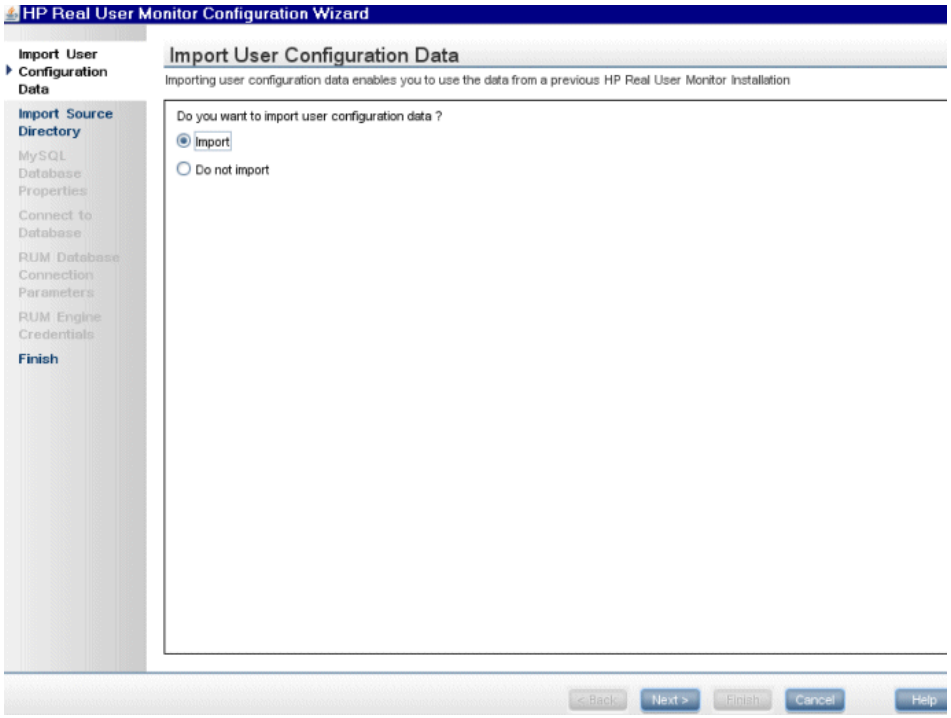
2 Configure the connection settings to BSM in the RUM Web Console. For details, see "BSM Connection Settings" in the *Real User Monitor Administration* PDF.

Real User Monitor Configuration Wizard

Description	Enables you to import configuration data from a previous Real User Monitor (RUM) installation, as well as to configure various connection parameters. **To access:** The Real User Monitor Configuration wizard is automatically launched during a RUM installation, after the setup program has installed the RUM application.
Wizard Map	The Real User Monitor Configuration wizard contains: Import User Configuration Data Page > Import Source Directory Page > MySQL Database Properties Page (Import Settings from Previous Distributed Installation) > MySQL Database Properties Page > Connect to Database Page > RUM Database Connection Parameters Page > RUM Engine Credentials Page > Finish Page
Useful Links	"Installing the HP Real User Monitor Engine" on page 32

Import User Configuration Data Page

The following is an example of the Import User Configuration Data page.



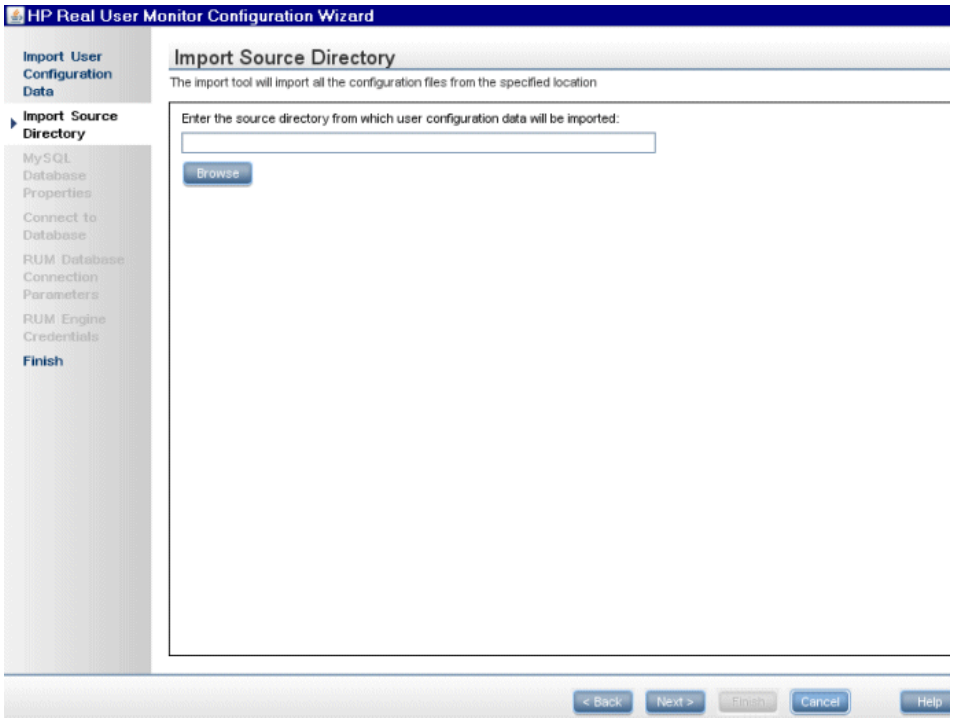
Description	Enables you to select whether you want to import user data settings from a previous RUM installation.
Important Information	General information about the wizard is available in "Real User Monitor Configuration Wizard" on page 38.
Wizard Map	The Real User Monitor Configuration Wizard contains: **Import User Configuration Data Page** > Import Source Directory Page > MySQL Database Properties Page (Import Settings from Previous Distributed Installation) > MySQL Database Properties Page > Connect to Database Page > RUM Database Connection Parameters Page > RUM Engine Credentials Page > Finish Page

The following elements are included:

UI Element	Description
Import	Select this radio button if you want to import user data settings that you exported when uninstalling a previous version of RUM. **Note:** ➤ If you want to include settings from an earlier version as part of a RUM upgrade, you must import the user data settings you saved when uninstalling the previous version. ➤ If you import user data settings from a previous installation of RUM, the RUM Engine Credentials page is not accessed in the wizard.
Do not import	Select this radio button if you do not want to import configuration settings from a previous version of RUM. **Note:** If you select this option, the wizard continues with the "Connect to Database Page" on page 47.

Import Source Directory Page

The following is an example of the Import Source Directory page.



Description	Enables you to select the path from which to import user data settings from a previous RUM installation.
Important Information	General information about the wizard is available in "Real User Monitor Configuration Wizard" on page 38.
Wizard Map	The Real User Monitor Configuration Wizard contains: Import User Configuration Data Page > **Import Source Directory Page** > MySQL Database Properties Page (Import Settings from Previous Distributed Installation) > MySQL Database Properties Page > Connect to Database Page > RUM Database Connection Parameters Page > RUM Engine Credentials Page > Finish Page

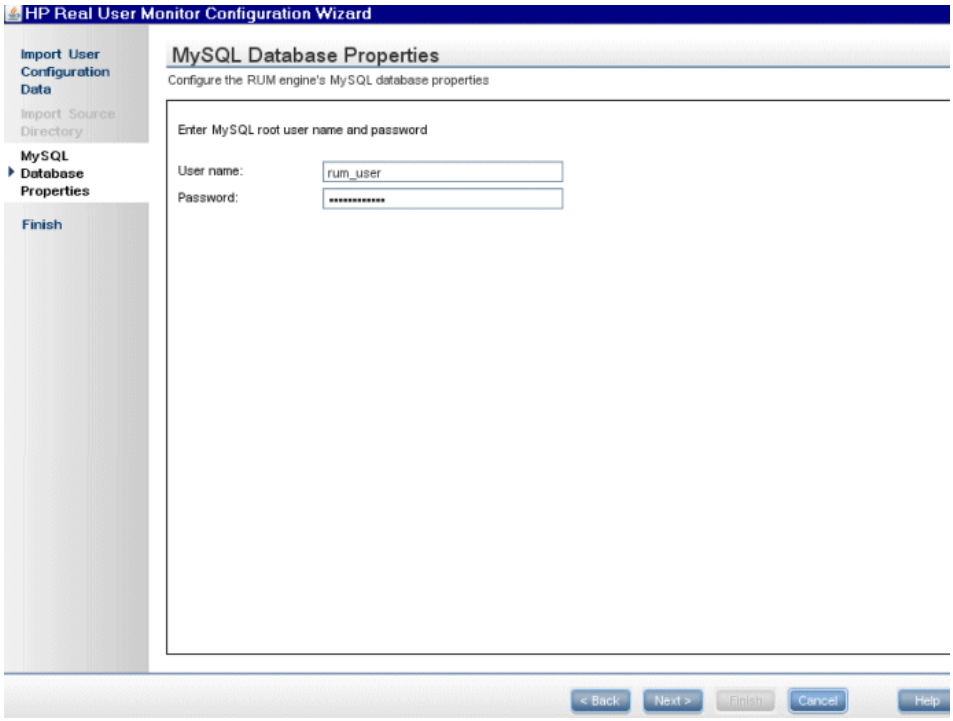
The following elements are included (unlabeled UI elements are shown in angle brackets):

UI Element	Description
<Source directory>	Enter the source directory from which user configuration data will be imported. You can click **Browse** to locate and select a directory.

If you are installing the MySQL database in a distributed installation (that is, a system in which the engine and database are installed on separate machines), the Configuration Wizard continues with the next step. Otherwise, it continues with the Finish page (for details, see "Finish Page" on page 53).

MySQL Database Properties Page (Import Settings from Previous Distributed Installation)

The following is an example of the MySQL Database Properties page, if you import user data settings from a previous RUM installation when installing the MySQL database in a distributed installation (that is, a system in which the engine and the database are installed on separate machines).



Description	Enables you to configure the the user name and password for accessing the database.

