



# Business Process Monitor

Software Version: 9.51

## Business Process Monitor Deployment Guide

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# Chapter 1: Deploy Business Process Monitor

**CAUTION:**

If you are installing a service pack, before beginning the installation, review the information in the APM Readme file for any last minute notes and limitations for the service pack. Failure to follow procedures listed in the Readme could result in unexpected data loss or failure of the installation process.

You install Business Process Monitor (BPM) on designated host machines. The machines can be located on your local network or on the Internet, and must have http or https access to the APM Gateway Server (or load balancer, if used). BPM includes BPM Admin, which is the BPM management component.

The number and locations of host machines you use should reflect factors such as the number of transactions you plan to run, the geographic dispersion of typical end-users who access your application, the location of remote servers, the locations of ISPs that provide connectivity to your website, and so forth. You can always install BPM on additional host machines at a later time.

If you are using secure communication (over SSL) between BPM and the Gateway Server, you must configure BPM to support https communication. For details, see "Configuring BPM to Run Over a Secure Connection" in the Business Process Monitor Administration Guide.

**NOTE:**

For details on the compatible versions of BPM and APM, see [Compatibility Matrixes, on page 8](#).

# Chapter 2: Compatibility Matrixes

This section includes the following matrixes for various environments and components supported by BPM versions:

- [BPM Compatibility Matrix, below](#)
- [Unified Functional Testing \(UFT\) , below](#)
- [LoadRunner Compatibility Matrix, below](#)
- [BPM Protocol Support Matrix, on page 11](#)
- [Compatibility with VuGen, on page 10](#)
- [BPM/VuGen - Citrix Compatibility Matrix , on page 10](#)

In the tables below, ✓ = "supported", and X = "not supported".

## BPM Compatibility Matrix

All BPM versions since BPM 9.26 are compatible with Business Service Management (BSM) 9.26, and Application Performance Management (APM) 9.3x, 9.4x and 9.5x..

## Unified Functional Testing (UFT)

Version of UFT	BPM 9.51	BPM 9.50	BPM 9.40	BPM 9.30	BPM 9.26	BPM 9.25
14.51	✓ (recommended)	X	X	X	X	X
14.50	✓	✓	X	X	X	X
14.03	✓	✓ (recommended)	X	X	X	X
14.02	✓	✓	X	X	X	X
14.01	✓	✓	✓	X	X	X
14	✓	✓	✓ (recommended)	X	X	X
12.54	✓	✓	✓	✓	X	X
12.53	✓	✓	✓	✓	X	X
12.51	✓	✓	✓	✓	✓	X
12.50	✓	✓	✓	✓	✓	X
12.02	✓	✓	✓	✓	✓	✓
12.01	✓	✓	✓	✓	✓	✓

## LoadRunner Compatibility Matrix



Version of LoadRunner	BPM 9.51	BPM 9.50	BPM 9.40	BPM 9.30	BPM 9.26	BPM 9.25
12.60	✓ (recommended)	X	X	X	X	X
12.55	✓	✓	✓ (recommended)	X	X	X
12.53 (including 12.53 patch 3 and patch 4)	✓	✓	✓	✓	X	X
12.51	✓	✓	✓	✓	✓	X
12.50	✓	✓	✓	✓	✓	X
12.02	✓	✓	✓	✓	✓	✓
12.01	✓	✓	✓	✓	✓	✓

For Mobile Center - BPM compatibility, see My Product matrix (<http://mobilecenter.microfocus.com>)

### BPM Supported Protocols

BPM for AppPulse Active supports the following private POP protocols:

- .NET
- C VUser
- Citrix
- COM/DCOM
- FTP
- IMAP
- Java Vuser
- LDAP (Listing Directory Service)
- MAPI (Microsoft Exchange)
- MMS (Media Player)
- MMS (Multimedia messaging Service)
- ODBC
- Oracle (2-tier)
- Oracle NCA
- POP 3 (Post Office Protocol)
- RDP
- SMTP
- TruClient - TruClient Web, TruClient Mobile Web, TruClient Native Mobile.
- Web [HTTP/HTML]
- Windows sockets

**Note:**

- For the list of supported public POP protocols, see the Create Script Transactions section in the APM help.
- Some of the protocols require the installation of additional software components and therefore are platform dependent.
- BPM also supports all the protocols available through add-ins for the supported versions of QTP and UFT.

**Compatibility with VuGen**

The recommended version of VuGen for BPM 9.51 is VuGen 12.60 (including any relevant patches and hotfixes).

If you have an earlier version of VuGen installed, you need to uninstall it before installing the current version. VuGen can be installed on the same machine as BPM, provided that it is installed after BPM has been installed.

If you need to uninstall BPM, run VuGen **Repair the Installation** before reinstalling BPM.

If you need to repair or reinstall VuGen, you will also need to uninstall BPM and install it again before VuGen has been repaired or reinstalled.

If you are using TruClient global function library, the library must be located on a shared location accessible by all machines on which the script is going to run (VuGen or BPM).

**NOTE:**

LoadRunner Java protocols require JDK 8 installed on the BPM server.

Set the **JAVA\_HOME** system parameter to the JDK 8 path, or for each individual script set the replay setting parameter to the JDK 8 path.

Java protocols include Java Record\Replay, Java Over HTTP, Java Vuser, Oracle – Web, and Oracle NCA.

Compatibility with Unified Functional Testing (UFT)

The recommended version of Unified Functional Testing (UFT) for BPM 9.51 is UFT 14.51.

**NOTE:**

We do not recommend using UFT 12.50 on Windows 7 32 bit due to possible performance issues. We recommend using a different version of Windows such as Windows 7 64 bit.

**BPM/VuGen - Citrix Compatibility Matrix**

**LoadRunner 12.60 / BPM 9.51 (Citrix ICA with Receiver for Windows)**

Supported Client Version	Supported Server	Comments
4.x or later. Check the Citrix Product Matrix for Receiver and Server compatibility.	Citrix XenApp and XenDesktop 5.x or later  StoreFront/Web Interface 2.x or	Citrix Agent supports XenApp and XenDesktop servers.  Recommended version of Citrix Receiver is 4.7.

Supported Client Version	Supported Server	Comments
	later	CitrixAgent does not support text-trapping functions (ctrx_sync_on_text_ex and ctrx_get_text) on Windows 10, Windows Server 2016, or later versions of Windows.

For more information, see [LR 12.60 System Requirements](#)

**BPM Protocol Support Matrix**

Protocol	Windows	Linux
Ajax - Click and Script	✓	X
C VUser	✓	✓
Citrix	✓	X
COM/DCOM	✓	X
DNS (Domain Name Resolution)	✓	✓
Flex	✓	X
FTP (File Transfer Protocol)	✓	✓
IMAP	✓	✓
JAVA over HTTP	✓	X
JAVA Record\Replay	✓	X
Java Vuser	✓	X
LDAP (Listing Directory Service)	✓	✓
MAPI (Microsoft Exchange)	✓	X
Mobile Application (HTML/HTTP)	✓	✓
MMS (Media Player)	✓	X
MMS (Multimedia messaging Service)	✓	X
ODBC	✓	✓
Oracle (2-tier)	✓	✓
Oracle NCA	✓	✓
Oracle - Web	✓	✓
POP 3 (Post Office Protocol)	✓	✓

Protocol	Windows	Linux
RDP	✓	X
RTE (Remote Terminal Emulator)	✓	X
SAP GUI	✓	X
SAP Web	✓	✓
Selenium (as a Junit test)	✓	✓
Siebel – Web	✓	✓
SMTP (Simple Mail Protocol)	✓	✓
SOAP (Web Services)	✓	X
TruClient - Mobile Web	✓	X
TruClient - Native Mobile	✓	X
TruClient Web (includes TruClient Browser, IE and Chromium)	✓	X
Web (HTTP/HTML)	✓	✓
Windows Sockets	✓	✓

**Note:**

- *TruClient Internet Explorer* and *TruClient Firefox* have been replaced with *TruClient Web*, which also supports Chromium. If you have Internet Explorer or Firefox scripts created with earlier versions of TruClient, we recommend that you convert them to TruClient Web scripts to be able to use the latest technology. In TruClient Web you can choose which browser to use for each script. LoadRunner has a “TC Batch Conversion” tool (integrated in VuGen) which can convert old scripts to TruClient Web. For details, see the LoadRunner documentation.
- TruClient Browser has replaced use of the Firefox browser & is equivalent to FF v 58.0.2. Scripts that are configured to run with TC Web Firefox will automatically run using TruClient Browser  
For additional information, refer ‘What’s New’ in [Help Centre](#)
- Some of the protocols require the installation of additional software components and therefore are platform dependent.
- BPM also supports all the protocols available through add-ins for the supported versions of QTP and UFT.
- BPM does not support multiple iterations for a single transaction run, whether set via internal scripting logic using loops, or in script **Run Time Settings > Run Logic > Number of Iterations**.

# Chapter 3: System Requirements

This section describes the hardware and system requirements for running Business Process Monitor (BPM).

This section includes the following topics:

- [Windows Hardware Requirements, below](#)
- [Supported Operating Systems, below](#)
- [Other System Requirements, on the next page](#)
- [BPM on Virtual Platforms, on page 15](#)

## *Windows Hardware Requirements*

Component	Recommended (Production)	High Volume Loaded Systems
Processor	8 Core CPU or faster	16 cores or faster
Memory	16GB	32GB
Cache Size	N/A	4 MB L2 cache

**NOTE:**

- For additional details on sizing for high volume loaded systems, see "Planning BPM Capacity" in the Business Process Monitor Administration Guide.
- We recommend using the High Volume Loaded Systems configuration when BPM is running TruClient scripts.

## *Linux Hardware Requirements*

Component	Value
Processor	1.6 GHZ or faster
Memory	Recommended: 16 GB
Cache Size	Minimum: 500 MB

**NOTE:**

For additional details on sizing for high volume loaded systems, see "Planning BPM Capacity" in the Business Process Monitor Administration Guide.

## *Supported Operating Systems*

**NOTE:**

Only 64 bit operating systems are supported.

Operating System	BPM	VuGen
Red Hat Enterprise Linux (RHEL) 7.3 (64 bit)	✓	
Red Hat Enterprise Linux (RHEL) 7.4 (64 bit)	✓	
Oracle Enterprise Linux (OEL) 7.1 UEK (Unbreakable Enterprise Kernel ) (64 bit)	✓	
Oracle Enterprise Linux 7.2 (64 bit)	✓	
Oracle Enterprise Linux 7.3 (64 bit)	✓	
Microsoft Windows Server 2012 R2 (64 bit) Standard and Data Center Edition	✓	✓
Microsoft Windows Server 2008 R2 SP1 (64 bit) Standard and Enterprise	✓	✓
Microsoft Windows 2016 (64 bit)	✓	✓
Microsoft Windows 10.0 64 bit (Fall Creators Update)	✓	✓
Microsoft Windows 7 SP1 (64 bit)	✓	✓
Microsoft Windows 8.1 (64 bit) for IE 11 only	✓	✓

**NOTE:**

For a list of required Windows updates, see [Prerequisites for Windows, on page 16](#)

*Other System Requirements*

Component	Minimum
Free Hard Disk Space	<p>Minimum 8.0 GB</p> <p>If the application files and workspace directory are stored on different drives, the application files require a minimum of 1.5 GB and the workspace directory requires a minimum of 2 GB. The required amount of free disk space for the workspace directory varies according to the scale of the implementation. In addition, an extra 500 MB in the temp folder is required for the extraction of the installation files.</p>
Web Browser	<ul style="list-style-type: none"> <li>• Microsoft Internet Explorer (IE) 11.0</li> <li>• Mozilla Firefox ESR 52.x</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• Firefox 45 ESR requires Java 8 update 66.</li> <li>• The browser must be set to accept third-party cookies and allow session cookies.</li> <li>• The browser must be set to enable JavaScript execution.</li> <li>• The browser must allow pop-ups from the APM application.</li> <li>• IE users must set browser caching to check automatically for newer versions of stored pages.</li> </ul>

Component	Minimum
Support for WebTrace over Modem	All supported platforms
Java Runtime Environment	Version 1.8 update 161 (recommended)  <b>NOTE:</b> The BPM user interface can be launched only with the 32-bit version of the JRE.

