

# HP Business Process Monitor

Software Version: 9.25

## BPM Real Device Monitoring

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# BPM Real Device Monitoring

This document describes BPM Real Device Monitoring.

## What is BPM Real Device Monitoring?

BPM Real Device Monitoring displays the availability and performance of mobile applications, installed on devices in multiple locations.

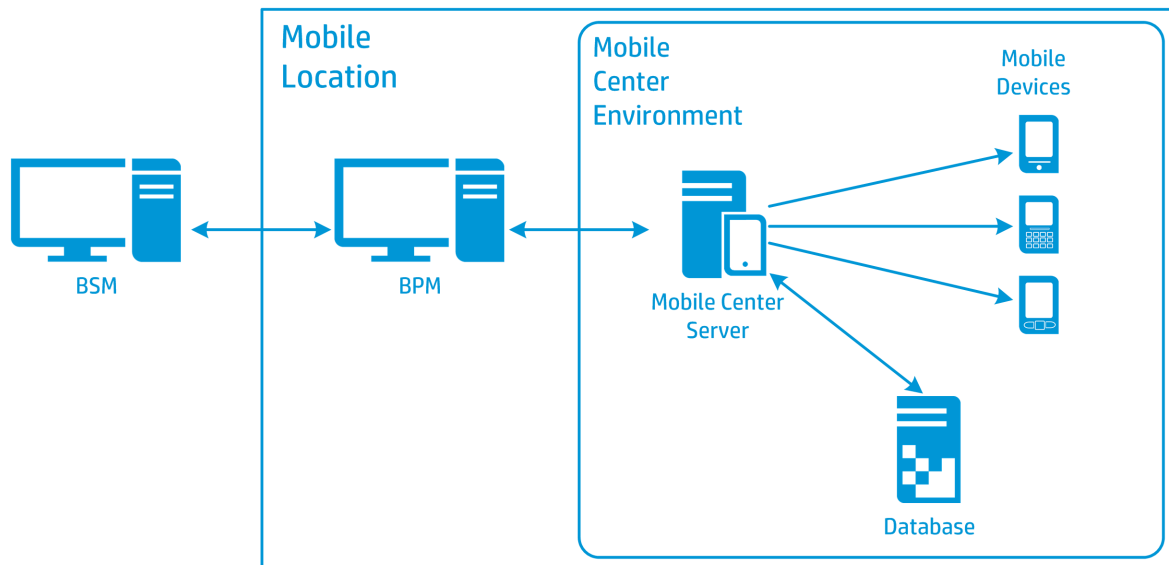
BPM Real Device Monitoring enables you to record applications on real mobile devices, play the recording from BPM, and report the measurements to BSM.

BPM Real Device Monitoring measures mobile application performance to identify trends over time. This enables you to identify spikes or sudden changes in performance. Changes in mobile application performance can be isolated to a specific time, location, carrier, device type, or mobile operating system.

For an evaluation version of BPM Real Device Monitoring, contact [mobilehelp@hp.com](mailto:mobilehelp@hp.com)

## BPM Real Device Monitoring System Architecture

BPM Real Device Monitoring requires each mobile device to be connected to a HP Mobile Center server in each location from which you want to monitor.



## Requirements

BPM Real Device Monitoring has the following requirements at each location:

- Windows server with BPM 9.25 and VuGen 12.02
- Dedicated physical server or virtual machine, with Red Hat Enterprise Linux 6.5 minimal workstation 64 bit, running HP Mobile Center.  
For HP Mobile Center requirements, search for "Server Requirements" in <http://mobilecenterhelp.saas.hp.com>

**Note:** The server must be connected to the network by a cable and not Wi-Fi.

- Android or iOS mobile devices

For a complete list of supported devices, search for "Supported devices" in <http://mobilecenterhelp.saas.hp.com>

## Limitations

Following are known BPM Real Device Monitoring limitations:

- The server must be connected to the network by cable and not Wi-Fi.
- Mobile Center only supports Android and iOS on a real device.
- Snapshot on Error is not supported for iOS apps.
- If you upload more than one app version to Mobile Center, BPM Real Device Monitoring will only use latest version.
- The real device must be active and unlocked.
- If you need to use the actions **Swipe**, **pressBack**, **pressHome**, or **pressMenu**, the actions must be added manually to the script in TruClient, they cannot be recorded.

To manually add these actions in TruClient, from the Toolbox, drag and drop **Generic Device Action** onto the script and then select the required action.

## Installation

Installing BPM Real Device Monitoring involves the following steps:

- Install BPM 9.25, for details see the BPM Deployment Guide.

**Note:** After installation, verify that file **TC4Mobile.lrp** was copied from **ScriptRepositoryFilters.zip** to **<BSM Installation directory>/dat/protocols**.

- Install VuGen 12.02, for details see the VuGen documentation.

- Install and configure Red Hat. For details, see "[Install and Configure Red Hat](#)" below.
- Install and configure HP Mobile Center server, for details, see <http://mobilecenterhelp.saas.hp.com>

For installation troubleshooting, see "[Installation Errors](#)" on page 13.