Important Information	General information about the wizard is available in "Real User Monitor Configuration Wizard" on page 38.
Wizard Map	The Real User Monitor Configuration Wizard contains: Import User Configuration Data Page > Import Source Directory Page > **MySQL Database Properties Page (Import Settings from Previous Distributed Installation)** > Finish Page

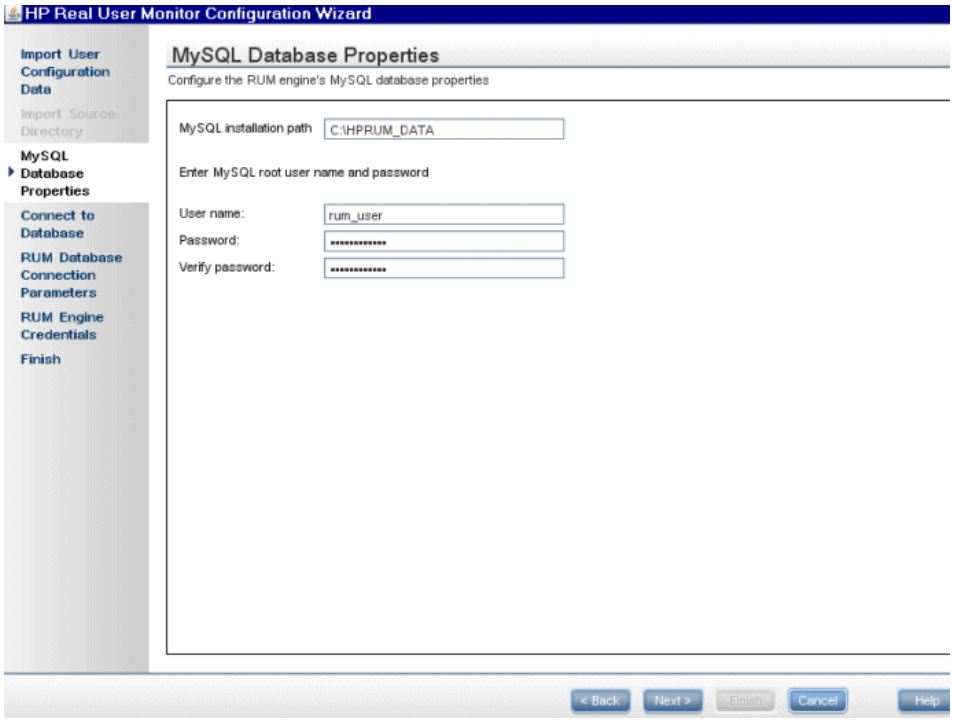
The following elements are included:

UI Element	Description
User name	The user name for accessing the MySQL database.
Password	The password for accessing the MySQL database.

The Configuration Wizard continues with the Finish page. For details, see "Finish Page" on page 53.

MySQL Database Properties Page

The following is an example of the MySQL Database Properties page.



Description	Enables you to configure the path in which the MySQL database is installed, as well as the user name and password for accessing the database.

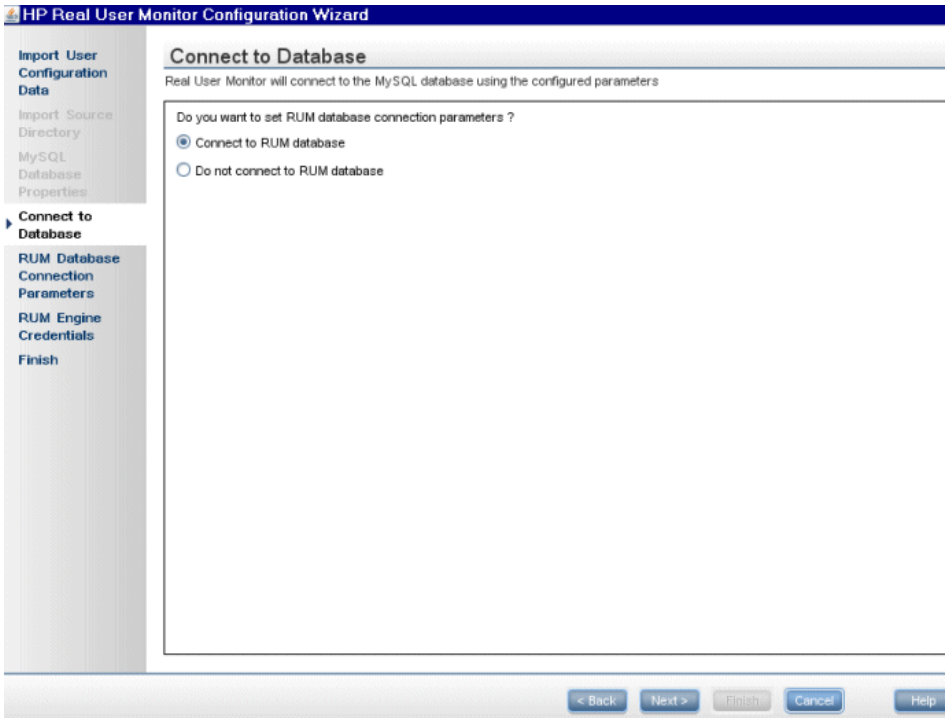
Important Information	➤ General information about the wizard is available in "Real User Monitor Configuration Wizard" on page 38. ➤ If you are installing the MySQL database only, after completing this page and clicking **Next**, the wizard continues with the Finish page and the other wizard pages are not accessed. ➤ If you are installing the RUM engine only, this wizard page is not accessed and the wizard starts with the Import Source Directory page.
Wizard Map	The Real User Monitor Configuration Wizard contains: Import User Configuration Data Page > Import Source Directory Page > MySQL Database Properties Page (Import Settings from Previous Distributed Installation) > **MySQL Database Properties Page** > Connect to Database Page > RUM Database Connection Parameters Page > RUM Engine Credentials Page > Finish Page

The following elements are included:

UI Element	Description
MySQL installation path	The path in which to install the MySQL database. **Note:** The path should be for a directory that does not already exist, or for a directory that already contains a MySQL database.
User name	The user name for accessing the MySQL database.
Password	The password for accessing the MySQL database.
Verify password	Retype the password for verification.

Connect to Database Page

The following is an example of the Connect to Database page.



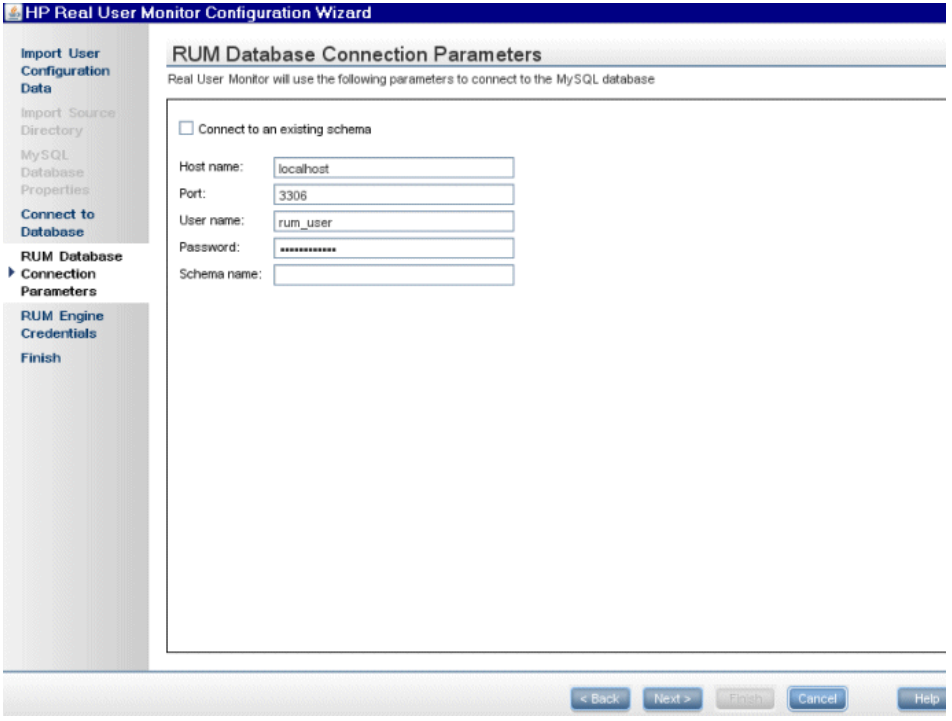
Description	Enables you to configure whether to connect the RUM engine to a MySQL database.
Important Information	General information about the wizard is available in "Real User Monitor Configuration Wizard" on page 38.
Wizard Map	The Real User Monitor Configuration Wizard contains: Import User Configuration Data Page > Import Source Directory Page > MySQL Database Properties Page (Import Settings from Previous Distributed Installation) > MySQL Database Properties Page > **Connect to Database Page** > RUM Database Connection Parameters Page > RUM Engine Credentials Page > Finish Page

The following elements are included:

UI Element	Description
Set RUM database connection parameters	Select this radio button to configure connection parameters and connect the RUM engine to a MySQL database.
Do not set RUM database connection parameters	Select this radio button if you do not want to connect the RUM engine to a MySQL database. **Note:** ➤ If you select this option, the wizard continues with the "RUM Engine Credentials Page" on page 51. ➤ You can connect to a MySQL database, or change an existing connection, after installing RUM, by running the RUM Configuration wizard (**Start** > **All Programs** > **HP Real User Monitor** > **Administration** > **HP Real User Monitor Configuration Tool**).

RUM Database Connection Parameters Page

The following is an example of the RUM Database Connection Parameters page.



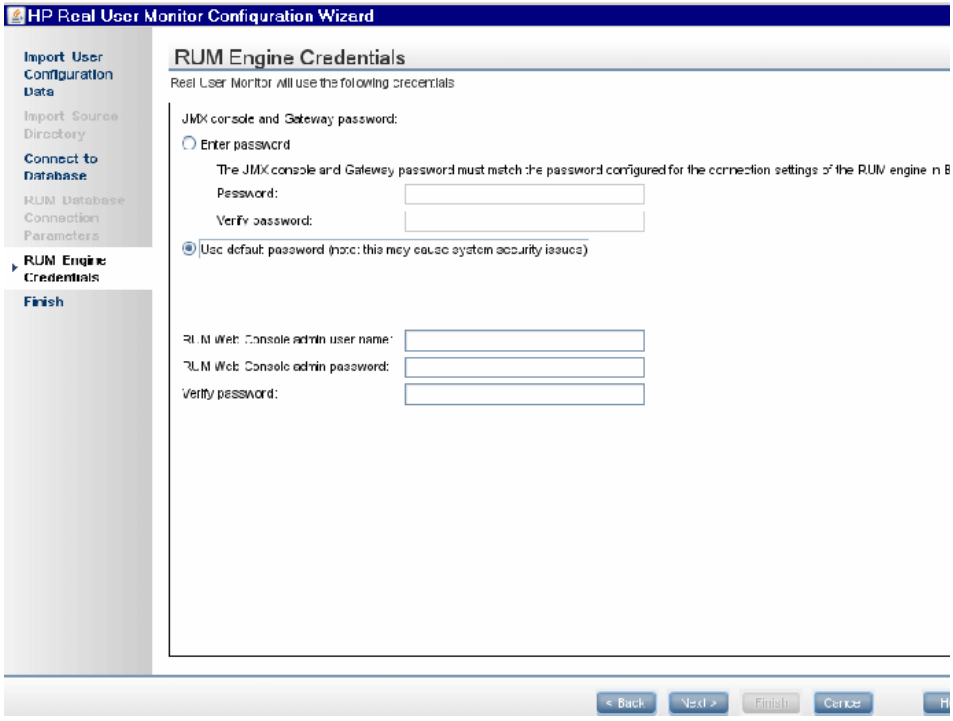
Description	Enables you to configure the parameters used by the RUM engine to connect to its MySQL database.
Important Information	General information about the wizard is available in "Real User Monitor Configuration Wizard" on page 38.
Wizard Map	The Real User Monitor Configuration Wizard contains: Import User Configuration Data Page > Import Source Directory Page > MySQL Database Properties Page (Import Settings from Previous Distributed Installation) > MySQL Database Properties Page > Connect to Database Page > **RUM Database Connection Parameters Page** > RUM Engine Credentials Page > Finish Page