### *BPM on Virtual Platforms*

BPM is supported on ESX 5.0, ESXi 5.1, ESXi 5.5, and ESXi 6.0 (recommended), Hypervisor, and Microsoft Hyper-V Server 2012 R2 with the following restrictions:

- Dedicated (not shared) resources for the BPM VMWare instance (for example CPU cycles and memory) are recommended.
- A Gigabit network should be used.
- DRS are not supported.
- The total amount of configured resources for all the virtualized environments within the same ESX server (for example, memory or CPU) must not exceed the ESX server's physical resources.
- There is no hardware capacity calculator for determining the number of BPM scripts on a single BPM instance.
- In Windows 2012 with Microsoft Hyper-V Server, users must be logged on as System User or have full control over the relevant directories. BPM does not work with regular Administrator privileges.

# Chapter 4: Installation Requirements

The following topics discuss the requirements and limitations for installation:

- [Prerequisites for Windows, below](#)
- [Prerequisites for Linux, on page 22](#)
- [General Installation Information, on page 23](#)
- [Details Required During Installation, on page 25](#)
- [Notes and Limitations, on page 25](#)

## Prerequisites for Windows

If you are upgrading from a version of BPM prior to 9.22, add the property **SelfUrl** to the General Section of **topaz\_agent\_ctrl.cfg** with the value of the BPM admin URL.

The following programs must be installed before installing BPM. These programs are installed with Load Generator.

**NOTE:**

You require Administrator privileges to install BPM. If you have User Account Control (UAC) enabled, you need to run the Setup program with Administrator privileges.

- Microsoft Data Access Components (MDAC) 2.8 SP1 (or later)
- Microsoft Windows Installer 3.1 or later
- Microsoft Core XML Services (MSXML) 6.0
- Microsoft Visual C++ 2008 SP1 Redistributable Package
- Microsoft Visual C++ 2010 SP1 Redistributable Package
- Microsoft Visual C++ 2015 Redistributable for Visual Studio 2015 Update 3
- Microsoft Updated KB3033929

## Windows Updates

The following Windows updates are required:

Operating System	Required Updates
<ul style="list-style-type: none"><li>• Windows 7 SP1 64-bit</li><li>• Windows 2008 R2 64-bit</li></ul>	Update for Universal C Runtime (UCRT) in Windows KB2999226 x64.
<ul style="list-style-type: none"><li>• Windows 8.1 64-bit</li><li>• Windows 2012 R2 Standard Edition</li></ul>	Windows8.1-KB2919442-x64 OR Windows8.1-KB2970551-x64 or higher. Windows8.1-KB2919355-x64 or higher. Windows8.1-KB2932046-x64 or higher. Windows8.1-KB2934018-x64 or higher.



Operating System	Required Updates
	Windows8.1-KB2937592-x64 or higher. Windows8.1-KB2938439-x64 or higher. Windows8.1-KB2959977-x64 or higher. Windows8.1-KB2999226-x64 or higher.
<ul style="list-style-type: none"><li>Windows 10 64-bit</li></ul>	No updates are required, but UAC must be disabled before installation. KB4022725-x64.

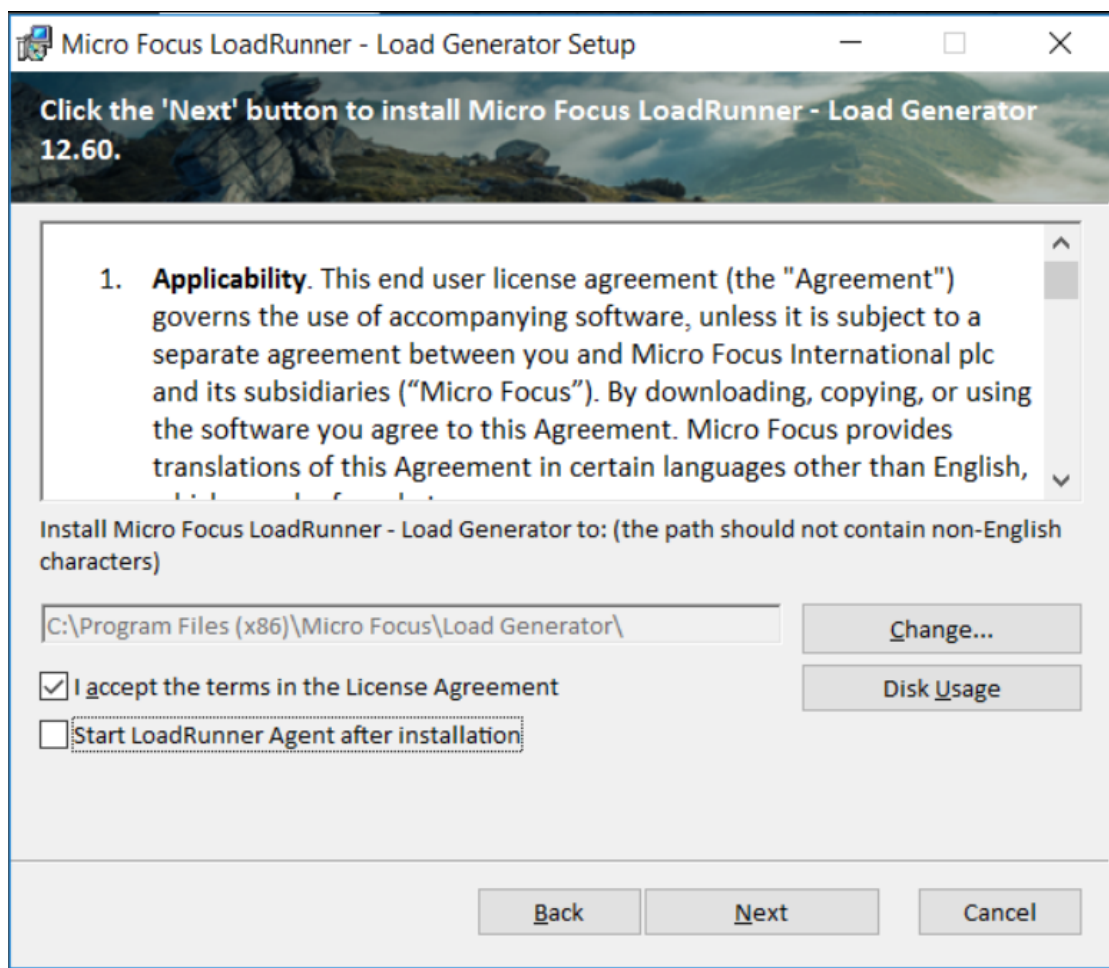
## Install Load Generator Manually

The BPM installation process attempts to install Load Generator. If the Load Generator installation process fails, you can install Load Generator manually.

**NOTE:**

Before installing Load Generator manually, make sure that you have installed all prerequisites as described in [Prerequisites for Windows, on the previous page](#).

1. Double-click on the following file:  
**<BPM installation directory>\packages\LGSA\SetupLoadGenerator.exe**  
to open the Load Generator Installation Wizard.
2. Select a location to save the files and click **Next**.
3. The Installation Wizard confirms that the required prerequisites are installed and installs any missing items.
4. Click **Next** to run the Setup Wizard.
5. In the End License agreement window, accept the license agreement, and unselect **Start LoadRunner Agent after installation**.



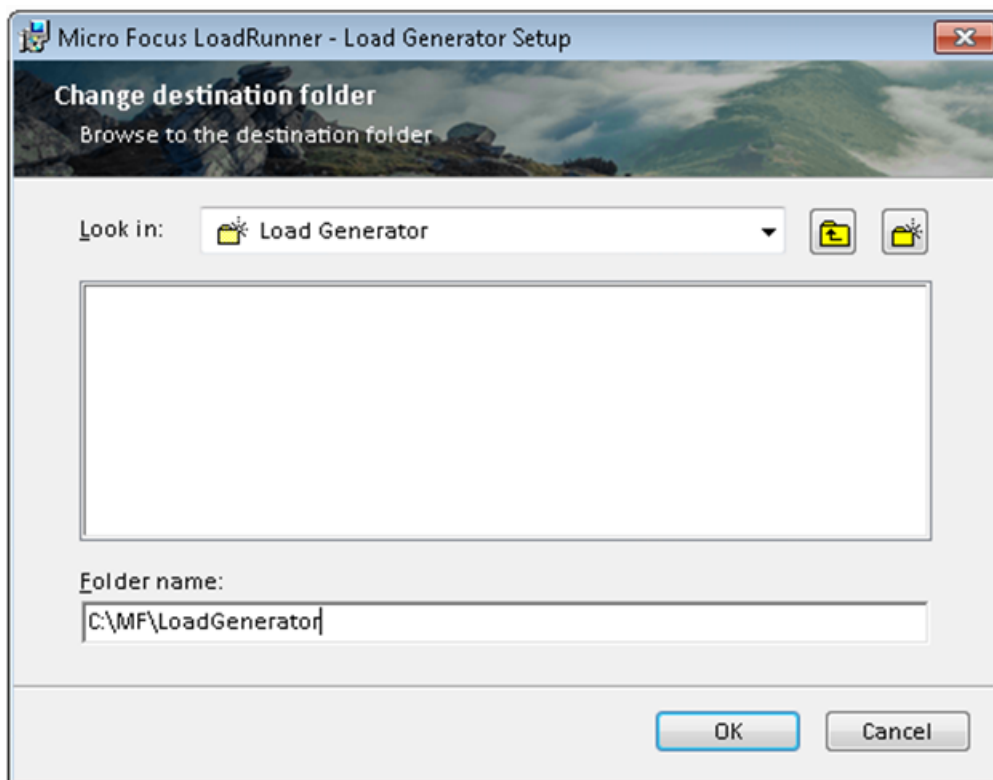
6. To change the destination folder, click **Change**. In the Change Destination Folder window, change the Load Generator installation path to be parallel to the BPM installation path.

For example if you install BPM to: **C:\MF\BPM**

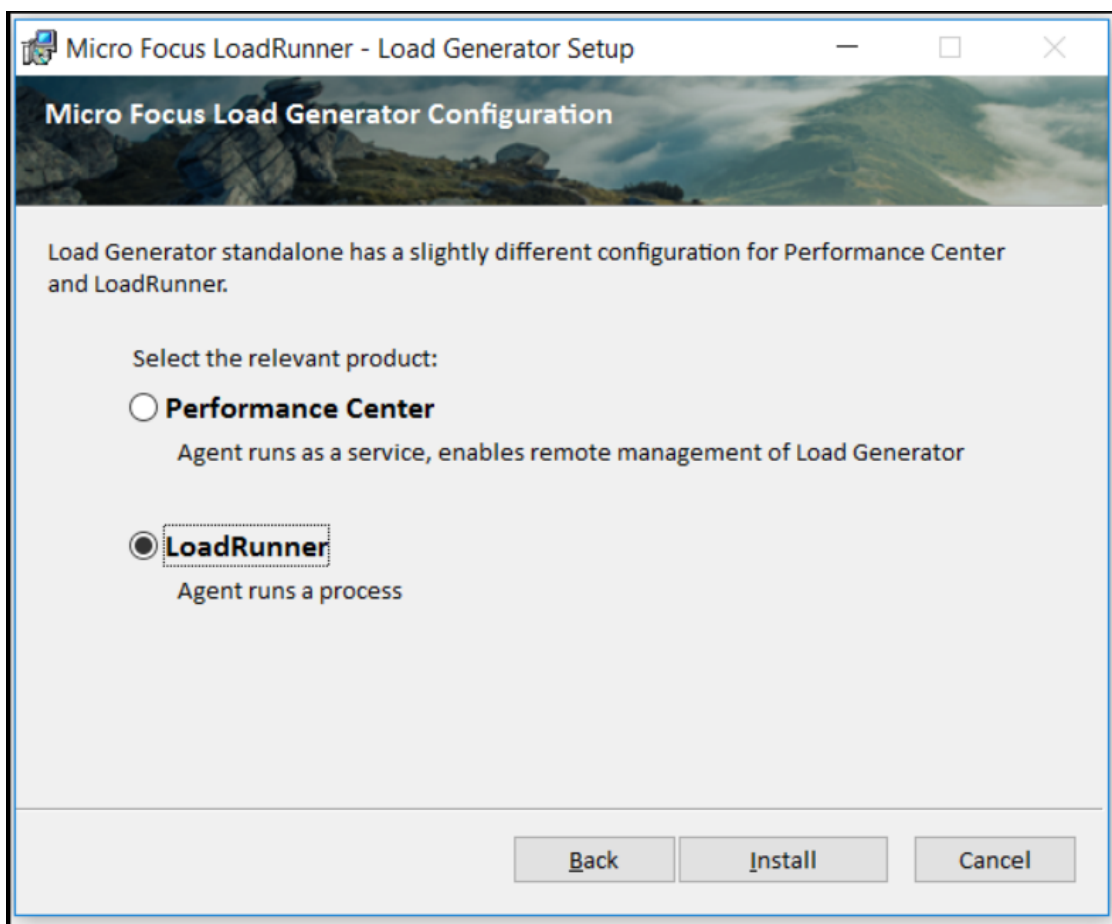
Install Load Generator to: **C:\MF\LoadGenerator**