## Install and Configure Red Hat

This section describes how to install and configure Red Hat so that it will work most efficiently with BPM Real Device Monitoring.

1. Insert the Red Hat Server 6.5 disk and follow the installation wizard.

**Note:** If a text-based Red Hat installation wizard opens instead of the normal graphical interface, cancel the installation and increase RAM to at least 4 GB.

2. During installation, select the following options:

- Minimal
- PostgreSQL Database Client

3. After installation, run the following command to confirm that the server is accessible:

```
ping -c 1 'hostname'
```

## Configuration

You need to configure mobile devices and the HP Mobile Center.

1. Set up the mobile devices. For details, search for "Set up your mobile lab" in <http://mobilecenterhelp.saas.hp.com>

**Note:** If you are using a virtual machine on Windows, make sure that the USB is mounted.

2. Check that the devices are connected:

- a. Log in as user **hpmc**.
- b. Run the following command:

```
adb devices
```

The command prompt displays a list of the connected devices with their IDs

**Note:** If instead of the device ID you receive an “unauthorized” message, see ["Device is not Listed in the Mobile Center Server" on page 11.](#)

## Configure Mobile Devices

You need to configure each mobile device connected to the HP Mobile Center server. For details search for "Connect devices to HP Mobile Center" in <http://mobilecenterhelp.saas.hp.com>

## Recording Scripts

Recording a script is done using VuGen TruClient Native Mobile protocol. This protocol supports the following hard coded parameters:

- **MobileApp** – The full name of the mobile application, for example com.hp.app
- **MobileDevice** – Identifier of the mobile device that will be used to monitor the application.
- **MobileServerURL** – The URL or IP address of the Mobile Center server, followed by the port, in the format <IP>:<port>
- **MobileServerUserName** – The user name to access the Mobile Center server.
- **MobileServerPassword** – The password to access the Mobile Center server.

These parameters are created automatically when creating a new TruClient Native Mobile script.

**Note:** If you have BSM 9.24 or earlier, use the script template to create new TruClient Native protocol scripts. This allows the BSM machine to read the default parameters.

1. Open the following file:

**<BPM installation directory>/resources/TruClientNativeMobile\_TemplateForBPM.zip**

2. Extract the contents of this file to the Scripts folder on the VuGen machine.
3. In VuGen, click **Open** and select the template.
4. Click **Save script as...** and give the script a new name.
5. If required, set the script to create extended logs by selecting: **Replay > Run-time Settings > General > Log > Extended Log.**

For details of how to record a TruClient script, search for "LoadRunner on HP Mobile Center" in <http://mobilecenterhelp.saas.hp.com>

### After Recording the Script

After you have recorded the script do the following:



1. Delete, edit, and add transactions to the script as required.

**Note:** If the script includes entering credentials, the password field will not be saved by the Mobile Center server. You need to open the corresponding TruClient step and edit the password field, replace \*\*\*\*\* with the real password.

2. In TruClient, click the play button to test the script.
3. Take note of the application and MobileDevice identifiers. You should save the name of these identifiers as they will be needed for script parameters.
  - The Application Identifier is displayed in the Select Application window, click the arrow next to the version name to view the application Identifier.
  - The Mobile ID is displayed in the Select Device window.
4. Once you have made the necessary changes to the script, save the script and close the TruClient interface.
5. From VuGen export the script to a zip file. Select **File > Manage Zip Files > Export to zip File... > runtime files only**.

## Deploying Scripts

To deploy a script, you need to upload the script to BSM, and for each location assign the BPM Mobile locations and the script parameters.

1. Upload the recorded scripts to BSM, create an application that will run the scripts, update the application thresholds, and assign the application to the required BPM Mobile locations.

**Note:** Mobile scripts take longer to run than regular scripts, so you should increase the thresholds.

2. Click  to update the script parameters for each location.

**Note:** Without this step the script will not run since it expects the parameters to be correct for each location. In each mobile location set the Mobile Center server URL, device ID, application ID, user name, and password.

## BPM Real Device Monitoring Best Practices

### Recommended naming conventions in BSM

The location name should contain all the parameters that you want to differentiate in each location. For example, if you are monitoring different devices and multiple carriers in the same city, you should include the carrier and device name in the location name. For example **LosAngeles\_Verizon\_GalaxyS4**.

## Troubleshooting

This section contains tips to address some of the common issues with BPM Real Device Monitoring.

### Manually Installing the HP Agent

If the HP Agent is not installed automatically by the server, you need to configure it manually. For details, see the troubleshooting section under "Connect Android mobile devices" in <http://mobilecenterhelp.saas.hp.com>

### APK Files (Android Mobile Apps)

You need to upload APK files to the Mobile Center server.

If APK is already installed on your device, it must be the same APK that you upload to Mobile Center.

You do not need to manually install APK on your device; Mobile Center does it automatically.

In TruClient you can control the APK settings in **General settings > Mobile**. The following options control the application flow:

- Restart
- Install (default)
- Un-install

### BSM Does not Display Script Parameters

If BSM does not display the script parameters, there may be an incorrect name for the script .prm file, which contains descriptions of the parameters.