The following elements are included:

UI Element	Description
Connect to an existing schema	Select this check box if you want to connect to an existing schema. Clear this check box if you want to create a new schema. **Default value:** Not selected **Note:** When upgrading from an earlier version of RUM, you must connect to the previous, existing schema.
Host name	The host name of the machine where the MySQL database resides. **Default value:** localhost
Port	The port number for accessing the host machine. **Default value:** 3306
User name	The configured user name for connecting to the MySQL database. This must match the user name that you configured as part of the database parameters in the "MySQL Database Properties Page" on page 45.
Password	The configured password for connecting to the MySQL database. This must match the password that you configured as part of the database parameters in the "MySQL Database Properties Page" on page 45.
Schema name	The name for the existing MySQL database schema to which you want the RUM engine to connect, or the name of the new schema you want it to create. **Syntax exceptions:** ➤ The name must begin with a letter or digit. ➤ The name cannot contain the characters: ; ` { } ➤ The name cannot end with a space.

RUM Engine Credentials Page

The following is an example of the RUM Engine Credentials page.



Description	Enables you to configure the credentials that the RUM engine uses to connect to the JMX and Web consoles.

Important Information	➤ General information about the wizard is available in "Real User Monitor Configuration Wizard" on page 38. ➤ If you imported user data settings from a previous RUM installation, this wizard page is not accessed.
Wizard Map	The Real User Monitor Configuration Wizard contains: Import User Configuration Data Page > Import Source Directory Page > MySQL Database Properties Page (Import Settings from Previous Distributed Installation) > MySQL Database Properties Page > Connect to Database Page > RUM Database Connection Parameters Page > **RUM Engine Credentials Page** > Finish Page

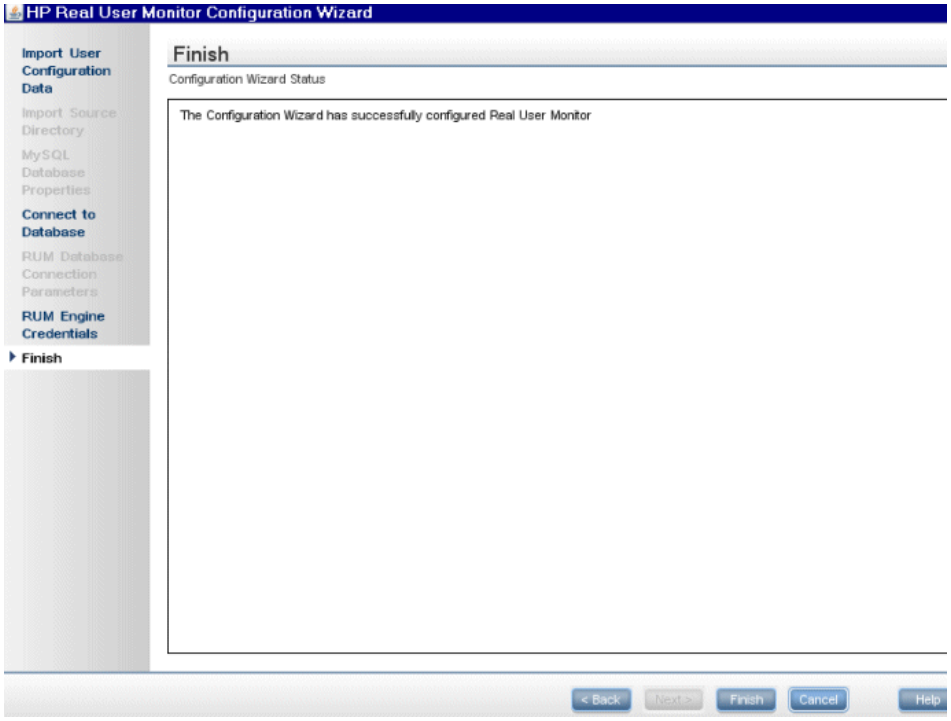
The following elements are included:

UI Element	Description
JMX console and Gateway Password	The password for the JMX console and BSM Gateway user. ➤ **Enter password:** Select this radio button to enter a password of choice. ➤ **Use default password:** Select this radio button to use the default password (Admin). **Note:** The JMX console and Gateway password must match the password configured for the connection settings of the RUM engine in End User Management Administration. If they do not match, BSM is unable to communicate with the RUM engine to obtain data for End User Management reports. For details on configuring RUM engine connection settings in End User Management Administration, see "Edit Real User Monitor Engine Properties Dialog Box" in the *BSM Application Administration Guide*.
RUM Web Console User Name	The user name you use for accessing the RUM Web console.

UI Element	Description
RUM Web Console Password	The password for the RUM Web console user.
Verify password	Retype the password (JMX console and Gateway user password, or RUM Web console password) for verification.

Finish Page

The following is an example of the Finish page.



Description	Displays a message showing the status of the Configuration wizard. Click **Finish** to exit and return to the HP Real User Monitor Engine Setup wizard.
Important Information	General information about the wizard is available in "Real User Monitor Configuration Wizard" on page 38.
Wizard Map	The Real User Monitor Configuration Wizard contains: Import User Configuration Data Page > Import Source Directory Page > MySQL Database Properties Page (Import Settings from Previous Distributed Installation) > MySQL Database Properties Page > Connect to Database Page > RUM Database Connection Parameters Page > RUM Engine Credentials Page > **Finish Page**

Installing Real User Monitor on Windows 2008 Using Windows Remote Desktop

If you try to install the Real User Monitor (RUM) engine and/or MySQL database on Windows 2008 using Windows Remote Desktop, the installation may not run and an error message is displayed. In such cases, you must first install Terminal Server Role Service on the remote machine on which you want to install them and then carry out the installation using the Terminal Server.

This section includes the following topics:

To install the Terminal Server Role Service

1. Open **Server Manager** (Start > Administrative Tools > Server Manager).
2. In the left pane, right-click **Roles** and select **Add Roles**.
3. On the **Add Roles** wizard > **Before You Begin** page, click **Next**.
4. On the **Select Server Roles** page, under **Roles**, select the **Terminal Services** check box and click **Next**.

Note: If Terminal Services is already installed on the server, the **Terminal Services** check box is selected and dimmed.

---

5 On the **Terminal Services** page, click **Next**.

6 On the **Select Role Services** page, select the **Terminal Server** check box and click **Next**.

Note: Installing the Terminal Server role service on a domain controller is not recommended. If you are installing the Terminal Server role service on a domain controller a warning message is displayed. For more information, see Installing Terminal Server on a Domain Controller in the Windows Server 2008 Technical Library (http://go.microsoft.com/fwlink/?linkid=109277).

---

7 On the **Uninstall and Reinstall Applications for Compatibility** page, click **Next**.

8 On the **Specify Authentication Method for Terminal Server** page, select the appropriate authentication method for the terminal server and click **Next**. For more information about authentication methods, see Configure the Network Level Authentication Setting for a Terminal Server in the Terminal Server Help in the Windows Server 2008 Technical Library (http://go.microsoft.com/fwlink/?linkid=109280).

9 On the **Specify Licensing Mode** page, select the appropriate licensing mode for the terminal server and click **Next**. For more information about licensing modes, see Specify the Terminal Services Licensing Mode in the Windows Server 2008 Technical Library (http://go.microsoft.com/fwlink/?linkid=101638).

10 On the **Select User Groups Allowed Access To This Terminal Server** page, add the users or user groups that you want to be able to remotely connect to this terminal server and click **Next**. For more information, see Configure the Remote Desktop User Group i in the Windows Server 2008 Technical Library (http://go.microsoft.com/fwlink/?linkid=109278).

11 On the **Confirm Installation Selections** page, verify that the Terminal Server role service will be installed and click **Install**.

12 The installation progress is displayed on the **Installation Progress** page.

13 On the **Installation Results** page, you are prompted to restart the server to finish the installation process. Click **Close** and then click **Yes** to restart the server.

14 If you are prompted that other programs are still running, do one of the following:

- To close the programs manually and restart the server later, click **Cancel**.
- To automatically close the programs and restart the server, click **Restart now**.

15 After the server restarts and you log on to the remote machine, the remaining installation steps are automatically completed. When the Installation Results page is displayed, verify that the installation was successful.

Note: You can also confirm that Terminal Server is installed using the following steps:

- Start S**erver Manager**.
- Under **Roles Summary**, click **Terminal Services**.
- Under **System Services**, confirm that Terminal Services has a status of **Running**.
- Under **Role Services**, confirm that Terminal Server has a status of **Installed**.

To install Real User Monitor using Terminal Server

On the remote machine on which you are installing Real User Monitor, in the **Control Panel** select **Install using Terminal Server** and then select the Real User Monitor installation file.

Follow the installation process as described in "Installing the HP Real User Monitor Engine" on page 32.

Running a Silent Installation

You can use a silent installation procedure to run the Real User Monitor (RUM) setup. A silent installation is an installation that is performed automatically, without the need for user interaction. Instead, all configuration parameters are allocated predetermined values that are stored in a configuration file.

Note: When running an installation in silent mode, no messages are displayed. Instead, you can view installation information in the log files, including information on whether the installation was successful.

This section includes:

How a Silent Installation Assigns Values

A silent installation uses the following files to obtain parameter values for use during the installation:

- **<temp directory>\ovinstallparams.ini**. This file contains values for the settings used by the setup program such as the original setup file path, the installation path, the installation type, the default maintenance mode selection, and so forth. The installation process copies this file to the machine's temp directory, if a file with the same name does not already exist in that location.
- **RUMInstallationDefaults.properties**. This file contains the parameter values used by the Real User Monitor Configuration wizard (for details, see "Real User Monitor Configuration Wizard" on page 38).