**NOTE:**

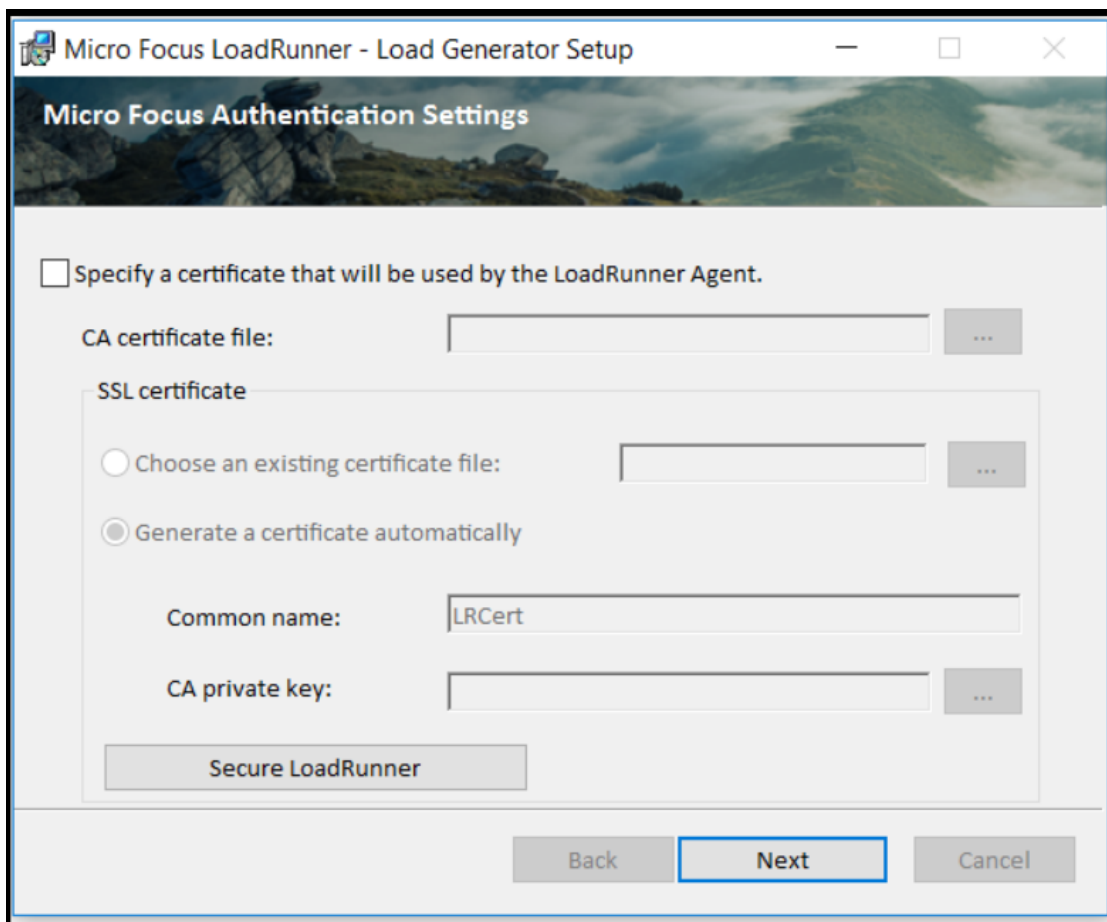
"LoadGenerator" should not have a space.



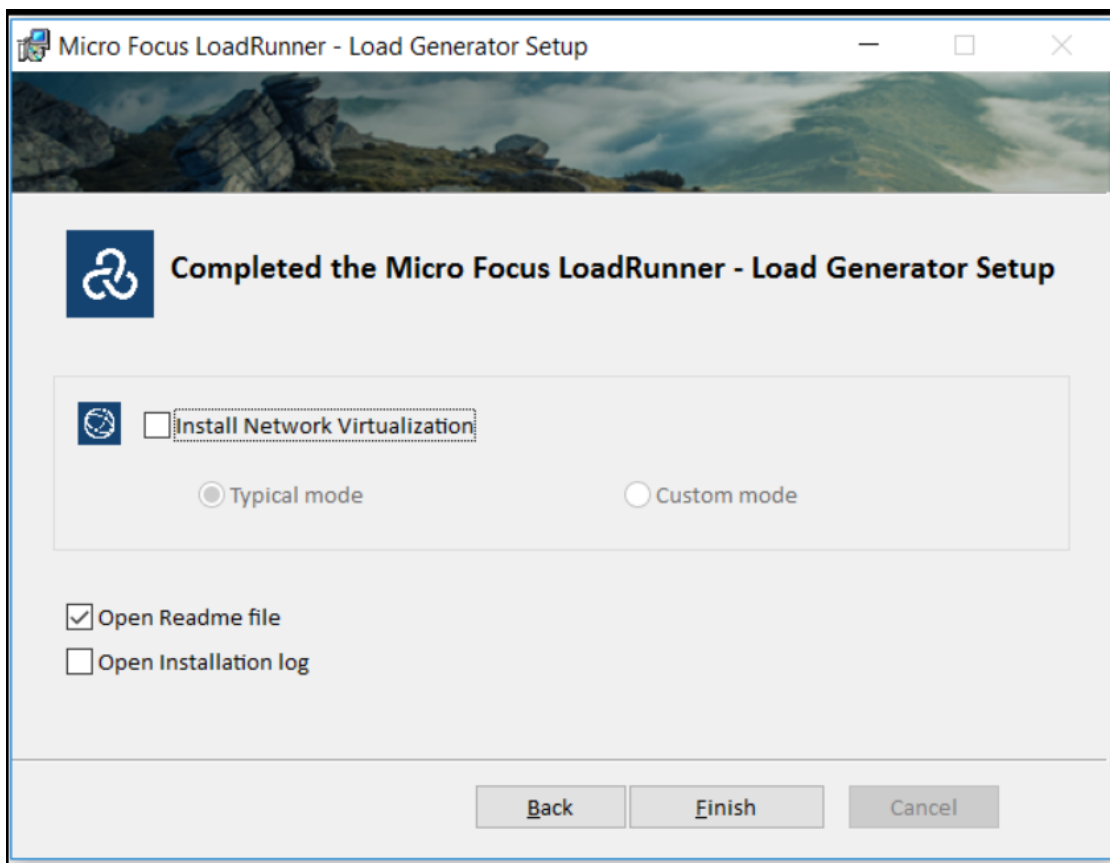
7. In the Load Generator Configuration window, select **LoadRunner** (do not select **Performance Center**) and click **Install**.



8. In the Authentication Settings window, do not select **Specify a certificate that will be used by the LoadRunner Agent**.



9. In the Completed the Setup Wizard window, unselect **Install the Network Virtualization**.



10. Click **Finish** to complete the installation process.
11. Run the BPM installation again.

**NOTE:**

We recommend that after installing these prerequisites, you restart the system before installing BPM.

## Prerequisites for Linux

If you are upgrading from a version of BPM prior to 9.22, add the property **SelfUrl** to the General Section of **topaz\_agent\_ctrl.cfg** with the value of the BPM admin URL.

The installation process uses the Yum Package Manager to install the following packages:

- glibc.i686
- libstdc++.i686
- keyutils-libs.i686
- ncurses-libs.i686
- glib2.i686
- libgcc-4.8.5-4.el7.i686 or later
- libidn.i686

Confirm that all of these packages (with an .i686 extension) were installed correctly. If any of the packages were not installed, identify the required version of the package, and manually download and install it.

1. Open the following log file to view which packages were installed by the Yum Package Manager:

```
/tmp/LG_prerequisites.log
```

2. If any of the above packages are not listed in the log file, use the following command to identify which version you currently have installed:

```
rpm -qa | grep <package name>
```

**Example:**

```
[root@LAB]# rpm -qa | grep glibc
```

Returns the following result:

```
glibc-2.12-1.107.el6.x86_64
```

This indicates that the **-2.12-1.107.el6.x86\_64** version of this package is currently installed.

You will have to install the corresponding .i686 package: **glibc-2.12-1.107.el6.i686**

3. If the .i686 package is not installed, install it manually from official repository.
4. Use the following command to verify that the package was installed correctly:

```
rpm -qa | grep <package name>
```

The result includes all versions of the package that are installed. Make sure that this includes the .i686 version.

**Example**

```
[root@LAB]# rpm -qa | grep glibc
```

Returns the following result:

```
glibc-2.12-1.107.el6.x86_64  
glibc-2.12-1.107.el6.i686
```

### *Japanese Environment*

Run the following commands to configure the system to work in a Japanese environment:

```
yum groupinstall "Japanese Support"
```

```
localedef -f SHIFT_JIS -i ja_JP ja_JP.SJIS
```

```
export LANG=ja_JP.SJIS and # export LC_ALL=ja_JP.SJIS
```

## General Installation Information

The BPM Setup file can be accessed from the BPM installation package or the Software Support site

**NOTE:**

Make sure to backup all the configuration files before starting the installation process as follows:

For Example: For Windows you can backup the configuration files from  
**C:\ProgramData\MF\BPM\config**

Similarly for Linux you can backup the configuration files from **/opt/MF/BPM/config**

**To download the setup file from the Software Support site:**

1. Go to the [Software Support web site](https://softwaresupport.softwaregrp.com/) (https://softwaresupport.softwaregrp.com/) and sign in using your Passport.
2. Click **Product Information > Downloads**.
3. Click **Select an SAID** and select **application performance management (bac)** from the Products list.  
or  
Click **Directly enter an SAID** and enter your SAID.
4. Accept the terms and conditions.
5. Click **View available products**.
6. In the Show a single category/product center drop down list, select **Application Performance Management**.
7. Select **Application Performance Management version 9.50** in the language you require (for example, Application Performance Management version 9.40 English Software E-Media).
8. Click **Get software updates**.
9. Click **Get Software** for your selected product.
10. Confirm that your product is selected in the Product name field.
11. From the Downloads field, select the required download:
  - **Business Process Monitor 9.51 Windows x64 Setup (Business\_Process\_Monitor\_9.51\_Windows\_x64\_Setup.zip)**
  - **Business Process Monitor 9.51 Linux x64 Setup (Business\_Process\_Monitor\_9.51\_Linux\_x64\_Setup.zip)**
12. Click **Download**.
13. Unzip the file and run the installation program.

Upgrading to BPM 9.51 requires you to uninstall the previous version of BPM, but provides the option of retaining the existing configuration settings.

If you require integration with Unified Functional Testing (UFT) or QuickTest Professional (QTP), UFT or QTP must be installed before BPM.

If you change the APM machine to which a BPM connects (for example, if you use staging during a APM upgrade), you must redirect the BPM to the new machine. For details, see "Redirecting Business Process Monitor Instances" in the APM Upgrade Guide.

During a new installation (with no saved configuration settings), you specify if you want the data collection mechanism used by BPM to run as the system (root) user or as a specific user. Running it as a specific user limits access to resources, settings, and applications located on the local machine. (This may not be true for resources located on remote machines, where a specific user may have different privileges than the local system user.) Note that after installation, you can configure this setting from within BPM Admin. For details, see "Set User Credentials" in the Business Process Monitor Administration Guide.



Users with advanced knowledge of APM can install BPM using a silent installation procedure. For details, see [Run a Silent Installation, on page 41](#).

The system host name should be able to resolve to the fully qualified domain name (FQDN).

For technical and troubleshooting information for BPM, refer to the Release Notes file available in:

- The release download area, for web delivery versions.
- The [Software Product Manuals site](#) on the Software Support website (<https://softwaresupport.softwaregrp.com/group/softwaresupport/>). To enter the site, you must log on with your Passport ID.
- The root directory on the APM DVD, for versions delivered on DVD.