To fix this problem:

1. Remove the script from BSM.
2. Extract the script zip.

3. Open the script folder.
4. Rename the file **TC4MParams.prm** to **<script name>.prm**
5. Open the file **<script name>.usr** and update the **ParameterFile** property value to be **<script name>.prm**.
6. Save the file.
7. Create a zip file from the script folder.
8. Upload the script to BSM.

### Device is not Listed in the Mobile Center Server

If you do not see your device on the Mobile Center server, run the following command to confirm that the device is connected.

```
adb devices
```

A list of connected devices and their IDs is displayed.

The following error message indicates that the adb command does not have the required permissions:

```
[hpmc@localhost ~]$  
List of devices attached  
????????????? no permissions
```

To resolve this problem, set root permissions to the adb command:

On the Mobile Center server, log in as root and run the following commands:

```
cd /opt/hpmc_3rd_party/android-sdk-linux/platform-tools  
chown root:hpmc adb  
chmod 4550 adb  
./adb kill-server
```

If the USB on the Virtual Machine is not automatically set, you will need to mount the USB device again.


### Unauthorized Device ID

If instead of a device ID there is the phrase “unauthorized”, check that the mobile device is set to allow the connection. There may have been an alert message on the mobile device screen asking to authorize the HP Agent.

The HP Agent on the mobile device should show the values:

- **Server URL:** http://<Linux\_VM\_IP\_Address>:8080/hp4m-connector/rest/device
- **username:** hpmc
- **password:** hpmc
- **HP Agent is running**
- **Status:** Connected to <above URL>/register

## Other Common Problems

- If the application closes immediately when you start to record, it means that the accessibility options for the HP agent is off. To resolve this problem, on the mobile device, open **Settings > Accessibility > HP Agent** and set it to **ON**.
- A Lock icon on the device  indicates that it is used by Mobile Center, not that the device is locked. You can press the Lock icon to unlock the device and make it available in Mobile Center.
- If you are having network problems, use the following command to enable networking:

```
sed -i s/ONBOOT=no/ONBOOT=yes/ /etc/sysconfig/network-scripts/ifcfg-eth0
service network restart
```

## Common Error Messages

This section describes common error messages you may encounter in TruClient or on the server when working with BPM Real Device Monitoring.

### HP Agent not installed or UIAutomatorReplayAgent.jar

If the log contains an exception that the HP Agent is not installed, or failed actions with the file **UIAutomatorReplayAgent.jar**, it probably means that the server failed to copy the to the device.

To resolve this issue, see the Troubleshooting section in "Connect Android mobile devices" in <http://mobilecenterhelp.saas.hp.com>.

### Unsupported major.minor version 51.0

If the Mobile Center server fails to load and displays "Unsupported major.minor version 51.0", the version of Java installed on the server may be lower than Java 1.7.

To check the installed Java version run the following command:

```
Java -version
```

If the installed Java version is lower than 1.7, install Java 1.7.

## Unable to connect to the server

If you get the following error message in TruClient

Unable to connect to the server.  
Verify that the server is up and/or the IP  
Address is correct

The error may be because the server IP is not configured correctly in the Settings tab or that the Linux Virtual Machine does not have a valid IP.

To test the connection to the Mobile Center server, open a browser and enter the following URL:

**http://<MC Server IP>:8080**

## AUT isn't installed

This error message means that the application is not installed on the mobile device. To resolve this issue, in the server settings, select the **Install** checkbox.

## Server Error Messages

Following are common server error messages:

- **Check that a record or replay service is running**

The error indicates that an accessibility service is not running.

- **Failed to create job: Test creation failure, failed to lock device .... Please check your server settings match the one previously saved in the script.**

This error indicates that the device is already locked and you cannot use it.

- **Failed to start VNC on device**

This error indicates that TruClient was unable to access the remote desktop.

## Installation Errors

Following are some of the errors that you may encounter during HP Mobile Center installation.

### java.net.UnknownHostException or "Server not Known"

If the Mobile Center server installation fails with the following error:

Caused by: java.net.UnknownHostException: xyz: xyz: Name or service not known  
at java.net.InetAddress.getLocalHost(Unknown Source)

The problem is that the host name of this server is not recognized by the network.

To resolve this issue:

1. Open a command prompt and run the following command to obtain the IP address of the host name.

```
hostname
```

2. Open the **/etc/hosts** file and add the IP address of the host name to the **localhost** line.
3. Log in as hpmc user.
4. Open a command prompt and run the following command to obtain the IP address of the host name.

```
cd /opt/hpmc/Schema/ ; java -jar hp4m-database-jar-with-dependencies.jar -u postgres -p password -i -ux 2 ; cd -
```

5. run the following command to start hpmc:

```
server hpmc start
```

## Setting Virtualization

If you are using Oracle VirtualBox to create the Linux Virtual Machine, and there are no 64 bit guest OS available for creation, try enabling Virtualization in the machine's BIOS.

This option is available under one of the following options:

- Virtualization Technology
- VT-x/AMD-V hardware acceleration

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