  The installation process copies this file to the **<RUM installation directory>\bin** directory. (The default RUM installation directory is **C:\HPRUM**.) For a silent installation, edit this file and set the values you want the silent installation to use, and then copy the file to the machine's temp directory. For details on configuring the RUMInstallationDefaults.properties file, see "Configuring the RUMInstallationDefaults.properties File" on page 59.

Prerequisites

Before you begin a silent installation of RUM, make sure of the following:

- You must uninstall any previous versions of RUM from the machine on which you run the silent installation. For details on uninstalling RUM, see "Uninstalling HP Real User Monitor" on page 89.
- You must have administration privileges for the machine on which you are installing RUM.
- If you want to configure specific settings to be used by a silent installation, edit the **RUMInstallationDefaults.properties** file accordingly. Make sure that the file is located in the machine's temp directory or the **<RUM installation directory>\bin** directory on the machine on which you run the silent installation, and that no other copy of this file exists in either directory. For details on configuring the RUMInstallationDefaults.properties file, see "Configuring the RUMInstallationDefaults.properties File" on page 59.

Silent Installation for Windows

To run a silent installation, use the following procedure:

1. Download and start installing the RUM engine. For details, see "Installing the HP Real User Monitor Engine" on page 32.
2. When the Real User Monitor Configuration wizard opens, click **Cancel** and then quit the RUM installation.
3. Copy the **\HPRUM\bin\RUMInstallationDefaults.properties** file to the location of your choice.
4. Uninstall RUM. For details, see "Uninstalling HP Real User Monitor" on page 89.
5. Configure the saved **RUMInstallationDefaults.properties** file with the values you want the silent installation to use, and copy the file to the machine's temp directory.
6. Run the setup program (downloaded in step 1) using the following command:

   ```
   HPRum_<version number>_setup.exe -i silent
   ```

   The silent installation begins.

Caution: If the same version of RUM as the one you are installing already exists on the machine, the silent installation automatically runs in **uninstall** mode and removes the existing installation.

Configuring the RUMInstallationDefaults.properties File

The **RUMInstallationDefaults.properties** file is used by a silent installation to obtain the parameter values required by the Real User Monitor Configuration wizard during the installation of a specific RUM machine. For details on how the silent installation assigns values, see "How a Silent Installation Assigns Values" on page 58.

The following table describes the RUMInstallationDefaults.properties file and the values that can be set:

Parameter	Description	Default Value
doImport	Import user data settings from a previous RUM installation.	false
importSourceDirectory	The path from which to import user data settings from a previous RUM installation.	
dbPath	The path in which the MySQL database is installed.	c:\\
dbUserName	The user name for accessing the MySQL database.	
dbPassword	The password for accessing the MySQL database.	
doConnectToDB	Connect the RUM engine to a MySQL database.	true
dbConnectionHostName	The host name of the machine where the MySQL database resides.	
dbConnectionPort	The port number for accessing the host machine.	
dbConnectionUserName	The configured user name for connecting to the MySQL database. This must match the user name that you configured for the **dbUserName** parameter.	
dbConnectionPassword	The configured password for connecting to the MySQL database. This must match the user name that you configured for the **dbPassword** parameter.	

Parameter	Description	Default Value
dbConnectionSchema	The name for the existing MySQL database schema to which you want the RUM engine to connect, or the name of the new schema you want it to create.	
connectToExistingSchema	Connect to an existing schema.	false
webConsoleUserName	The user name you use for accessing the RUM Web console.	
webConsolePassword	The password for the RUM Web console user.	
jmxPassword	The password for the JMX and Gateway user. **Note:** The JMX and Gateway password must match the password configured for the connection settings of the RUM engine in End User Management Administration. If they do not match, BSM is unable to communicate with the RUM engine to obtain data for End User Management reports. For details on configuring RUM engine connection settings in End User Management Administration, see "Edit Real User Monitor Engine Properties Dialog Box" in the *BSM Application Administration Guide*.	
doExport	Export user data settings for use by a future RUM installation. **Note:** This parameter is used when running a silent uninstall.	true
exportDestDirectory	The path to which to export RUM user data settings. **Note:** This parameter is used when running a silent uninstall.	

4

Installing the HP Real User Monitor Sniffer Probe

After installing the HP Real User Monitor engine, you must install at least one HP Real User Monitor probe. You must then set up the probe to collect real-user data and report this data to the engine.

This chapter describes the installation of the RUM Sniffer probe. For details on installing a RUM Browser probe, see "Installing the RUM Browser Probe" on page 79.

Note:

- Before beginning the installation, review the information in the RUM Readme file for any last minute notes and limitations, as well as for upgrade and service pack install instructions.
- For production systems, you must install the RUM Engine, Probe, and database on separate physical disks.
- For details on installing and working with a probe on a VMware platform, see "Duplicating Traffic for HP Real User Monitor with VMware" in the *Real User Monitor Administration* PDF.

This chapter includes:

➤ Stopping and Starting the Probe on page 74

➤ Connecting the Probe to the Real User Monitor Engine on page 75

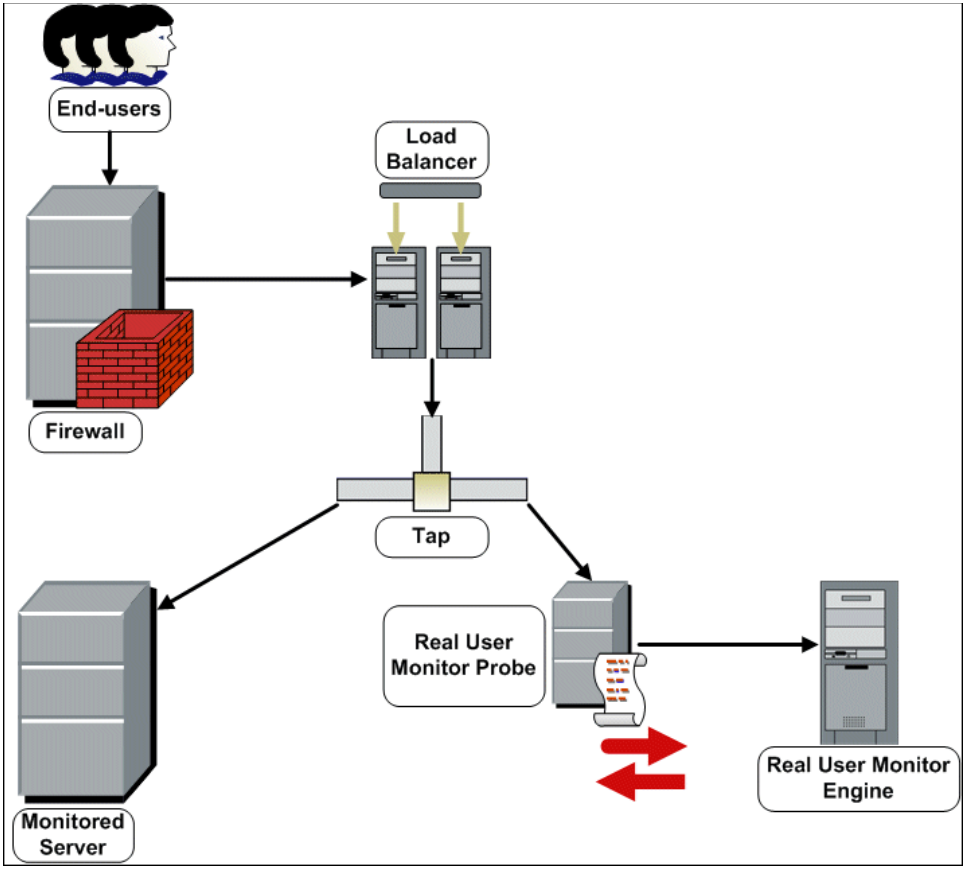
➤ Installing an nCipher Card on the HP Real User Monitor Probe on page 75

Physically Connecting the Probe

This section describes how to physically connect the HP Real User Monitor probe to the network.

The HP Real User Monitor probe runs on a Linux or Windows machine and uses two network interfaces; one assigned to sniffing and the other assigned to management (which the HP Real User Monitor engine uses to connect to the probe machine). The interface used for sniffing should not have an IP address assigned to it. For details on the system requirements for the HP Real User Monitor probe, see "HP Real User Monitor Probe Requirements" on page 22.

Using taps or port spanning, the sniffer interface listens to the traffic on the servers you are monitoring.



Note:

- If you are using a load balancer, it is recommended to place the network tap behind the load balancer.
- Load balancers should be configured to use the **x-forward-for** header to preserve end-user IP addresses for use by HP Real User Monitor.
- For small installations with a low amount of network traffic, instead of using a network tap, an Ethernet port of the HP Real User Monitor probe can be connected to a switch that is configured for port mirroring for the monitored server.

Installing the Probe

This section describes how to install the probe.

The HP Real User Monitor probe is installed on a machine running either the Linux or Windows operating system. For details on the system requirements for the HP Real User Monitor probe, see "HP Real User Monitor Probe Requirements" on page 22.

Tip: For better performance, it is recommended to install the HP Real User Monitor engine and the HP Real User Monitor probe on the same local area network (LAN).

This section includes the following topics:

The Real User Monitor Probe Setup File

The HP Real User Monitor Probe Setup file can be accessed from one of the following locations:

- The Real User Monitor installation package.
- The HP Software Support Online web site (http://www.hp.com/go/hpsoftwaresupport). Go to **Software Support Online** > **Downloads** > **Software Patches** and select Application Performance Management as the product. For each version, check for Real User Monitor as a sub-product.
- The Downloads page in HP Business Service Management Platform Administration. For details, see the *HP Business Service Management Platform Administration Guide* PDF.

Note: There may be more recent versions of RUM than the version included in the BSM Downloads page. For details, check the HP Software Support Online web site (http://www.hp.com/go/hpsoftwaresupport).

There are different versions of the Real User Monitor Probe Setup file for Windows and Linux, as well as different versions for 32 bit and 64 bit operating systems. The name of the Setup file reflects the applicable operating system.

Examples:

- HPRUMProbe_v<version number>_linux64.bin is the Probe Setup file for a Linux 64 bit operating system.
- HPRUMProbe_<version number>_win32_setup.exe is the Probe Setup file for a Windows 32 bit operating system.

Installing the Real User Monitor Probe on a Linux System

Note: The HP Real User Monitor Probe installation must be carried out as the root user.

To install the HP Real User Monitor probe:

1 Save the RUM Probe Setup file for Linux to the **/var/tmp** directory on the machine on which you want to install the probe. Note that if you cannot save this file directly on the Linux machine on which you are installing the probe, make sure that you save it on a machine from which you can later FTP (in binary mode) the file to the Linux machine. For details on the location of the Setup file, see "The Real User Monitor Probe Setup File" on page 67.