## Details Required During Installation

You should have the following information ready when installing BPM:

**NOTE:**

If during installation you select to use configuration settings from a previous BPM installation, then you are generally not required to supply the following information.

- If you want to run BPM data collection as a specific user, you need the login parameters (for Windows—user name, password, and domain and for Linux—user name and group) for the user.
- Logical names to use for the host name and location (for example, `Atlanta`). These logical names are used by the first BPM instance (defined as part of the installation process) to register with APM. They do not have to match the actual machine's host name and location. (Note that Setup provides the actual machine host name as the default value for the **Host name** parameter.)

**NOTE:**

You can choose to skip the default instance configuration during installation and can configure an instance in BPM Admin at a later stage.

- The protocol to be used to access APM (http or https).
- The name or IP address of the machine on which you installed the APM Gateway Server, and the port number to be used by BPM to access APM.

For a distributed deployment, you need the name of the Gateway Server machine, or the load balancer machine behind which servers are installed.

## Notes and Limitations

- If you have an older version of BPM, you need to uninstall it before installing the current version.
- BPM cannot run on the same machine as APM due to a port conflict.
- BPM should not be installed on a network drive.
- You cannot install BPM to an installation path that contains special characters (for example, `# $ %`).
- The directory name into which you save, and from which you run, the BPM setup program cannot contain special characters.
- If BPM is installed on the same machine as any other APM component, it is highly recommended

that you define a host name for BPM that is not the actual name of the machine.

- BPM can be run on a machine with a different language locale to the APM system, but all relevant entity names (applications, business transaction flows, transactions, and scripts) in APM must be entered in the same language as the BPM operating system.
- On Linux installations, BPM is installed in a default path (**/opt/MF/BPM**), which you cannot change.
- The logical host name for each BPM instance must be unique within a APM platform. When two BPM instances are each connected to a different APM platform, they can use the same logical host name.
- We recommend that you run BPM on Windows platforms as a specific user. You select this option during setup. Note that if you set BPM to run as a specific user on Windows platforms, the user must have Administrator privileges on the local machine. (You can also set BPM to run as a specific user after installation, from BPM Admin. For details, see "Set User Credentials" in the Business Process Monitor Administration Guide.)
- BPM does not support installation via terminal service. Installation must be performed at the destination machine.
- BPM supports basic (http) authentication, as well as SSL with client side certification and/or server side certification.
- Do not use special characters in the name of the BPM setup program directory into which you save the BPM setup files.
- In Linux, do not save the BPM setup program directory under the following path: **/tmp/BPM**.
- In Linux, you can change the Installer's working directory (by default /tmp) by running the following commands:

```
export IATEMPDIR=/new/tmp/dir
```

```
export _JAVA_OPTIONS=-Djava.io.tmpdir=/new/tmp/directory
```

where **/new/tmp/directory** is the new working directory.

# Chapter 5: BPM Directories

BPM is installed in and uses a number of main directories, which are referred to extensively throughout this documentation. The following table lists these directories, showing the name used in the documentation, their default path, and a description of what they include:

Directory Name (as used in the documentation)	Description	Operating System	Default Path	Configurable
<BPM installation directory>	The directory in which the BPM application is installed.	Windows	C:\MF\BPM\	Yes
<BPM data directory>	The directory containing BPM configuration data.	Windows	C:\ProgramData\MF\BPM	No
<BPM root directory>	Contains both the BPM installation and the BPM configuration data.  (This is similar to a combination of the <BPM installation directory> and the <BPM data directory> for Windows.)	Linux	/opt/MF/BPM	No
<BPM workspace directory>	BPM working directory	Windows Linux	<b>Windows:</b> <BPM application directory>\workspace  <b>Linux:</b> <BPM root directory>/workspace	Yes

**NOTE:**

- Users require read-write access to these directories.
- Directory names cannot start or end with a space or include multiple spaces.

# Chapter 6: Install BPM

This procedure describes how to install directly on the BPM machine. For information how to perform a silent installation, see [Run a Silent Installation, on page 41](#).

**NOTE:**

You cannot install BPM using a command line (Console Mode).

You must have administrative privileges on the machine on which you are installing BPM. If you have User Account Control (UAC) enabled, you need to run the Setup program with Administrator privileges (right-click on the setup file and select **Run as Administrator**).

**NOTE:**

If you receive an error **The installer does not have write permission to the C drive**, make sure that **EnableLUA** is set to **0**. For further information about EnableLUA, see <https://technet.microsoft.com/en-us/library/ff715520.aspx>

The installation process consists of two main parts—the installation of the application and the BPM Configuration Wizard.

## How to Install BPM

1. Ensure that prerequisites are installed. For details, see [Installation Requirements, on page 16](#).
2. Ensure that the machine on which you are installing BPM is not installing or updating any other software.
3. If you have an older version of Business Availability Center or Business Service Management (BAC 8.x or BSM 9.x) with which BPM communicates, manually update the BAC or BSM system:
  - a. Extract the **ScriptRepositoryFilters.zip** file into a temporary folder (use the Extract Here command).
  - b. Copy the content of the temporary folder to the **HPBAC\data\protocols** folder on the BAC 8.x machine, or to the **<HPBSM root directory>\data\protocols** folder on the BSM 9.1 or 9.2 Gateway Server. Do not copy the **ScriptRepositoryFilters** directory itself.
  - c. If prompted, overwrite any existing files. You do not need to restart the BAC/BSM system.
4. Save the BPM Setup file on the machine on which you are installing BPM. For more details on the location of the BPM Setup file, see [Installation Requirements, on page 16](#).

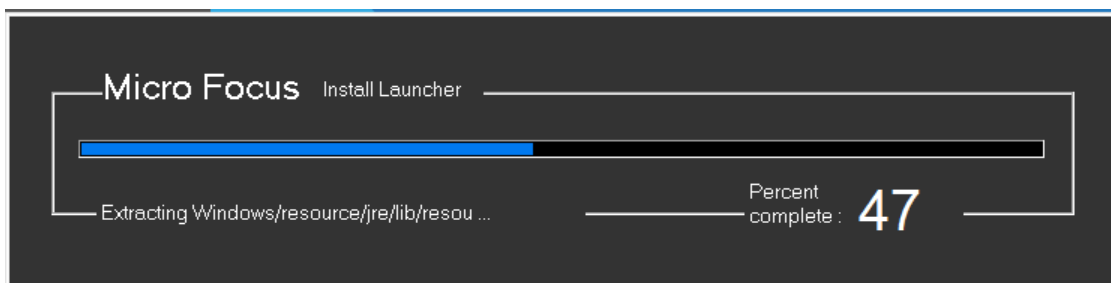
**NOTE:**

- Do not use special characters in the name of the BPM setup program directory.
- In Linux, do not save the BPM setup program directory under the following path:  
**/tmp/BPM.**

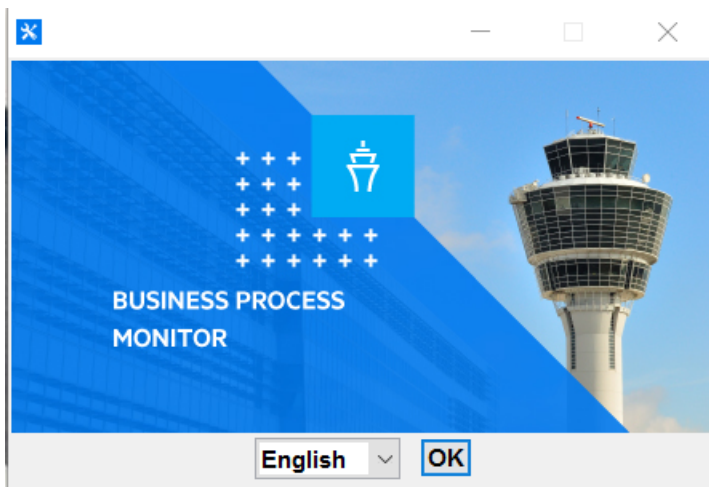
5. Run the BPM setup program:
  - Linux: **BPM\_setup.sh**
  - Windows: **BPM\_<version>\_setup.exe**. If you are working on Windows 10 Operating system,

right click and select **Run as Administrator** option.

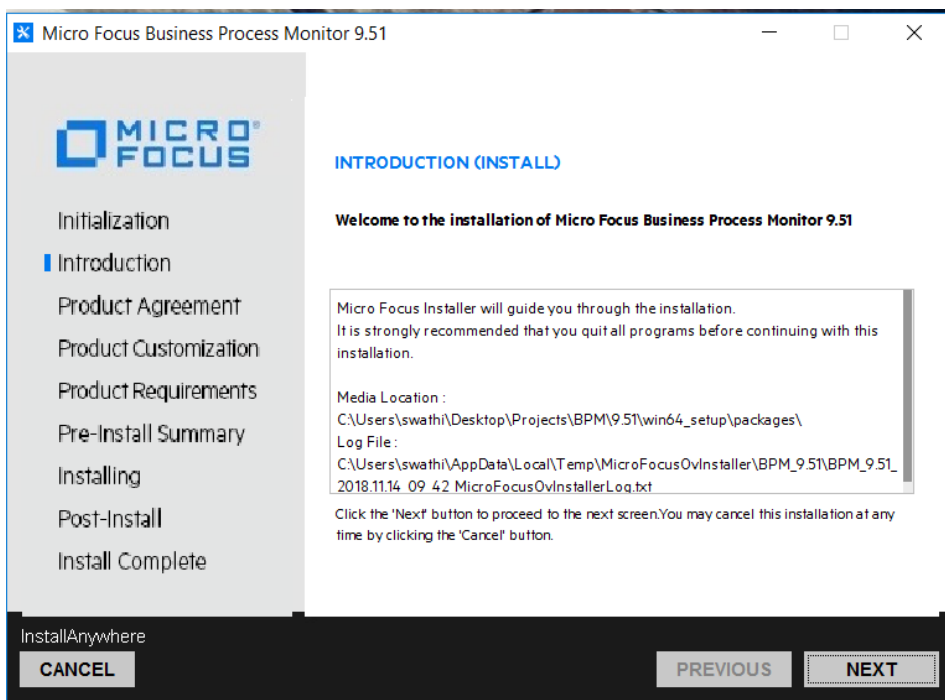
Installer launch screen.



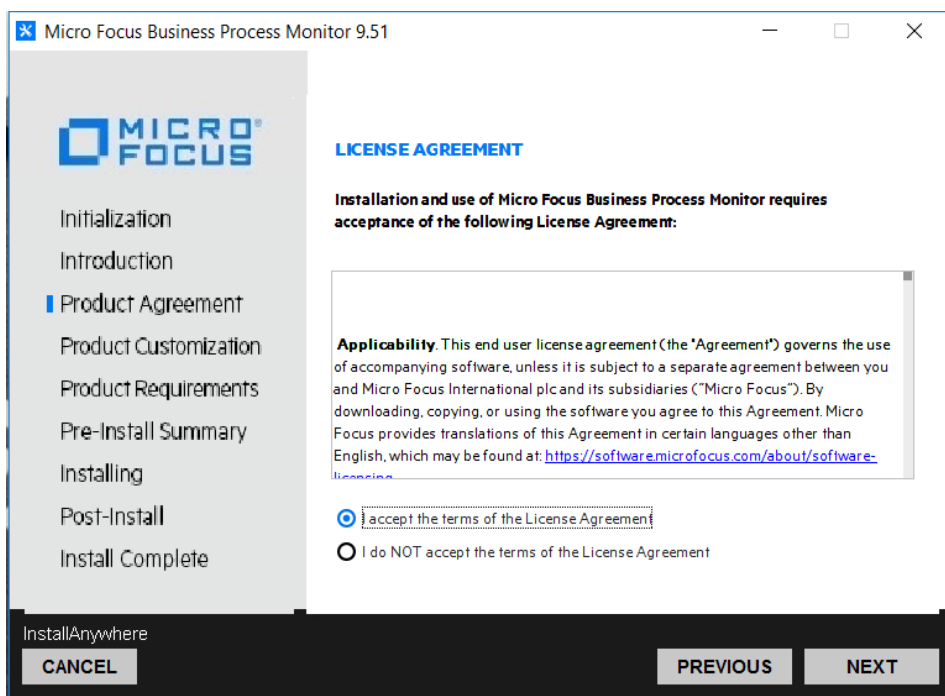
A screen opens requesting a language.



6. Select a language and click **OK**. The Introduction screen opens.



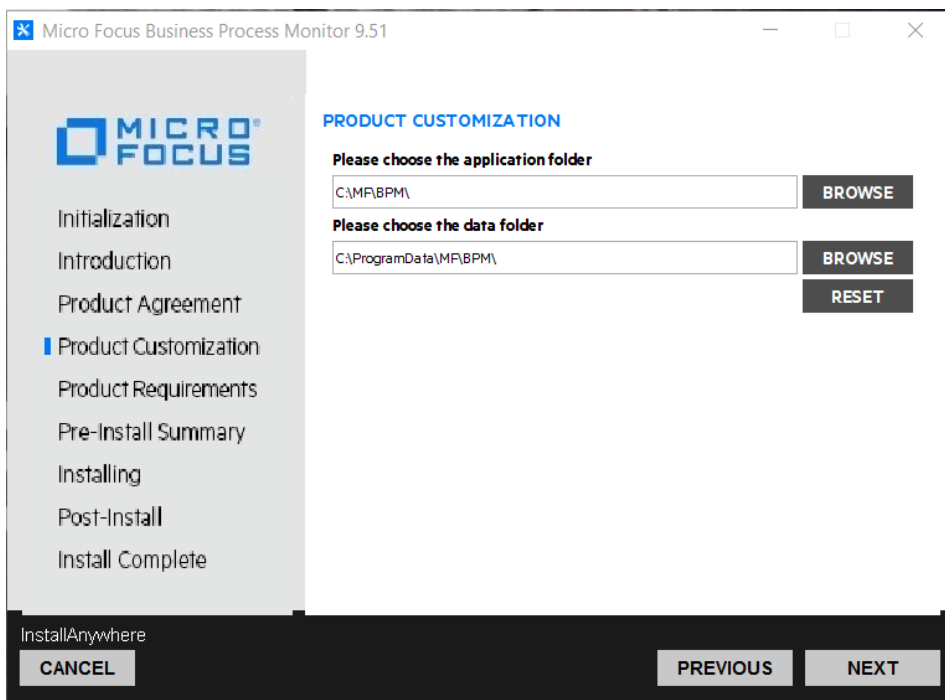
7. Click **Next** to continue. The Product Agreement screen opens.



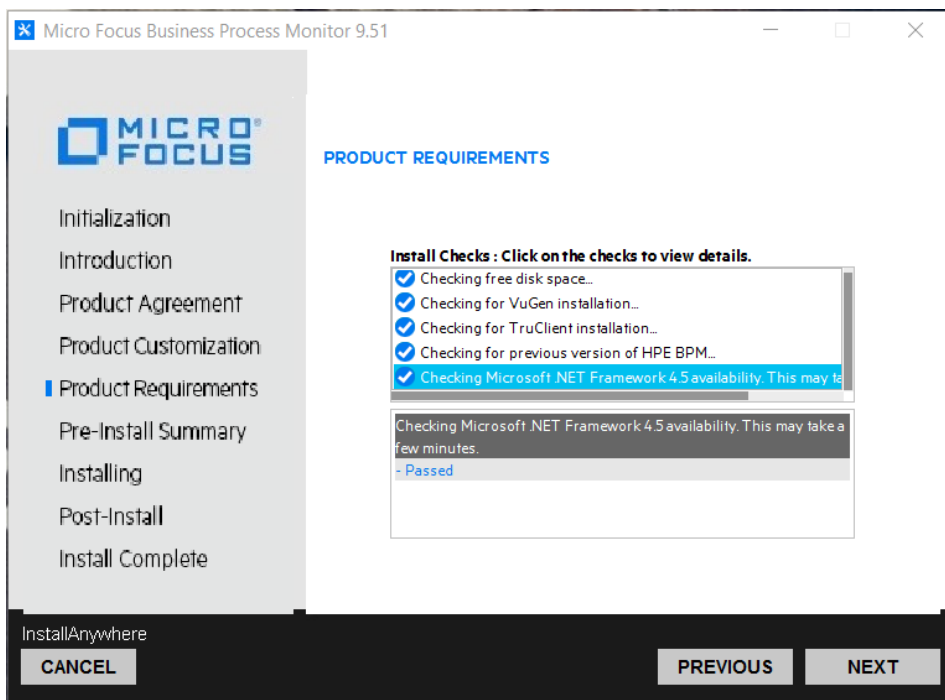
8. Read the BPM License Agreement.  
To install BPM, you must accept the terms of the license agreement.
9. Click **Next** to continue.

For Windows installations, the Choose Folders screen opens, enabling you to configure the BPM application folder (the directory in which the BPM application is installed) and the BPM data directory (the BPM workspace directory).

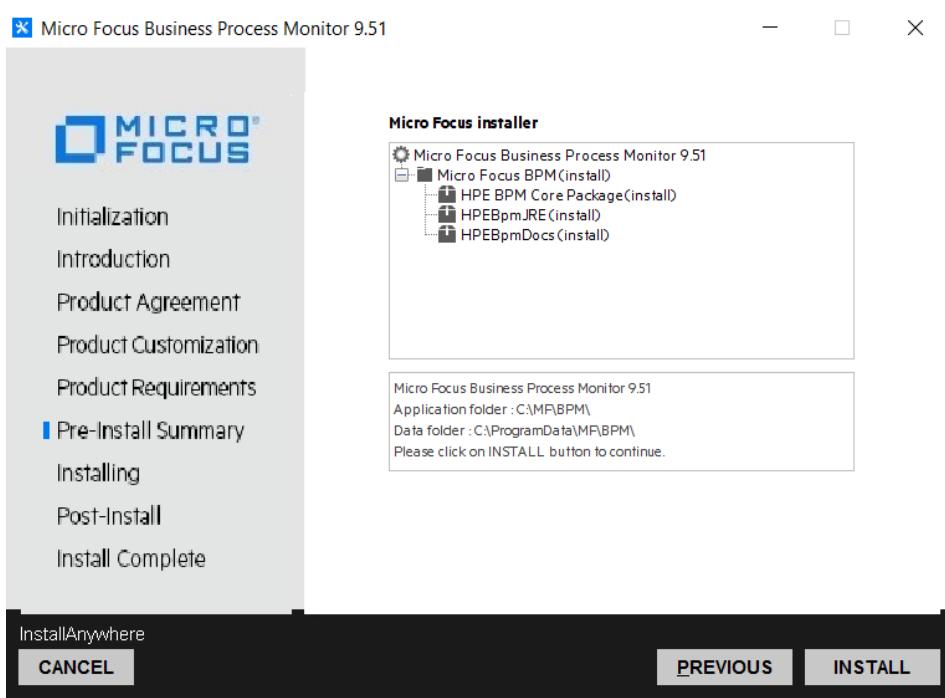
For Linux installations this screen is not displayed as these paths are fixed and you cannot change them.



10. Click **Next** to continue. The Product Requirements screen opens.



11. Click **Next** to continue. The Pre-Install Summary screen opens.



12. Click **Install** to continue. The Install Wizard opens the BPM Configuration wizard. For details on the user interface, see [BPM Configuration Wizard, on page 33](#).



# Chapter 7: BPM Configuration Wizard

The BPM Configuration wizard enables you to configure the settings for a BPM, including the work directory, user mode, and default instance settings.

## To access

The BPM Configuration wizard is automatically launched during a BPM installation, after the setup program has installed the BPM application.

## UI Description

The BPM Configuration wizard comprises the following pages:

- [Current Settings Page, below](#)
- [Work Directory Page, on the next page](#)
- [Run as User Page, on the next page](#)
- [Server Authentication Page, on page 35](#)
- [Instance Definition Page, on page 36](#)
- [QuickTest Professional \(QTP\)/Unified Functional Testing \(UFT\) Integration Page, on page 38](#)
- [Preview Page, on page 40](#)
- [Finish Page, on page 40](#)

## Current Settings Page

This page enables you to select whether you want to apply existing configuration settings from a previous BPM installation, or configure new settings.

If no existing configuration settings are detected on the machine on which you are installing BPM, this page is not displayed and the wizard continues with the [Work Directory Page, on the next page](#).

### NOTE:

General information about the wizard is available in [BPM Configuration Wizard, above](#).

The following elements are included on this page:

UI Element	Description
<b>Yes, I want to keep all current settings</b>	Select this option to apply existing settings to the current installation. <b>Note:</b> <ul style="list-style-type: none"><li>• If you select this option, the wizard continues with the <a href="#">Server Authentication Page, on page 35</a>.</li><li>• If you choose to use configuration settings from a previous installation of BPM, the configured instances are registered to the same APM Gateway Servers as the</li></ul>

UI Element	Description
	previous installation. This means that the same jobs are retrieved, although previous persistency data is not saved.
<b>No, I want to reconfigure agent settings</b>	Select this option to configure new settings.

## Work Directory Page

**NOTE:**

This page appears only on Linux platforms.

This page enables you to select the location of the BPM work directory. Accept the default location, or click **Browse** to select a different location.

If you select a different directory, make sure that you have administrative privileges for the directory.

**NOTE:**

General information about the wizard is available in [BPM Configuration Wizard, on the previous page](#).

## Run as User Page

This page enables you to configure BPM data collection to run as a system user, or as a specific user.

**CAUTION:**

It is highly recommended to run BPM as a specific user, with limited permission. This limits user access to resources, settings, and applications located on the local machine.

You can also set BPM to run as a specific user after installation, from BPM Admin. For details, see "BPM Host Machine" in the Business Process Monitor Administration Guide.

**NOTE:**

General information about the wizard is available in [BPM Configuration Wizard, on the previous page](#).

The following elements are included on this page:

UI Element	Description
<b>Run as system user</b>	Select this option to set BPM data collection to run as a system user.
<b>Run as specific user</b>	Select this option to set BPM data collection to run as a specific user and configure the following parameters:

UI Element	Description
	<ul style="list-style-type: none"> <li>• <b>User name.</b> The specific user name. This is a mandatory field of up to 24 characters. The name cannot include spaces, non-Latin characters (such as Greek or Cyrillic), or any of the following characters: ( ; : " &lt; &gt; * + = \   ? , ) .</li> <li>• <b>Password.</b> (For Windows only) The user's password.</li> <li>• <b>Domain.</b> (For Windows only) The domain for the user. The domain name can be up to 67 characters long and can include the following characters: <b>0-9</b>, <b>a-z</b>, <b>A-Z</b>, hyphen (-), and underscore (_). The domain name cannot start or end with a hyphen (-) or underscore (_) and cannot include spaces.</li> <li>• <b>Group.</b> (For Linux only) The user's group.</li> </ul>

## Server Authentication Page

This page enables you to specify authentication credentials for the BPM server.

If you have previously configured BPM to run as a specific user and selected to keep current user settings on the Current User page, the options on this page are disabled.

**NOTE:**

General information about the wizard is available in [BPM Configuration Wizard, on page 33](#).

The following elements are included on this page:

UI Element	Description
<b>No authentication</b>	Select this option to skip to the Instance Definition page without specifying server authentication credentials.
<b>Use basic authentication</b>	Select this option to enter a user name and password for the BPM server. <b>Note:</b> We recommend using a strong password with at least eight characters including both capital and lower case letters and numbers or special characters.

**CAUTION:**

It is recommended to select **Use basic authentication**. If you do not configure authentication with SSL, all users will be able to access the Admin interface in BPM without secure authentication.

If, in the Current Settings page, you selected to keep current settings from a previous installation, the wizard continues with:

- [QuickTest Professional \(QTP\)/Unified Functional Testing \(UFT\) Integration Page, on page 38](#) if QTP/UFT is installed, and only on Windows platforms.
- [Preview Page, on page 40](#) if QTP/UFT is not installed.

# Instance Definition Page

This page enables you to define a default instance for the BPM.

You can also define an instance after installation, from BPM Admin. For details, see "BPM Instances" in the Business Process Monitor Administration Guide.

**NOTE:**

General information about the wizard is available in [BPM Configuration Wizard, on page 33](#).