2 Run the installation script with the following commands:

- **cd /var/tmp**
- **chmod 777 <Probe setup file name>**

  For example: chmod 777 HPRUMProbe_v<version number>_linux32.bin
- **<Probe setup file name>**

  For example: HPRUMProbe_v<version number>_linux32.bin

Note: You can install the probe to a non default path using the following command:

<Probe setup file name> –prefix=/<full path name>/

---

3 Start the HP Real User Monitor probe with the command **/etc/init.d/rum_probe-capture start**.

4 Verify that the HP Real User Monitor probe has successfully started with the command **/etc/init.d/rum_probe-capture status**. The following is displayed:

```
# /etc/init.d/rum_probe-capture status

HPRUMProbe is responding properly.
```

Installing the Real User Monitor Probe on a Windows System

Note:

- The HP Real User Monitor probe installation must be carried out as an administrator.
- The Windows local system must be enabled to run services. (By default, it is enabled.)
- SSL keystore files from previous probe installations that are located in **<HP Real User Monitor probe root directory>\etc\rum_probe\keystore**, are retained.

For details on the system requirements for installing the HP Real User Monitor (RUM) probe, see "HP Real User Monitor Probe Requirements" on page 22.

Tip: For better performance, we recommend installing the RUM engine and the RUM probe on the same local area network (LAN).

To install the RUM probe:

1. Save the RUM Probe Setup file for Windows on the machine on which you are installing the RUM Probe. For details on the location of the RUM Probe Setup file, see "The Real User Monitor Probe Setup File" on page 67.
2. On this machine, navigate to the downloaded file and double click **HPRUMProbe_<version number>_win64_setup.exe** (or the 32-bit version of the setup.exe file).
3. When prompted, select the installation language (default English) and click **OK**. The HP Real User Monitor Probe Setup wizard begins.
4. When the Introduction page is displayed, click **Next**.
5. Accept the terms of the license agreement and click **Next**.
6. Select the path of the folder in which you want to install the RUM probe. Either accept the default path (**C:\HPRumProbe**), or click **Browse** to create a new folder in a different path. (You can reset the path to the default folder by clicking **Reset**.) Click **Next**.

Note:

- Do not use non-ASCII characters in the RUM installation path.
- If you have saved SSL keystore files from a previous installation, select the same path as the previous installation.

---

7. The Setup wizard verifies that you have enough free disk space for the installation. If this check fails, go back and free up more disk space before continuing with the installation.
8. Read the pre-install summary information. If it is correct, click **Install** to continue with the installation. If it is not correct, click **Previous** to correct the information you previously provided.

9 The installation begins and its progress is displayed. You can choose whether to view summary or detailed progress data, by clicking the appropriate tab.

10 The status of the HP Real User Monitor Probe Setup wizard is displayed. You can choose whether to view summary or detailed status data. You can view the installation log file by clicking the **View log file** link.

11 Click **Done** to exit the Setup wizard.

12 Start the HP Real User Monitor probe.

13 On the Real User Monitor engine machine, edit (or create if it does not exist) the **probe.<IP address of the probe machine>.properties** file in the **HPRUM\conf\probes** directory. Change (or add if it does not exist) the **channelReader.type** setting to **http** (the default value is **remote**). For example: channelReader.type=http.

14 If you are installing the Real User Monitor Probe on Windows 2008:

a Open **Windows Services** (In My Computer, right-click Manage and select Configuration > Services)

b Edit the properties of **HPRUMProbeService**

c In the **Log on** tab select **This account**

d Set an administrator user

e Apply the changes

Running a Silent Installation

You can use a silent installation procedure to run the Real User Monitor probe setup for Windows. A silent installation is an installation that is performed automatically, without the need for user interaction. Instead, all configuration parameters are allocated predetermined, default values.

Note: When running an installation in silent mode, no messages are displayed. Instead, you can view installation information in the log files, including information on whether the installation was successful.

Prerequisites

- The HP Real User Monitor probe installation must be carried out as an administrator.
- The Windows local system must be enabled to run services. (By default, it is enabled.)
- **%temp%** must be a valid directory on the machine on which you are running the silent installation.
- For details on the system requirements for installing the HP Real User Monitor (RUM) probe, see "HP Real User Monitor Probe Requirements" on page 22.

Tip: For better performance, we recommend installing the RUM engine and the RUM probe on the same local area network (LAN).

Silent Installation for Windows

Caution: If a previous installation of the RUM probe already exists on the machine, the silent installation automatically runs in **uninstall** mode and removes the previous installation.

To run a silent installation, use the following procedure:

1. Save the RUM Probe Setup file for Windows on the machine on which you are installing the RUM Probe. For details on the location of the RUM Probe Setup file, see "The Real User Monitor Probe Setup File" on page 67.
2. On this machine, run the following command:

   ```
   start /wait <the RUM probe setup.exe file as downloaded in step 1>
   -DSKIPALL=true -i silent
   ```

Stopping and Starting the Probe

The HP Real User Monitor probe is started automatically each time the machine on which it is installed is started. You can also manually start and stop the HP Real User Monitor probe.

To start the HP Real User Monitor probe manually on a Linux machine:

1. Log on to the HP Real User Monitor probe machine as the root user.
2. Start the HP Real User Monitor probe with the command **/etc/init.d/rum_probe-capture start**.

To start the HP Real User Monitor probe manually on a Windows machine:

Select **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Probe** > **Start RUMProbe**.

To stop the HP Real User Monitor probe manually on a Linux machine:

1. Log on to the HP Real User Monitor probe machine as the root user.
2. Stop the HP Real User Monitor probe with the command **/etc/init.d/rum_probe-capture stop**.

To stop the HP Real User Monitor probe manually on a Windows machine:

Select **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Probe** > **Stop RUMProbe**.

Connecting the Probe to the Real User Monitor Engine

After you have installed and started the Real User Monitor Probe, you must connect it to a Real User Monitor Engine in Probe Management in the Real User Monitor Web Console. For details, see "Probe Management" in the *Real User Monitor Administration* PDF.

Installing an nCipher Card on the HP Real User Monitor Probe

Note: This section applies to the HP Real User Monitor (RUM) Probe only when it is installed on a Linux system.

You can install an nCipher card on the RUM Probe to enable the probe to use high level security when monitoring SSL encrypted traffic. For details on installing and configuring the nCipher card, refer to the nCipher documentation.

This section describes:

➤ "Recommendations for Uploading Keys to an nCipher Card" on page 75

➤ "Customizing HP Real User Monitor" on page 76

➤ "Troubleshooting" on page 78

Recommendations for Uploading Keys to an nCipher Card

➤ It is recommended to load the application server keys to the nCipher module (the PCI card) without a password.

➤ The keys must be loaded with application embed (openSSL option in kSafe).

Customizing HP Real User Monitor

To customize RUM to work with the nCipher card, you must configure both the RUM Engine and Probe machines and send the updated engine configuration to the probe.

To configure the RUM Engine machine:

1 Edit the \<**HP Real User Monitor root directory**>**conf****configurationmanager****Beatbox_Default_Const_Configuration.xml** file.

In the **static_global_params** section, under the **global** heading, add the line **ssl_hardware chil**. For example:

```
<static_global_params>
<![CDATA[
[global]
max_field_length 2048
collect_server_stats false
collect_website_stats false
ssl_hardware chil
]]>
</static_global_params>
```

2 Add the PEM file created by nCipher to the keystore. For details see, "SSL Keystore Management" in the *Real User Monitor Administration* PDF.

To configure the RUM Probe machine:

1 Edit the **/usr/bin/rp_run_probe.sh** file.

Change the environment variable definition for **NFAST_HOME** to:

```
export NFAST_HOME=/opt/nfast
```

Note: /opt/nfast is the default location of the nCipher installation. If you install nCipher in a different path, use the relevant path in the export command.

---

2 If application server keys were not previously loaded to the nCipher module (the PCI card), edit the **/usr/bin/rp_run_probe.sh** file and modify the following line:

From: ${BEATBOX_ROOT}/bin/HPRUMProbe -D

To: ${NFAST_HOME}/bin/preload <nCipher parameters> ${BEATBOX_ROOT}/bin/HPRUMProbe -D

Note:

- If the preload command requires you to enter a password, the RUM Probe cannot run as a service. Running the RUM Probe not as a service is not supported.
- Consult your nCipher administrator for the parameters to add to the preload command.

---

3 Restart the probe with the following command:

/etc/init.d/rum_probe-capture restart

To send the updated RUM Engine configuration to the RUM Probe:

Force an update of the RUM Probe configuration by accessing the RUM Engine Web console and selecting **Tools** > **Monitoring Configuration Information** > **Sync All Configuration**. For details on working with the RUM Engine Web console, see "Using the HP Real User Monitor Web Console" in the *Real User Monitor Administration* PDF.

Troubleshooting

The probe is unable to decrypt traffic

If the probe is unable to decrypt traffic, verify if the problem is in the probe by installing the Apache Web Server and trying to connect it to the nCipher card. (The Apache Web Server connects to the nCipher card in the same way as the probe.) For details on integrating the nCipher components with the Apache Web Server installation on the RUM Probe, refer to the instructions on the nCipher Web site (http://www.thales-esecurity.com/en/Resources/Integration%20Guides/Apache%202-2-15%20UNIX.aspx).

Check security world status

You can use the following commands to check the security world status:

- Check the status of the nCipher module (the PCI card): **/opt/nfast/bin/enquiry**
- Check if there are nCipher cards in the security world: **/opt/nfast/bin/nfkminfo –c**
- Check which keys are loaded in the security world: **/opt/nfast/bin/nfkminfo –l**

5

Installing the RUM Browser Probe

After installing the HP Real User Monitor (RUM) Engine, you must install at least one RUM Probe. You must then set up the probe to collect real-user data and report this data to the engine.

You can install a Sniffer probe (for details, see "Installing the HP Real User Monitor Sniffer Probe" on page 63) or a RUM Browser probe.

Note:

- For production systems, you must install the RUM Engine, Probe, and database on separate physical disks.
- Before beginning the installation, review the information in the RUM Release Notes PDF for any last minute notes and limitations, as well as for upgrade and service pack install instructions.

This chapter includes:

Installing the Probe

This section describes how to install the probe.

The RUM Browser Probe is installed on a machine running the Windows operating system. For details on the system requirements for the RUM Browser Probe, see "HP Real User Monitor Probe Requirements" on page 22.