The following elements are included on this page:

UI Element	Description
<b>Skip Instance Definition</b>	Select this option to skip the instance definition.
<b>Define Instance</b>	<p>Select this option to define an instance and configure the following mandatory parameters:</p> <ul style="list-style-type: none"> <li>• <b>Display name.</b> The display name for the instance in BPM Admin. The display name can be up to 50 characters and can include the following characters: <b>0-9, a-z, A-Z</b>, hyphen (-), underscore (_). The display name cannot start or end with a hyphen (-) or an underscore (_).</li> <li>• <b>Gateway Server URL.</b> The URL of the APM Gateway Server to which this instance sends collected data. The URL must be in the following format: <b>http (or https)://&lt;Gateway Server name or IP address&gt;:&lt;port number&gt;/topaz</b> If you do not specify a port number, the default port is used (80 for http and 443 for https).</li> <li>• <b>Location name.</b> The location defined for the instance. The location name can be up to 50 characters and can include the following characters: <b>0-9, a-z, A-Z, ` ~ ! @ # \$ % ^ &amp; * ( ) _ - + = [ ] { }   / ? . , ; (space)</b>.</li> <li>• <b>Host name.</b> The host name defined for the instance. The host name can be up to 50 characters and can include the following characters: <b>0-9, a-z, A-Z, ` ~ ! @ # \$ % ^ &amp; * ( ) _ - + = [ ] { }   / ? . , ' ' ; &lt; &gt; (space)</b>.</li> <li>• <b>Job poll interval.</b> The defined frequency (in minutes) with which BPM polls the database for assigned task, application, and business transaction flow changes. This is an integer positive number of up to 4 digits.</li> <li>• <b>Time poll interval.</b> The defined frequency (in minutes) with which BPM polls APM for time synchronization. This is an integer positive number of up to 4 digits.</li> </ul>
<b>Additional Instance Settings</b>	Click <b>Additional Instance Settings</b> to open the Additional Instance Settings dialog box, where you configure user, authentication, proxy, and SSL settings for the instance. For detail on the user interface, see <a href="#">Additional Instance Settings Dialog Box, on the next page</a> .

## Additional Instance Settings Dialog Box

This dialog box enables you to define additional settings for a default instance, such as user, authentication, proxy, and SSL settings.

To access, click **Additional Instance Settings** on the Instance Definition page.

The following rules apply when you configure additional instance settings:

- User names can be up to 24 characters long. Names cannot include spaces, non-Latin characters (such as Greek or Cyrillic), or any of the following characters: ( ; : " < > \* + = | \ ? , ).
- All domain names can be up to 67 characters long and can include the following characters: **0-9**, **a-z**, **A-Z**, hyphen (-), and underscore (\_). The domain name cannot start or end with a hyphen (-) or underscore (\_) and cannot include spaces.
- For more information on supporting SSL communication, see "Communication Using SSL" in the Business Process Monitor Administration Guide.

The following elements are included in this dialog box:

UI Element	Description				
<b>Run Instance as User</b>	<p>If you want to configure the instance to run as a specific user, type:</p> <p><b>Windows:</b> The user name, password, and domain.</p> <p><b>Linux:</b> The user name and group.</p> <p><b>Note:</b> To enable the BPM to run as a specific user on Linux, additional system configuration is required as follows:</p> <ol style="list-style-type: none"> <li>1. Open the <b>/etc/sudoers</b> file with a dedicated editor (for example, sudoedit).</li> <li>2. Replace the line Defaults requiretty with Defaults !requiretty.</li> <li>3. Replace the line root ALL=(ALL) ALL with root ALL=(ALL:ALL) ALL.</li> <li>4. At the end of the <b>Defaults env_keep</b> definition section add:                      Defaults env_keep += "PATH M_LROOT QTLIB QTINC PRODUCT_DIR"  <b>Note:</b> If there is no line beginning with Defaults env_keep= already in the file, then add the line:                      Defaults env_keep = "PATH M_LROOT QTLIB QTINC PRODUCT_DIR"                      (there is no plus sign before the equals sign)</li> <li>5. Save.</li> </ol>				
<b>Retry on Failure</b>	<p>Allows you to set how BPM should respond if a script in the instance fails. For further information about this feature, see "Retry on Failure" in the Business Process Monitor Administration Guide.</p> <table border="1"> <tr> <td><b>Retry on Failure</b></td> <td>Select this option to activate the Retry on Failure option.</td> </tr> <tr> <td><b>Retry on failure delay</b></td> <td>The number of seconds to wait before retrying. Note that a</td> </tr> </table>	<b>Retry on Failure</b>	Select this option to activate the Retry on Failure option.	<b>Retry on failure delay</b>	The number of seconds to wait before retrying. Note that a
<b>Retry on Failure</b>	Select this option to activate the Retry on Failure option.				
<b>Retry on failure delay</b>	The number of seconds to wait before retrying. Note that a				

UI Element	Description						
	<table border="1"> <tr> <td data-bbox="448 285 654 373"></td> <td data-bbox="660 285 1367 373">long failure delay may cause the application to skip a scheduled run.</td> </tr> <tr> <td data-bbox="448 382 654 470"><b>Retry on failure count</b></td> <td data-bbox="660 382 1367 470">The maximum number of attempts to retry the script before the script is defined as "Failed".</td> </tr> <tr> <td data-bbox="448 478 654 575"><b>Send additional error message</b></td> <td data-bbox="660 478 1367 575">Select this option to include the number of attempts in the failure error message.</td> </tr> </table>		long failure delay may cause the application to skip a scheduled run.	<b>Retry on failure count</b>	The maximum number of attempts to retry the script before the script is defined as "Failed".	<b>Send additional error message</b>	Select this option to include the number of attempts in the failure error message.
	long failure delay may cause the application to skip a scheduled run.						
<b>Retry on failure count</b>	The maximum number of attempts to retry the script before the script is defined as "Failed".						
<b>Send additional error message</b>	Select this option to include the number of attempts in the failure error message.						
<b>Authentication</b>	The authentication parameters for the BPM instance to support the authentication scheme in use by the server. Type the user name, password, and domain name of a user recognized by the APM Gateway Server.						
<b>Proxy Settings</b>	<p>If the BPM instance is accessing the APM Gateway Server through a proxy server, define authentication parameters for proxy requests. Type the user name, password, domain name, and URL for the proxy server.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>To configure a user name, you must also configure the proxy server URL.</li> <li>The proxy URL must be in the following format:  <b>http (or https)://&lt;host name or IP address&gt;:&lt;port number&gt;/URL path</b></li> <li>To configure reverse proxy, do not use these proxy settings, but configure the reverse proxy server URL instead of the Gateway Server URL in the <a href="#">Instance Definition Page, on page 36</a>.</li> <li>You cannot connect a forward proxy configured for NTLM authentication to a APM server configured for SSL.</li> <li>If you do not configure a user name and password then no authentication is applied to the proxy.</li> </ul>						
<b>SSL Settings</b>	<p>If the BPM instance is communicating with the APM Gateway Server using SSL, type the required information in the relevant boxes. For details on SSL settings, see "Security Settings Area" in the Business Process Monitor Administration Guide.</p> <p><b>Syntax exceptions:</b> You cannot use a UNC (Uniform Naming Convention) path when configuring the path for SSL files.</p>						

## QuickTest Professional (QTP)/Unified Functional Testing (UFT) Integration Page

**NOTE:**

- If you are integrating UFT, "Unified Functional Testing (UFT)" appears instead of "QuickTest Professional (QTP)".
- This page appears only if QTP/UFT is installed, and only on Windows platforms.

- If you require integration with Unified Functional Testing (UFT) or QuickTest Professional (QTP), UFT or QTP must be installed before BPM.

On this page, you can enable BPM integration with QTP/UFT to run QTP/UFT tests. To do this, you must configure a user name and domain to run the tests. If you have UFT 12.53, there is an option to run tests with this user even if the console is locked. For details see [Working with a Locked UFT Console, below](#). If you have an earlier version of UFT, the user must be logged into an active session.

**CAUTION:**

If you want to run QuickTest Professional (QTP) or Unified Functional Testing (UFT) tests, do not set BPM (either as an instance or as the whole BPM) to run as a specific user.

If you enable BPM integration with QTP/UFT, the service Uft4Wint is installed on your machine. If you uninstall BPM, this service is also uninstalled.

If you enable BPM integration with QTP/UFT on a 64-bit machine, Microsoft Visual C++ 2010 SP1 Redistributable Package (x64) is installed.

The following elements are included:

UI Element	Description
<b>Enable BPM integration with QuickTest Professional (QTP) /Unified Functional Testing (UFT)</b>	Select this option to enable BPM integration with QTP/UFT.
<b>User name</b>	<p>You must enter a user name in this field. The user name must be for an active logged in user. The tests will be run by this configured user.</p> <p><b>Note:</b> This user must have full permissions for BPM. For details, see "How to set full user permissions on a Windows platform" in the Business Process Monitor Administration Guide.</p>
<b>Domain</b>	<p>Enter the domain name that the user is associated with.</p> <ul style="list-style-type: none"> <li>• If the domain exists, enter only the domain name, without the top level domain or host name, (for example enter <i>mydomain</i>, not <i>www.mydomain.com</i>).</li> <li>• If the domain name does not exist, such as in a VM environment, enter the computer name as the domain.</li> </ul>

General information about the wizard is available in [BPM Configuration Wizard, on page 33](#).

**Working with a Locked UFT Console**

In UFT 12.53 there is the option for BPM to work with a designated UFT user even when the UFT console is locked.

1. In the Services window right-click on **UFT Helper Service**, and select **Properties**.
2. In the Properties dialog box, select **Local System account** and click **OK**.
3. In the Services window right-click on **UFT Helper Service**, and select **Start**.

4. On the BPM machine, double-click on the following file:  
<BPM installation directory>\tools\LockListener.exe
5. Open UFT.
6. In UFT, open **Tools > Options > General Tab > Run Sessions**.
7. Select **Allow UFT to continue running GUI or business process tests after disconnecting from an RDP computer**.
8. Enter a user name and password for a user that has access to the system where UFT and BPM is installed.
9. Close UFT.

## Preview Page

This page enables you to view a summary of the configured settings before they are saved. Click **Finish** to save the configuration and continue, or click **Back** to modify any of the settings.

**NOTE:**

General information about the wizard is available in [BPM Configuration Wizard, on page 33](#).

## Finish Page

This page displays a message about the success of the installation. Click **Close** to exit from the Configuration Wizard.

After Setup successfully completes the installation process, BPM is added as a daemon and launched on the machine. For details on stopping and starting BPM manually, see "How to Run BPM" in the Business Process Monitor Administration Guide.

If BPM-UFT integration was completed, the UFT4WinRT service should start automatically. If it does not start automatically, start it manually.

**NOTE:**

General information about the wizard is available in [BPM Configuration Wizard, on page 33](#).



# Chapter 8: Run a Silent Installation

You can use a silent installation procedure to run the BPM 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 xml file.

This section includes:

- [Silent Installation Overview, below](#)
- [How a Silent Installation Assigns Values, below](#)
- [Silent Installation Prerequisites, on the next page](#)
- [How to Run a Silent Installation, on page 43](#)
- [Configure bpm\\_install\\_config.xml File, on page 43](#)

## Silent Installation Overview

There are three different types of silent installation:

- Using the silent installation default settings (when there is no configuration file or previous settings).
- Using previous settings.
- Using an xml configuration file. For this type on silent installation, do the following:
  1. Create a silent installation configuration file with predefined settings for all the hosts you are installing.
  2. Copy the BPM setup program and the silent installation xml configuration file to each of the target host machines.
  3. Run the silent installation on each of the target host machines.

## How a Silent Installation Assigns Values

You can configure predetermined values to be used by a silent installation for a specific BPM machine in the **<BPM application directory>\bpm\_install\_config.xml** file located on the machine on which you run the silent installation.

If the silent installation locates the **bpm\_install\_config.xml** file and the file contains values to be used for the specific machine, the silent installation uses these values.

If the silent installation cannot locate the **bpm\_install\_config.xml** file, or the file does not contain values to be used for the specific machine, the silent installation looks for configuration settings from a previous installation of BPM. If these settings are detected, the silent installation uses these settings.

If a silent installation cannot locate the **bpm\_install\_config.xml** file, or the file does not contain values to be used for the specific machine, and does not detect configuration settings from the previous installation of BPM on the machine, it uses default settings. The default settings configure BPM to run as a system user and locate the workspace directory in the default BPM application directory. When default settings are used, a default instance is not defined during the installation and you must define

the instance manually later. For details on defining an instance, see "Create New Instance" in the Business Process Monitor Administration Guide.

For details on configuring the `bpm_install_config.xml` file, see [Configure bpm\\_install\\_config.xml File, on the next page](#).

## Silent Installation Prerequisites

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

### *Install Prerequisites*

For details, see [Installation Requirements, on page 16](#)

### *Uninstall Previous Versions of BPM*

You must uninstall any previous versions of BPM from each machine on which you are installing BPM. For details on uninstalling Business Process Monitor, see:

- **Windows:** [Uninstall BPM on a Windows Platform, on page 51](#).
- **Linux:** [Uninstall BPM on a Linux Platform, on page 52](#).

### *Assign Administration Privileges*

You must have administration privileges for each machine on which you are installing BPM.

### *Configure the bpm\_install\_config.xml File*

If you want to use a silent installation to install BPM on multiple machines, or if you want to configure specific settings to be used by a silent installation, edit the `bpm_install_config.xml` file accordingly. After installing BPM, the template for this file is located in:

**<BPM application directory>\ServletContainer\webapps\ROOT\help\examples\.**

You should rename the configured template `bpm_install_config.xml` and place it in the **<BPM installation directory>** or the **<BPM data directory>** on the machine on which you run the silent installation. (Create this directory manually if it does not already exist.)

If you have not yet installed BPM and want to run a silent installation, create a `bpm_install_config.xml` file using the sample (for details, see [Configure bpm\\_install\\_config.xml File, on the next page](#)) and locate it in the same directory as the BPM setup file on the machine on which you are running the installation.

For details on configuring the `bpm_install_config.xml` file, see [Configure bpm\\_install\\_config.xml File, on the next page](#).

## How to Configure the Installation Directory

By default, the installation directory used for a silent installation is `C:\MF\BPM`. If required, you can configure the silent installation to use a different directory.

1. In the `<extracted files path>` directory (the directory where the `setup.exe` file is located), create a file called `ovinstallparams.ini`
2. Add the following content to the `ovinstallparams.ini` file:

```
[installer.properties]
setup=BPM
prodInstallDir=<directory path>
```

where <directory path> is the path of the installation directory.

#### Example

```
[installer.properties]
setup=BPM
prodInstallDir=C:\Test\BPM
```

## How to Run a Silent Installation

You run a silent installation using the regular setup program.

#### To run a silent installation:

1. Install prerequisites. For details, see [Installation Requirements, on page 16](#).
2. Save the BPM Setup file on the machine on which you are installing BPM. For more details on the location of the BPM Setup file, see [Installation Requirements, on page 16](#).
3. Extract the files from the downloaded file to a location of your choice on the machine on which you are installing BPM. To extract the installation files, run the BPM setup program and once the files are extracted, terminate the installation process.
4. Assign **Execute** privileges to the all the files in the directory containing the BPM setup files.
5. From the extracted files, run the setup program located in the language directory relevant for your system. For example, to run the setup program from the English language directory, use:
  - **Windows:** `cmd /k <extracted files path>/BPM_<version>_setup.exe -i silent`
  - **Linux:** `<extracted files path>/BPM_<version>_setup.sh -i silent`
6. To verify that the installation has successfully completed, view the installation log files. For details, see [Installation Log Files, on page 53](#).

## Configure bpm\_install\_config.xml File

The **bpm\_install\_config.xml** file is used by a silent installation to obtain the parameter values required during the installation of a specific BPM machine. For details on how the silent installation assigns values, see [How a Silent Installation Assigns Values, on page 41](#).

The **bpm\_install\_config.xml** file can contain parameter values for multiple machines, enabling you to create one file which you can copy to all the machines on which you want to run a silent installation. Only the values for the specific machine on which the installation runs are used.

#### NOTE:

The name of this file must not be changed.

This section includes the following topics:

- [Example of the xml Schema File \(.xsd\) Structure, on the next page](#)
- [Description of the xml Schema File \(.xsd\) Structure, on page 45](#)

- [Sample Files, on page 49](#)

## Example of the xml Schema File (.xsd) Structure

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <xsd:element name="hosts">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="authentication" minOccurs="0">
          <xsd:complexType>
            <xsd:attribute name="username" use="required" type="xsd:string" />
            <xsd:attribute name="password" use="required" type="xsd:string" />
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="host" maxOccurs="unbounded">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="workspacePath" type="xsd:string"/>
              <xsd:element name="runBpmAsUser" minOccurs="0">
                <xsd:complexType>
                  <xsd:sequence>
                    <xsd:element name="username" type="xsd:string"/>
                    <xsd:element name="password" type="xsd:string" minOccurs="0"/>
                    <xsd:element name="domain" type="xsd:string" minOccurs="0"/>
                    <xsd:element name="group" type="xsd:string" minOccurs="0"/>
                  </xsd:sequence>
                </xsd:complexType>
              </xsd:element>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="instances">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="instance" maxOccurs="unbounded" minOccurs="1">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="displayName" type="xsd:string"/>
              <xsd:element name="serverUrl" type="xsd:string"/>
              <xsd:element name="locationName" type="xsd:string"/>
              <xsd:element name="hostName" type="xsd:string"/>
              <xsd:element name="timeInterval" type="xsd:integer"/>
              <xsd:element name="jobInterval" type="xsd:integer"/>
              <xsd:element name="authentication" minOccurs="0">
                <xsd:complexType>
                  <xsd:sequence>
                    <xsd:element name="username" type="xsd:string"/>
                    <xsd:element name="password" type="xsd:string"
                      minOccurs="0"/>
                    <xsd:element name="domain" type="xsd:string"
                      minOccurs="0"/>
                    <xsd:element name="authType" type="xsd:string"
                      minOccurs="0"/>
                  </xsd:sequence>
                </xsd:complexType>
              </xsd:element>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="ssl" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element type="xsd:string" name="privatekeyPassword"/>
        <xsd:element type="xsd:string" name="truststorePath"/>
        <xsd:element type="xsd:string" name="truststoreType"/>
        <xsd:element type="xsd:string" name="truststorePassword"/>
        <xsd:element type="xsd:string" name="keystorePath"/>
        <xsd:element type="xsd:string" name="keystoreType"/>
        <xsd:element type="xsd:string" name="keystorePassword"/>
        <xsd:element type="xsd:boolean" name="SSLValidateTrusted"/>
        <xsd:element type="xsd:boolean" name="SSLValidateCertExpiration"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```



Parent Element	Element	Sub Element
BPM as a specific user instead of as a system user:	Greek or Cyrillic), or any of the following characters: ( ; : " <> * + = \   ? , ).	
	<b>password.</b> (for Windows). The specific user's password .	
	<b>domain.</b> The domain for the user. The domain name can be up to 67 characters long and can include the following characters: <b>0-9, a-z, A-Z</b> , hyphen (-). The domain name cannot start or end with a hyphen (-), nor can it include spaces.  <b>group</b> (for Linux). The Linux group for the user.	
<b>instance.</b> Default instance settings. For details on BPM instances, see "Business Process Monitor Instance Page" in the Business Process Monitor Administration Guide.	<b>displayName.</b> The display name for the instance in BPM Admin. The display name can be up to 50 characters and can include the following characters: <b>0-9, a-z, A-Z</b> , hyphen (-), underscore (_). The display name cannot start or end with a hyphen (-) or an underscore (_).	
	<b>serverUrl.</b> The URL of the APM Gateway Server to which this instance sends collected data. The URL must be in the following format: <b>http (or https)://&lt;Gateway Server name or IP address&gt;:&lt;port number&gt;/topaz</b> If you do not specify a port number, the default port is used (80 for http and 443 for https).	
	<b>locationName.</b> The location defined for the instance. The location name can be up to 50 characters and can include the following characters: <b>0-9, a-z, A-Z, ` ~ ! @ # \$ % ^ &amp; * ( ) _ - + = [ ] { }   / ? . , ; (space)</b> .	
	<b>hostName.</b> The host name defined for the instance. The host name can be up to 50 characters and can include the following characters: <b>0-9, a-z, A-Z, ` ~ ! @ # \$ % ^ &amp; * ( ) _ - + = [ ] { }   / ? . , ' ' : ; &lt; &gt; (space)</b> .	
	<b>timeInterval.</b> The defined frequency (in minutes) with which BPM polls APM for time synchronization. This is an integer positive number.	
	<b>jobInterval.</b> The defined frequency (in minutes) with which BPM polls the database for assigned task, application, and business transaction flow changes. This is an integer positive number of up to 4 digits.	
	<b>authentication.</b> Gateway Server authentication.	<b>username.</b> User name for the gateway server.
		<b>password.</b> Password for the gateway server.
	<b>domain.</b> The domain for the user.	
	<b>authType.</b> The authentication type.	
<b>instance</b>	<b>ssl.</b> Select if the BPM instance is communicating with the	<b>privatekeyPassword.</b> The password for the private key located in the keystore

Parent Element	Element	Sub Element
	<p data-bbox="532 300 854 359">APM Gateway Server using SSL.</p> <p data-bbox="532 384 870 575">For more information on supporting SSL communication, see "Communication Using SSL" in the Business Process Monitor Administration Guide.</p>	<p data-bbox="911 300 954 323">file.</p>

Parent Element	Element	Sub Element
		<p><b>truststorePath.</b> The full path and file name of the truststore file containing the trusted root certificates. The truststore file must be a java keystore file (JKS).</p> <p><b>Note:</b> Configure this field only if you do not want to use the default JRE truststore (/opt/MF/BPM/JRE/lib/security/cacerts).</p> <p><b>truststoreType.</b> The type of truststore file, use JKS only.</p> <p><b>truststorePassword.</b> The password for the truststore file.</p> <p><b>keystorePath.</b> The full path and file name of the keystore file containing the private keys and client certificate. The keystore file must be either a java keystore file (JKS) or PKCS#12 type file.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• Configure this field only if APM connection requires a client certificate.</li> <li>• Request a client certificate from your CA with keys marked as exportable.</li> </ul> <p><b>keystoreType.</b> The type of keystore file (JKS or PKCS#12).</p> <p><b>keystorePassword.</b> The password for the keystore file.</p> <p><b>SSLValidateTrusted.</b> Set to <b>true</b> to validate that the authority that issued the APM server certificate is trusted by BPM (that is, the certificate of the issuing authority has been imported to the BPM truststore).</p> <p><b>SSLValidateCertExpiration.</b> Set to <b>true</b> to validate that the certificate is current.</p> <p><b>SSLValidateHostName.</b> Set to <b>true</b> to validate that the configured APM Gateway Server host name matches the name in the server certificate.</p>



Parent Element	Element	Sub Element
<b>instance</b>	<p><b>proxy.</b> Select if the BPM instance is accessing the APM Gateway Server through a proxy server.</p> <p><b>Note:</b> To configure reverse proxy, do not use these proxy settings, but configure the reverse proxy server URL instead of the Gateway Server URL in the <b>serverUrl</b> element of the instance.</p>	<p><b>username.</b> The user name for the proxy server.</p> <p><b>Note:</b> To configure a user name, you must also configure the proxy server URL.</p>
		<p><b>password.</b> The password for the user.</p>
		<p><b>domain.</b> The domain of the user.</p>
		<p><b>url.</b> The URL for the proxy server. The URL must be in the following format:  <b>http (or https)://&lt;host name or IP address&gt;:&lt;port number&gt;/URL path</b></p>
		<p><b>proxyAuthType.</b> The authentication type for the proxy server.</p>
<b>instance</b>	<p><b>runAsUser.</b> Set to run the instance as a specific user.</p>	<p><b>username.</b> The specific user name.</p>
		<p><b>password (for Windows).</b> The password for the specific user .</p>
		<p><b>domain (for Windows).</b> The domain of the specific user.</p>

**NOTE:**  
 To configure parameter values for multiple BPM machines, create a new **<host></host>** section for each machine.

### Sample Files

Sample files are located in:

- **Windows:** **<BPM application directory>\ServletContainer\webapps\ROOT\help\examples\**
- **Linux:** **/opt/MF/BPM/ServletContainer/webapps/ROOT/help/examples** directory after you download and extract the BPM setup file:
  - **silent\_installation.xsd.** A sample .xsd file.
  - **bpm\_install\_config-simple.xml.** A sample .xml file that contains a simple configuration.
  - **bpm\_install\_config-ssl.xml.** A sample .xml file that contains a basic configuration including ssl settings.
  - **bpm\_install\_config-proxy.xml.** A sample .xml file that contains a basic configuration including proxy settings.
  - **bpm\_install\_config-complicated.xml.** A sample .xml file that contains a basic configuration including both ssl and proxy settings.