Tip: For better performance, it is recommended to install the RUM Engine and the RUM Browser Probe on the same local area network (LAN).

This section includes the following topics:

The RUM Browser Probe Setup File

The RUM Browser Probe setup file can be accessed from one of the following locations:

➤ The RUM installation package.

➤ The HP Software Support Online web site (http://www.hp.com/go/hpsoftwaresupport). Go to **Software Support Online > Downloads > Software Patches** and select Application Performance Management as the product. For each version, check for Real User Monitor as a sub-product.

➤ The Downloads page in HP Business Service Management (BSM) Platform Administration. For details, see the *HP Business Service Management Platform Administration Guide* PDF.

Note: There may be more recent versions of RUM than the version included in the BSM Downloads page. For details, check the HP Software Support Online web site (http://www.hp.com/go/hpsoftwaresupport).

Installing the RUM Browser Probe on a Windows System

Note:

- The RUM Browser Probe installation must be carried out as an administrator.
- The Windows local system must be enabled to run services. (By default, it is enabled.)

For details on the system requirements for installing the RUM Browser Probe, see "HP Real User Monitor Probe Requirements" on page 22.

Tip: For better performance, we recommend installing the RUM Engine and the RUM Browser Probe on the same local area network (LAN).

To install the RUM Browser Probe:

1. Save the RUM Browser Probe setup file for Windows on the machine on which you are installing the probe. For details on the location of the RUM Browser Probe setup file, see "The RUM Browser Probe Setup File" on page 80.
2. On this machine, navigate to the downloaded setup, file (**HPRUMClientMonitorProbe_<version number>_setup.exe**) and double-click it.

3. When prompted, select the installation language (default English) and click **OK**. The RUM Browser Probe setup wizard begins.
4. When the Introduction page is displayed, click **Next**.
5. Accept the terms of the license agreement and click **Next**.
6. The features to be installed are displayed (by default, all features are selected). Click **Next**.
7. Select the path of the folder in which you want to install the RUM Browser Probe. Either accept the default path (**C:\HPRUMCMP**), or click **Browse** to create a new folder in a different path. (You can reset the path to the default folder by clicking **Reset**.) Click **Next**.

Note: Do not use non-ASCII characters in the installation path.

---

8. The setup wizard performs a number of system checks (free disk space, previous installations, and port availability). If any of these checks fails, go back and make the necessary changes before continuing with the installation.
9. Read the pre-install summary information. If it is correct, click **Install** to continue with the installation. If it is not correct, click **Previous** to correct the information you previously provided.
10. The installation begins and its progress is displayed. You can choose whether to view summary or detailed progress data, by clicking the appropriate tab.
11. The status of the RUM Browser Probe setup wizard is displayed. You can choose whether to view summary or detailed status data. You can view the installation log file by clicking the **View log file** link.
12. Click **Done** to exit the setup wizard.

    The RUM Browser Probe starts automatically once the installation is completed.

Stopping and Starting the Probe

The RUM Browser Probe is started automatically each time the machine on which it is installed is started. You can also manually start and stop the RUM Browser Probe.

To start the RUM Browser Probe manually on a Windows machine:

Select **Start** > **Programs** > **HP Real User Monitor** > **HP RUM Browser Probe** > **Start HPRUM Browser Probe**.

To stop the RUM Browser Probe manually on a Windows machine:

Select **Start** > **Programs** > **HP Real User Monitor** > **HP RUM Browser Probe** > **Stop HPRUM Browser Probe**.

Connecting the Probe to the Real User Monitor Engine

After you have installed and started the RUM Browser Probe, you must connect it to a RUM Engine in Probe Management in the RUM Web Console. For details, see "Probe Management" in the *Real User Monitor Administration* PDF.

Installing the JavaScript Snippet

To enable the RUM Browser solution through Internet browsers, you must install a small JavaScript snippet in the specific HTML pages you want to monitor. The snippet must be added immediately after the **HEAD** opening tag of the page. The following is an example of the snippet:

```
<html>
    <head>
        <script type="text/javascript" src="/cm-app/clientmon.js"
id="id_hp_cmMonitorJsEl"></script>
        <script type="text/javascript">
            cm_impl.init({ probeURL: “cm_probe_url“ });
        </script>
        ...
        ...
    </head>
    …
    …
</html>
```

The JavaScript snippet comprises two lines:

- The first line imports the RUM Browser JavaScript file (clientmon.js). This file includes the code for performing the monitoring of the pages's data and its components, and for sending the monitored data to the RUM Browser Probe for processing and analysis.
- The second line sets the parameters (mandatory and optional) used by the JavaScript file. Parameters must be separated by a comma. The following table describes the valid parameters:

Parameter Name	Description	Mandatory/ Optional
probeURL	The URL of the RUM Browser Probe to which the monitored client data is sent. The format for the parameter is: <protocol>://<host>:<port>/hpclientmon/data **Note:** The value must be enclosed with quotation marks ("value"). **Example:** "http://probeHostName:8080/hpclientmon/data"	Mandatory
sProbeURL	The URL of the RUM Browser probe to which the monitored client data is sent, if using https. The format for the parameter is: <protocol>://<host>:<port>/hpclientmon/data **Note:** The value must be enclosed with quotation marks ("value"). **Example:** "https://probeHostName:8443/hpclientmon/data"	If any of the application pages are (or may be) accessed using https, this parameter is mandatory.
Monitoring Parameters		
cmEnableCBD	If set to **true**, collects component breakdown information for each page.	Optional

Parameter Name	Description	Mandatory/ Optional
cmRespContLen	If specified, this parameter represents the total number of bytes sent in the entire response data, including SSL bytes.	Optional
cmReqContLen	If specified, this parameter represents the total number of bytes sent in the entire request data, including SSL bytes.	Optional
cmCPort	If specified, this parameter represents the port number on the client machine that sent the request.	Optional
cmCMethod	If specified, this parameter represents the HTTP request method used (for example: GET, POST, HEAD). **Note:** The value must be enclosed with quotation marks ("value").	Optional
cmUserName	If specified, this parameter represents the user name that activated the page. The user name is used in reports. **Note:** The value must be enclosed with quotation marks ("value").	Optional
cmEvent	If specified, this parameter represents specific events that occurred on the page. **Note:** You configure a list of the required event IDs. To locate an event ID, in the RUM Web console select **Tools** > **Monitoring Configuration Information** > **Events** and use the search box to locate an event by name.	Optional

Parameter Name	Description	Mandatory/ Optional
Integration Parameters		
cmHpCamColor	If specified, this parameter represents the X-HP-CAM-COLOR header that is sent at the request. **Note:** The value must be enclosed with quotation marks ("value").	Optional
cmHpTvColor	If specified, this parameter represents the X-HP-TV-COLOR header that is sent at the request. **Note:** The value must be enclosed with quotation marks ("value").	Optional

You can also set the above parameters dynamically, using the **set_cm_value** method within JavaScript code. While you can do this for any of the parameters, the most common use cases are for dynamically setting user names and events. The following are examples of the scripts for such use cases.

Setting a User Name

```
<script>
    var username =  '-';
    var match = /Logged user: (.*) -
/g.exec(document.getElementById('loginDataBar').innerHTML);
    if(match.length > 0){
        username = match[1];
    }
    set_cm_value('cmUserName', username);
</script>
```

Setting an Event

Setting an event without extracting text:

```
<script>
    set_cm_value(’cmPageEvents’,’554’);
</script>
```

Setting an event extracting text:

```
<script>
    set_cm_value(’cmPageEvents’,’554{39$}’);
</script>
```

6

Uninstalling HP Real User Monitor

If you no longer want to use HP Real User Monitor, you can uninstall the engine and probe.

This chapter includes:

Uninstalling the HP Real User Monitor Engine on a Windows Platform

You can uninstall the Real User Monitor (RUM) engine using the Windows Control Panel, or by running a silent installation.

This section includes the following topics:

Uninstalling the RUM Engine Using the Windows Control Panel

To uninstall the RUM engine:

1 On the machine from which you are uninstalling the RUM engine:

a Go to the **Control Panel**

b Select the option to add and remove programs

c Select **HP Real User Monitor**

d Select the remove option

2 When prompted, select the installation language (default English) and click **OK**. The HP Real User Monitor Engine Setup wizard begins.

3 When the Application Maintenance page is displayed, select **Uninstall** and click **Next**.

4 The pre-uninstall summary information displays the RUM components that will be removed. Click **Uninstall**.

The HP Real User Monitor Configuration wizard is automatically started. For details on the user interface, see "Real User Monitor Configuration Wizard" on page 91.

Note: When uninstalling a MySQL database only, the HP Real User Monitor Configuration wizard is not accessed and the uninstall procedure continues directly with step 5.

---

5 When the Real User Monitor Configuration wizard has finished, the uninstall process begins and its progress is displayed. You can choose whether to view summary or detailed progress data by clicking the appropriate tab.

6 Once the RUM engine has been uninstalled, you can view the uninstall log file by clicking the **View log file** link.

7 Click **Done** to exit the uninstall process.

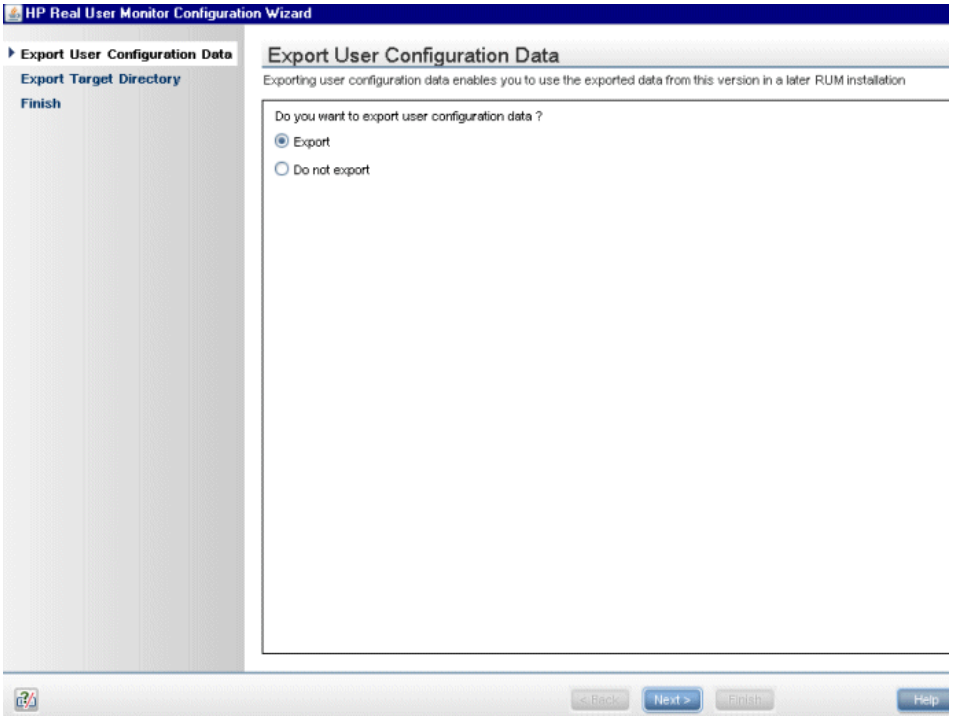
Note: If you uninstall the MySQL database only, the RUM engine does not work without the MySQL database.