For details on downloading and extracting the BPM setup file, see [How to Run a Silent Installation, on page 43](#).

# Chapter 9: Upgrade BPM

Upgrade to BPM 9.51 requires you to uninstall the previous version of BPM with the option to retain the existing configuration settings and then install BPM 9.51.

1. To uninstall a previous version of BPM, see [Uninstall BPM, on page 51](#). Save the existing configuration during the uninstall procedure.
2. System Restart.
  - a. For Windows, the system prompts to restart.
  - b. For Linux, you need to manually restart your system after uninstalling the previous version.
3. To install BPM 9.51, see [Install BPM, on page 28](#).

**NOTE:**

1. If the BPM instance registration with APM is not successful when you upgrade from previous BPM versions like 9.25, 9.30 so on to 9.51, then delete the **auth** folder located at **C:\ProgramData\MF\BPM\config\auth** after the upgrade is complete.
2. If you have Webtrace scripts in older version of BPM, then
  - a. Verify the **SRPACKET** registry path. The registry path should match **packet\_amd64.sys** path located in **<LG installation folder>\bin\packet\_amd64.sys**
  - b. If the path displays the old path, copy the path of **packet\_amd64.sys** from **<LG installation folder>\bin\packet\_amd64.sys** and update SRPACKET registry.
  - c. Restart BPM.

# Chapter 10: Uninstall BPM

This chapter includes the following topics:

- [Uninstall BPM on a Windows Platform, below](#)
- [Uninstall BPM on a Linux Platform, on the next page](#)

## Uninstall BPM on a Windows Platform

The uninstall process saves configuration settings on the machine for future installation.

The following procedures relate to uninstalling BPM version 9.51 on a Windows platform. For details on uninstalling earlier versions on Windows platforms, refer to the relevant version documentation.

### *To run a regular uninstall for BPM*

1. Close all BPM processes, files, and folders.
2. On the host machine, shut down BPM Admin and BPMs (select: **Start > Programs > Business Process Monitor > Stop Business Process Monitor Service**).
3. Wait two minutes.
4. Run the BPM uninstall program from the **Add/Remove Programs** option in the **Control Panel** (select **Start > Settings > Control Panel > Add/Remove Programs > Business Process Monitor**, and click **Change/Remove**).
5. Restart the machine if prompted to do so.
6. If you do **not** want to save the configuration settings for use by a future installation, delete the BPM root installation directory from the machine and also, if it was not deleted automatically by the uninstall procedure, the **workspace** directory.

#### **NOTE:**

If you do want to save the configuration settings for use by a future BPM installation, do **not** delete the **<BPM application directory>/config** directory from the machine.

### *To run a silent uninstall for BPM*

1. Open the command prompt window (or Windows PowerShell for Windows Server 2012) with administration privileges (right-click and select **Run as Administrator**), and enter the following command:

```
<BPM installation directory>/Uninstall/BPM/setup.exe -i silent
```

2. If you do **not** want to save the configuration settings for use by a future installation, delete the BPM root installation directory from the machine and also, if it was not deleted automatically by the uninstall procedure, the **workspace** directory.

#### **NOTE:**

If you do want to save the configuration settings for use by a future BPM installation, you must not delete the **<BPM application directory>/config** directory from the

machine.

3. Ensure that the uninstall has finished successfully by checking that Business Process Monitor is not included in the list of installed programs in the Windows Control Panel.

**NOTE:**

The silent uninstall process does not delete the following file:

**<BPM installation directory>\Uninstall\setup.exe**

You can manually delete this file once the uninstall process is complete.

## Uninstall BPM on a Linux Platform

The uninstall process saves configuration settings on the machine for future installation.

### *To run a regular uninstall for BPM*

1. Run the BPM uninstall program:

```
<BPM root directory>/Uninstall/BPM/BPM_setup.sh
```

**NOTE:**

Make sure that you have **Execute** permission for all the files in the directory.

2. If you do **not** want to save the configuration settings for use by a future BPM installation, delete the BPM root installation directory from the machine and also, if it was not deleted automatically by the uninstall procedure, the **workspace** directory.

**NOTE:**

If you do want to save the configuration settings for use by a future BPM installation, you must not delete the **<BPM root directory>/config** directory from the machine.

### *To run a silent uninstall for BPM*

1. On the console, run the following command:

```
bash <BPM root directory>/Uninstall/BPM/BPM_setup.sh -i silent
```

2. If you do **not** want to save the configuration settings for use by a future BPM installation, delete the BPM root installation directory from the machine and also, if it was not deleted automatically by the uninstall procedure, the **workspace** directory.

**NOTE:**

If you do want to save the configuration settings for use by a future BPM installation, you must not delete the **<BPM root directory>/config** directory from the machine.

# Chapter 11: Installation Log Files

The installation log files that are created when you deploy BPM can help you troubleshoot installation problems. The following installation log files are available:

## *Common installation logs*

- Installation log files are located in **<Temp directory>\MicroFocusOvInstaller\BPM\_<version>**.

The Temp directory is:

- **Windows.** %TEMP%
- **Linux.** /tmp
- Individual installation package log files are in the following format:

**Package\_<Package type>\_<Package name>\_install.log**  
(for example, **Package\_msi\_HPbpmCore\_install.log**).

- The installer log file name is in the following format:

**BPM\_<Version>\_<Installation Date>\_MicroFocusOvInstallerLog.html**  
or  
**BPM\_<Version>\_<Installation Date>\_MicroFocusOvInstallerLog.txt**  
(for example, **BPM\_9.51\_2016.04.21\_MicroFocusOvInstallerLog.html**).

## *Prerequisite installation logs*

The prerequisite installation logs are as follows:

### **Windows:**

- **<temp>\MF\_LoadGenerator.log**
- **<temp>\MF\_LoadGenerator\_install\_progress.log**
- **<temp>\QTP\_integration.log**
- **<BPM Installation directory>\install.log**

### **Linux:**

- **/tmp/BPM\_prerequisites.log**
- **<BPM Installation directory>/install.log**

## *Extended Logging*

You can configure extended logging to obtain more detailed log file entries during installation. To configure extended logging, add **-DLOGLEVEL=debug** to the installation command. For example:

```
./BPM_setup.sh -DLOGLEVEL=debug
```

### *Configuration Wizard Log Files*

The following log files are created by the Configuration wizard and are located in the **<BPM installation directory>**:

<b>File Name</b>	<b>Description</b>
<b>BPM_&lt;Version&gt;_&lt;Installation Date&gt;_&lt;Installation Time&gt;_MicroFocusOvInstallerLog.txt</b>	The log file that contains all log messages from the Configuration wizard.
<b>installation\logs\bpm_post_install.log</b>	The log file that contains post-install log messages from the Configuration wizard.

# Chapter 12: Troubleshoot

This section describes common problems that you may encounter when deploying BPM, and their solutions, as well as the log files created during the deployment.

## Windows Platforms

This section describes troubleshooting problems when installing BPM on a Windows platform.

### *Instance Registration*

There is a security check to prevent multiple BPM instances with the same host name registered against a single APM instance. Attempting to register duplicate BPM instance will result in registration failures.

#### **Scenario 1: New Instance Registration is failing.**

If you are registering a new BPM instance, and receive an *Instance Registration Failure* error message in the log, this could be caused by network latency. Check the log file for an invalid digital signature:

```
java.lang.Exception: Failed to register BPM Agent. Agent Name: <<Instance Name>>
- Invalid digital signature.
```

To resolve this issue, modify the timestamp delay in APM to a value between 10 and 600 seconds.

#### **Admin > Platform > Infrastructure Settings > Foundations (> EUM Administration) > BPM's timestamp delay**

There is usually a few second delay processing BPM requests; increasing the timestamp delay may solve frequent signature validation errors.

The BPM timestamp delay is the network time delay between the BPM and APM machines. We recommend that you enter a value as low as possible. The BPM time zone differences is already factored, so the timestamp delay does not need to compensate for different time zones.

#### **Scenario 2: Existing Instance Registration is failing.**

Instance registration failure could be caused by public key and private keys on BPM system that have been re-created or reimaged when machines were replaced.

In this situation, use the JMX APIs (EUM Administration Service - removePublicKey) to reset the public key for the BPM instance.

### *Cannot Set BPM to Run as a Different User*

If you (mistakenly) set the whole BPM to run as a specific user for a user that does not have write permissions to the **<BPM application directory>\config** directory, BPM fails to run, and you are unable to switch to a different user using the **Set BPM as User** option in BPM Admin. To set a different user, use the following procedure:

1. Stop BPM.
2. Open the **<BPM installation directory>\yajsw\conf\wrapper.conf** file in a text editor.

3. Locate the following parameters and ensure that they have no value and are commented out (by a preceding hash sign #):
  - #wrapper.app.account=
  - #wrapper.app.password=
4. Save the file and restart BPM. BPM now runs as a system user.
5. From BPM Admin, set BPM to run as a new specific user (with Administrator permissions).

### *Error Message when Installing Prerequisites on Windows 7*

When installing BPM on Windows 7, you may receive an error message during the installation of the prerequisites. In such cases, carry out the following procedure and then restart the installation:

1. Select **Start > Control Panel > Administrative Tools > Local Security Policy > Software Restriction Policies**.
2. If no software restriction policies are defined, right-click the Software Restriction Policies node and select **New Software Restriction Policy**.
3. Double-click **Enforcement**.
4. Select **All users except local administrators**.
5. Click **OK**.
6. Reboot the machine.

### *BPM Does not Start After Upgrade*

If the old BPM was set to run as a specific user, during the BPM upgrade procedure, the migration of the specific user's password may fail. This prevents the upgraded BPM from starting. To fix this issue:

1. On the upgraded BPM machine, edit the **<BPM installation directory>\yajsw\conf\wrapper.conf** file.
2. Set the following **Application Account** attributes to blank values and comment them out:
  - #wrapper.app.account=
  - #wrapper.app.password=
3. Start BPM

**CAUTION:**

The application will run with SYSTEM permissions.

4. Access the BPM web console.
5. Configure the required specific user credentials in the Set User Credentials dialog box.

### *BPM's Last Configuration Update is not Working*

The thread which requests the configuration with APM is not responding due to network latency issues.

To resolve this issue, in the **topaz\_agent\_ctrl.cfg** file, in the **[General]** section, add a parameter **SOTimeout** value **15000**. This sets the socket timeout for each socket connection to 15000 milliseconds (15 seconds).



### *After Upgrade, Webtrace is timed out*

If Webtrace is timed out or aborted after the upgrade process, verify the **SRPACKET** registry path.  
See, [Upgrade BPM, on page 50](#)

### To enable Script Segregation for fresh installation in BPM 9.51

Follow the steps:

1. After installing BPM 9.51, create three empty folders **HP**, **BPM** and **config** respectively as shown in the path **C:\ProgramData\HP\BPM\config**
2. Run the script segregation tool **BpmUserAdd.exe** located in **C:\MF\BPM\tools** as mentioned in Script Segregation document.
3. The **cipher.key** and **key.key** files will be generated and located in **C:\ProgramData\HP\BPM\config** Copy these two files manually and place them in **C:\ProgramData\MF\BPM\config**

## Linux Platform

### *Status: failed to start*

A **failed to start** error message may be appear if the **libgcc-4.8.5-4.el7.i686.rpm** lib is missing. To resolve this issue, install the required lib. For details, see [Prerequisites for Linux, on page 22](#).

## Pending Samples accumulate on BPM after APM Upgrade

Perform the following procedure on DPS server:

1. Log in to DPS JMX console from the following link : **http://<DPS\_Server>:29000/jmx-console/HtmlAdaptor?action=inspectMBean&name=Topaz%3AService%3DDowntimeServiceLauncher**
  - a. Invoke **void stop()**. This function should return a value as follows : **Operation completed successfully without a return value.**
  - b. Click **Back to MBean View**.
  - c. Invoke **void start()** . This function should return a value as follows : **Operation completed successfully without a return value.**
2. Log in to DPS JMX console from the following link : **http://<DPS\_Server>:11021/invoke?operation=showServiceInfoAsHTML&objectname=Foundations%3Atype%3DNannyManager**
  - a. Stop **HornetQ** process from JMX.
  - b. Log in to DPS machine and delete the Data folder under **<HPBSM>\HornetQ\** from DPS server.
  - c. Start **HornetQ** process.

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