Real User Monitor Configuration Wizard

Description	Enables you to export user configuration data for use in a future RUM installation. **To access:** The Real User Monitor Configuration wizard is automatically launched as part of the RUM uninstall procedure.
Important information	➤ If your are uninstalling RUM as part of an upgrade, you must export the user data settings so that you can import them when installing the new version of Real User Monitor. ➤ You can only export user data settings for installations that include a RUM engine. When uninstalling a MySQL database only, you are not prompted to export data.
Wizard Map	The Real User Monitor Configuration wizard contains: Export User Configuration Data Page > Export Target Directory Page > Finish Page
Useful Links	➤ "Uninstalling the RUM Engine Using the Windows Control Panel" on page 89 ➤ "Installing the HP Real User Monitor Engine" on page 32

Export User Configuration Data Page

The following is an example of the Export User Configuration Data page.



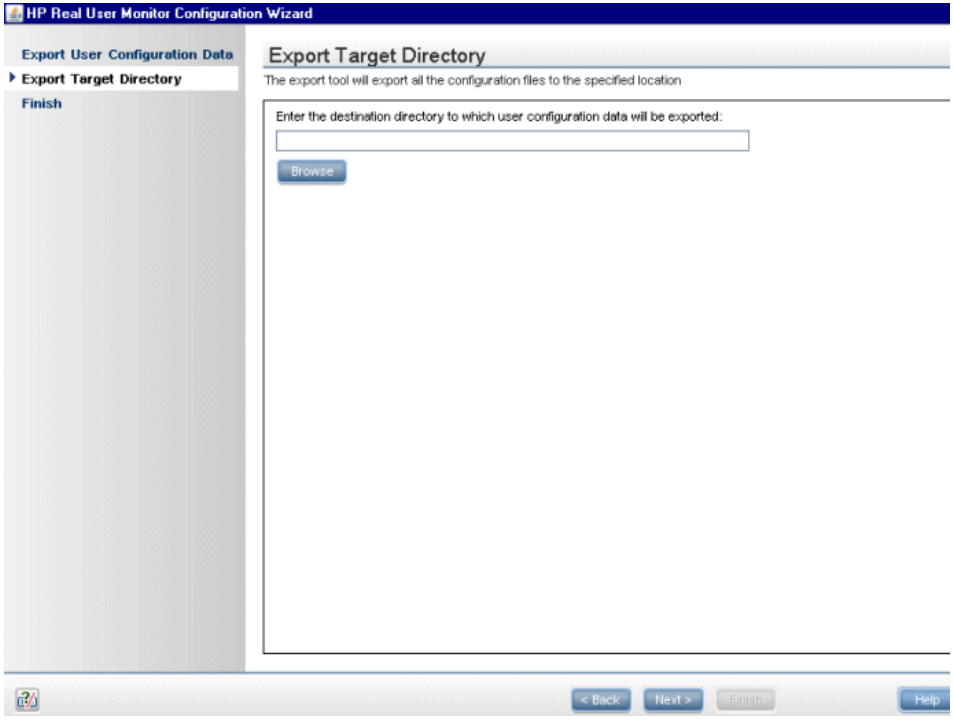
Description	Enables you to select whether you want to export user data settings for use by a future RUM installation.
Important Information	General information about the wizard is available in "Real User Monitor Configuration Wizard" on page 91.
Wizard Map	The Real User Monitor Configuration Wizard contains: **Export User Configuration Data Page** > Export Target Directory Page > Finish Page

The following elements are included:

UI Element	Description
Export	Select this radio button if you want to export user data settings for use when installing a later version of RUM. **Note:** If you are uninstalling RUM as part of an upgrade, you must export the user data settings for importing when you install a later version of RUM.
Do not export	Select this radio button if you do not want to export configuration settings from a previous version of RUM. **Note:** If you select this option, the wizard continues with the "Finish Page" on page 95.

Export Target Directory Page

The following is an example of the Export Target Directory page.



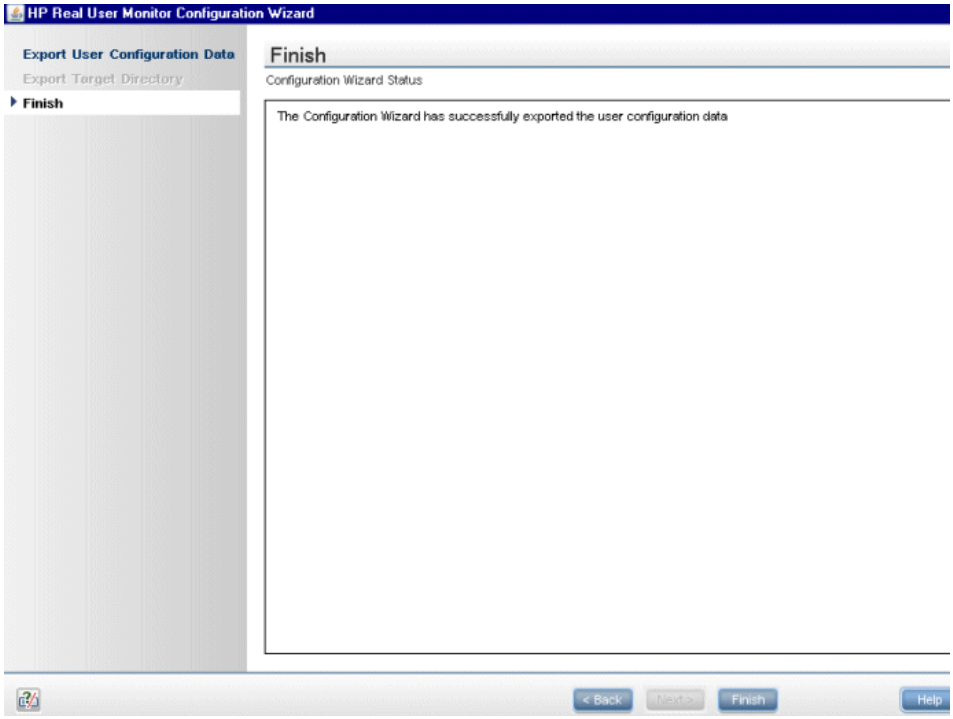
Description	Enables you to select the path to which to export RUM user data settings.
Important Information	General information about the wizard is available in "Real User Monitor Configuration Wizard" on page 91.
Wizard Map	The Real User Monitor Configuration Wizard contains: Export User Configuration Data Page > **Export Target Directory Page** > Finish Page

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

UI Element	Description
<Target directory>	Enter the target directory to which user configuration data will be exported. You can click **Browse** to locate and select a directory.

Finish Page

The following is an example of the Finish page.



Description	Displays a message showing the status of the Configuration wizard. Click **Finish** to exit and return to the HP Real User Monitor Engine Setup wizard.
Important Information	General information about the wizard is available in "Real User Monitor Configuration Wizard" on page 91.
Wizard Map	The Real User Monitor Configuration Wizard contains: Export User Configuration Data Page > Export Target Directory Page > **Finish Page**

Running a Silent Uninstall

You can use a silent procedure to uninstall the RUM engine. You uninstall the RUM engine silently by running a silent installation, which automatically runs in **uninstall** mode when it detects a similar version of RUM already installed on the machine on which it is running. For details of the silent installation, see "Running a Silent Installation" on page 57.

Uninstalling the HP Real User Monitor Sniffer Probe

The procedure for uninstalling the RUM Sniffer probe differs according to the operating system on which it is installed.

This section includes the following topics:

Uninstalling the RUM Probe on a Windows System

To uninstall the RUM probe:

1 On the machine from which you are uninstalling the RUM probe:

- **a** Go to the **Control Panel**
- **b** Select the option to add and remove programs
- **c** Select **HP RUM Probe**
- **d** Select the remove option

2 When prompted, select the installation language (default English) and click **OK**. The HP Real User Monitor Engine Setup wizard begins.

3 When the Application Maintenance page is displayed, select **Uninstall** and click **Next**.

4 The pre-uninstall summary information displays the RUM components that will be removed. Click **Uninstall**.

5 The uninstall process begins and its progress is displayed. You can choose whether to view summary or detailed progress data by clicking the appropriate tab.

6 Once the RUM probe has been uninstalled, you can view the uninstall log file by clicking the **View log file** link.

7 Click **Done** to exit the uninstall process.

Uninstalling the RUM Probe on a Linux system

To uninstall the RUM probe on a Linux system, log in as a root user and run the following commands:

- rpm -e rum_probe-capture
- rpm -e rum_probe-capture-geodata

Part III

Upgrading HP Real User Monitor

7

Upgrading the HP Real User Monitor Engine

The procedure for upgrading the RUM Engine to version 9.21 differs according to the old version from which you are upgrading.

This section includes the following topics:

Upgrading from a Typical Installation to a Distributed Installation

Regardless of your upgrade path, if you are upgrading from a typical installation (in which both the MySQL database and the RUM engine are installed on the same machine) to a distributed installation (in which the MySQL database and the RUM engine are installed on separate machines), you must incorporate the following steps into the instructions detailed below for the relevant upgrade paths:

On the Source (Typical) Machine:

When you uninstall RUM on the source machine, you must export the user data settings and configuration when prompted.

On the Destination MySQL Database Machine:

1 Copy the exported user data settings and configuration directory, as well as the **HPRUM_DATA** directory, from the previous version to the new MySQL database machine.

Note:

- The HPRUM_DATA directory must be located in the same path on the new (MySQL database) machine as it was in the source (typical) machine.
- HPRUM_DATA is the default directory used by the RUM setup program. If you changed the name of this directory in the previous version of RUM, ensure that you use the same name in the new version.

---

2 When installing the new version of RUM, select the option to install the MySQL database only.

3 During the installation, import the saved user data settings and configuration from the previous version, when prompted.

On the Destination Engine Machine:

1. Copy the exported user data settings and configuration directory from the previous version to the new Engine machine.
2. In this directory, edit the **<export directory>\AppServer\deploy\mysql-ds.xml** file and modify the **<connection-url>** parameter setting to point to the new MySQL database machine. (Usually, this will involve changing the setting from **localhost** to the new machine name.)
3. When installing the new version of RUM, select the option to install the RUM Engine only.
4. During the installation, import the saved user data settings and configuration from the previous version, when prompted.

Upgrade from RUM Versions 8.x or Earlier, 9.02, 9.1x, or 9.20

Note: If you are upgrading from a typical installation (in which both the MySQL database and the RUM engine are installed on the same machine) to a distributed installation (in which the MySQL database and the RUM engine are installed on separate machines), you must incorporate the steps detailed in "Upgrading from a Typical Installation to a Distributed Installation" on page 102 into the following procedure.

---

1. In the RUM Engine Web console, synchronize configuration data by selecting T**ools > Monitoring Configuration Data > Sync All Configuration**. Ensure that the synchronization is successful. For details, see the *Real User Monitor Administration* PDF.
2. Stop the RUM Engine by selecting **Start > Programs > HP Real User Monitor > Administration > Disable HP Real User Monitor** on the Real User Monitor Engine machine.
3. Uninstall the existing version of the RUM Engine. During the uninstall process you must export the user data settings and configuration when prompted. For details on uninstalling the RUM Engine, see "Uninstalling HP Real User Monitor" on page 89.

Note: Uninstalling the RUM Engine does not uninstall the MySQL schema database. Do not make any manual changes to this database.

---

4 Save the RUM Setup file for Windows on the machine on which you are upgrading RUM and run the file. For details on locating the RUM Setup file and installing the Real User Monitor engine, see "Installing the HP Real User Monitor Engine" on page 31.

Note:

- As part of the installation process, you must import the saved user data settings and configuration from a previous version.
- As part of the upgrade, during the installation you must connect to the previous, existing MySQL database. The database structure is automatically upgraded.

---

5 Start the RUM Engine by selecting **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Enable HP Real User Monitor** on the Real User Monitor Engine machine.

6 Configure the upgraded RUM Engine to connect to the upgraded BSM system.You configure the connection settings in the RUM Engine Web console by selecting **Configuration** > **BSM Connection Settings**.

If you have upgraded BSM using the Staging Data Replicator (SDR), ensure that the upgraded RUM Engine is configured to connect to the upgraded BSM system.

Upgrade from RUM Versions 9.00 or 9.01

Note: If you are upgrading from a typical installation (in which both the MySQL database and the RUM engine are installed on the same machine) to a distributed installation (in which the MySQL database and the RUM engine are installed on separate machines), you must incorporate the steps detailed in "Upgrading from a Typical Installation to a Distributed Installation" on page 102 into the following procedure.

Tip: Before upgrading the RUM Engine to version 9.21, make note of:

- The current connection settings to BSM. You can view the connection settings in the RUM Engine Web console by selecting **Configuration** > **BSM Connection Settings**.
- Any configuration changes you made to the RUM system using the **Interfaces Configuration** or **Server Filter Settings** options in the RUM Web console.

---

1. Stop the RUM Engine by selecting **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Disable HP Real User Monitor** on the Real User Monitor Engine machine.
2. Save the following file to a temporary folder, together with any files in the HPRUM folder that you have manually changed:

   HPRUM\conf\configurationmanager\configuration\probes_config.xml

   ---

   Note: Do not save the **HPRUM\conf\configurationmanager\Beatbox_Default_Const_Confiugration.xml** file. If you manually changed this file for any reason, you must make the same changes to the file after the upgrade is complete.

   ---

3 Save the following file to a temporary folder:

HPRUM\conf\topologyengine\conf.properties

4 Uninstall the existing version of the RUM Engine. During the uninstall process, do not export the user data settings and configuration when prompted. For details on uninstalling the RUM Engine, see “Uninstalling HP Real User Monitor” in the Real User Monitor Administration PDF.

Note: Uninstalling the RUM Engine does not uninstall the MySQL schema database. Do not make any manual changes to the database files, including move or rename.

---

5 Save the RUM Setup file for Windows on the machine on which you are upgrading RUM and run the file. For details on locating the RUM Setup file and installing the Real User Monitor engine, see "Installing the HP Real User Monitor Engine" on page 31.

Note:

- As part of the installation process, do not import the user data settings and configuration from a previous version.
- As part of the upgrade, during the installation,you must connect to the previous, existing MySQL database (by selecting the **Connect to an existing schema** check box in the Real User Monitor Configuration wizard). The database structure is automatically upgraded.

---

6 Copy the files you saved in step 2 to the same locations in the new installation.

Note: Do not copy the conf.properties file that you saved in step 3.

---

7 Execute the following commands, individually, on the RUM schema in the MySQL database:

- ALTER TABLE `cm_config_per_data_type` MODIFY `configuration` LONGTEXT NOT NULL;
- ALTER TABLE `cm_config_per_module` MODIFY `configuration` LONGTEXT NOT NULL;

8 Start the RUM Engine by selecting **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Enable HP Real User Monitor** on the Real User Monitor Engine machine.

9 Configure the upgraded RUM Engine to connect to the upgraded BSM system. You configure the connection settings in the RUM Engine Web console by selecting **Configuration** > **BSM Connection Settings**.

Tip: If you are connecting to the same BSM machine as previously, you can use the BSM connection settings that you noted prior to the RUM upgrade.

---

10 Copy the values for the following fields from the **HPRUM\conf\topologyengine\conf.properties** file that you saved in step 3, to the same fields in the **HPRUM\conf\configurationmanager\configuration\BacSettings.XML** file (that was automatically created when you configured the BSM connection settings in the previous step):

- <rtsm_rum_integration_user_name>
- <rtsm_rum_integration_password>

11 If you made any configuration changes in your pre-upgraded RUM system using the **Interfaces Configuration** or **Server Filter Settings** options in the RUM Web console, make the same changes in the upgraded RUM 9.21 system.

12 In the RUM Engine Web console, synchronize configuration data by selecting **Tools** > **Monitoring Configuration Data** > **Sync All Configuration**. Ensure that the synchronization is successful. For details, see the *Real User Monitor Administration* PDF.

13 In BSM, verify that the correct RUM engines and probes are correctly assigned to each configured application and application tier.

8

Upgrading the HP Real User Monitor Sniffer Probe

The procedure for upgrading the Real User Monitor Sniffer Probe differs according to the platform on which it is installed.

This section includes the following topics:

Upgrading the Real User Monitor Probe - Linux

Follow the instructions below to upgrade Linux installations of the Real User Monitor Probe:

1 Stop the Real User Monitor Probe:

- ➤ Log in to the Real User Monitor probe machine as the root user.
- ➤ Stop the Real User Monitor probe with the following command:

  /etc/init.d/rum_probe-capture stop

2 If you are upgrading the probe from version 9.x to version 9.21, uninstall the old probe as described in "Uninstalling HP Real User Monitor" on page 89.

Note: If you are upgrading the probe from version 8.x or earlier, you do not need to uninstall the old probe.

---

3 Save the RUM Probe Setup file for Linux to the **/var/tmp** directory on the Real User Monitor Probe machine. For details on the location of the RUM Probe Setup file, see "The Real User Monitor Probe Setup File" on page 67.

4 Run the installation script as described in "Installing the HP Real User Monitor Sniffer Probe" on page 63.

Note: Install the new probe to the exact path of the old one (default /var/HPRUMProbe).

---

5 Start the Real User Monitor probe with the following command:

/etc/init.d/rum_probe-capture start

Note: The above procedure should take less than a minute and therefore results in minimal data loss.

Upgrading the Real User Monitor Probe - Windows

Follow the instructions below to upgrade Windows installations of the Real User Monitor Probe:

1 Save the RUM Probe Setup file for Windows on the machine on which you are upgrading the probe. For details on the location of the RUM Probe Setup file, see "The Real User Monitor Probe Setup File" on page 67.

2 Stop the old probe by selecting **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Probe** > **Stop RUMProbe**.

3 Uninstall the old probe by selecting **Start** > **Control Panel** > **Add or Remove Programs** > **HP RUM Probe**.

4 Install the new Windows probe as described in "Installing the HP Real User Monitor Sniffer Probe" on page 63.

Note: Install the new probe to the exact path of the old one (default C:\HPRUMProbe).

---

5 Start the new probe by selecting **Start** > **Programs** > **HP Real User Monitor** > **Administration** > **Probe** > **Start RUMProbe**.

9

Upgrading HP Real User Monitor - Notes and Limitations

This section describes the following notes and limitations relevant to upgrading HP Real User Monitor:

- If the RUM engine is working with SSL and:
  - a customer self-signed Certification Authority (CA) certificate is being used for one of the connections;
  - the self signed CA certificate is in the default JRE truststore (cacerts), and not in a separate keystore;

  You will have to export the CA certificate manually from the original JRE truststore that is saved in the exported data directory to the new JRE used by the upgraded Real User Monitor Engine. If you are using a certificate that is trusted by a well-known CA, or a self-signed certificate in a separate keystore file, you do not have to perform this procedure.
- If you are upgrading a RUM Engine that is running on a different port than the default one (8180), you must manually change each occurrence of port 8180 within the <Real User Monitor Engine root directory>\EJBContainer\bin\mercury_run.bat file to the port that the RUM Engine is using.
- If your MySQL data is not saved in the default data directory, a redundant data directory will be created when you install the RUM 9.21 Engine.
- After upgrading to RUM 9.21, the following locations are not supported and traffic monitored from these locations is reported with an unknown location:
  - Congo The Democratic Republic Of
  - United States Minor Outlying Islands

- Macedonia The Former Yugoslav Republic Of
- South Georgia And The South Sandwich Islands
- Korea Democratic People's Republic Of

- The following limitations apply to RUM data saved in the RUM MySQL database that is upgraded from RUM 8.x to RUM 9.x:
  - Snapshots are not supported.
  - Sessions that are open during the time of the upgrade will either not be available at all, or will appear as closed sessions.
  - In BSM End User Management reports:
    - Filters that did not exist in BSM 8.x cannot be applied to upgraded RUM data.
    - Entities created after the upgrade that are used in report filters cannot be applied to upgraded RUM data.
    - In the Session Analyzer report, the location field is empty for locations that do not have any related cities.
    - The following reports will not include upgraded RUM data:

      RUM Action Summary, when filtered by transactions, end-user groups, events, or locations.

      RUM Transaction Summary, when filtered by transactions with threshold violations or by end-user groups.

      Production Analysis reports, when filtered by transactions with threshold violations.

      RUM Session Analyzer, when filtered for the past week (that includes upgraded data) for a single transaction.

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