

HP Business Service Management

For the Windows® and Linux operating systems

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HP BSM Integration Adapter Installation and Configuration Guide

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This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>).

This product includes software written by Tim Hudson (tjh@cryptsoft.com).

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To find more information about access levels, go to:

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HP BSM Integration Adapter

BSM Integration Adapter enables you to monitor event sources, and, if certain conditions apply, to forward the detected events as HP Business Service Management (BSM) events directly to the BSM Operations Management event browser. For BSM Integration Adapter to be able to convert the source events to BSM events, the event sources must make their data available as SNMP traps or in XML-formatted files.

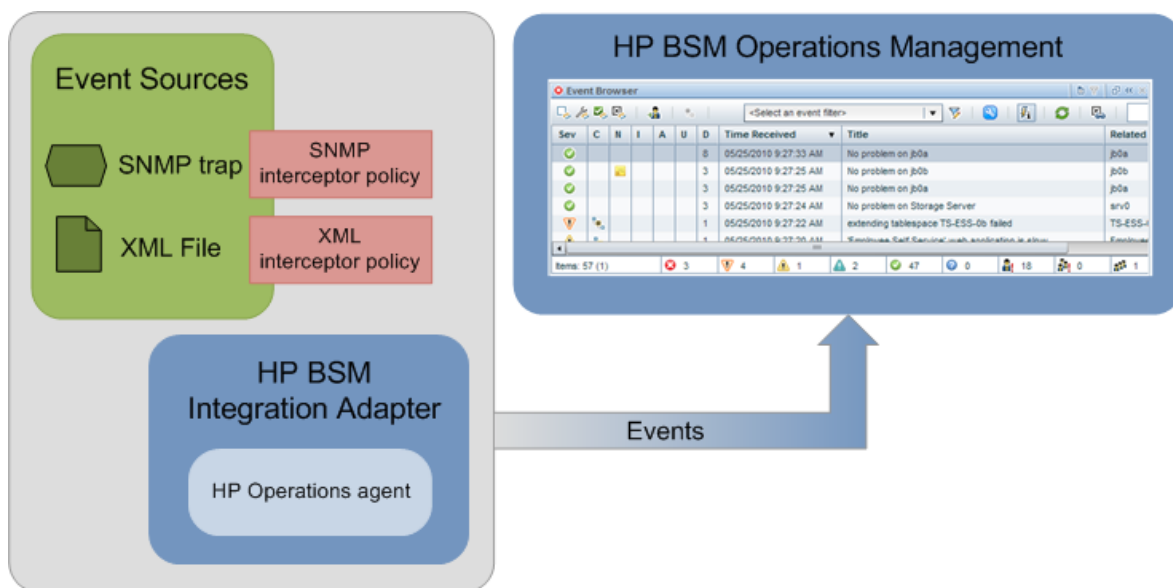
SNMP event sources can range from simple hardware devices that send SNMP traps to sophisticated network management solutions such as HP Network Node Manager i (NNMi). (NNMi provides an out-of-the-box integration with BSM Integration Adapter, which converts NNMi incidents to SNMPv2c traps and forwards these SNMPv2c traps as BSM events to the BSM Operations Management event browser. For more information about this integration, see the *NNMi Deployment Guide*.)

BSM Integration Adapter can also monitor XML-formatted files. Because BSM Integration Adapter is agnostic to the content and syntax of the XML files, you can monitor any XML file. (If the application that you want to monitor does not log its events in XML format, consider writing a program or script that diverts and converts the application's output to XML-formatted files.)

Note: BSM provides EMS (Enterprise Management Systems software) to facilitate the integration of data from other applications, both HP and third party. While BSM Integration Adapter is the recommended solution for integrating events into BSM, HP recommends that you use EMS to integrate other types of data, for example, metric data. See the *BSM Solutions and Integrations* guide for more information.

In the context of HP BSM Operations Manager i (OMi), the BSM Operations Management event browser can receive events from HP Operations Manager (HPOM), or directly from BSM Integration Adapter. BSM Integration Adapter is the preferred method for sending events to OMi for new event integrations, if there is no need to use the HPOM event processing capabilities or console, or if HPOM is not part of the BSM deployment. For more information about deploying BSM, see the *BSM Deployment Guide*.

BSM Integration Adapter includes the HP Operations agent. The HP Operations agent collects and monitors the data on the event source, enriches these events with information that is meaningful to BSM users, and sends the events to BSM where they display in the Operations Management event browser. BSM Integration Adapter uses policies to configure the agent. For each policy, you decide what kinds of events to monitor, how often to monitor, what to look for in the events, and what to do if certain events are detected.



HP Operations agents and BSM communicate using HTTPS, which is secure, reliable, and simplifies firewall configuration.

- Secure communication based on the HTTPS protocol. All communications between BSM and BSM Integration Adapter are strongly encrypted.
- Policies and events all contain signatures, which BSM servers and BSM Integration Adapter servers create and check using certificates. If a malicious user attempts to tamper with a signed policy or event, the signature becomes invalid.
- Simplified firewall configuration. BSM and BSM Integration Adapter accept all inbound communications to a single port, so it is simpler to configure firewalls and proxies.

You typically install BSM Integration Adapter on the computer that provides the input events. For example, to integrate NNMi events into BSM, install BSM Integration Adapter on the NNMi management server. The BSM Integration Adapter user interface is web based; you can therefore access it from anywhere using a supported web browser.

Installing HP BSM Integration Adapter

Listed below are the requirements for installing HP Business Service Management BSM Integration Adapter (BSM Integration Adapter). Because BSM Integration Adapter includes the HP Operations agent, it is recommended that you also check the *HP Operations Agent Release Notes* for version 8.60 before starting the installation. The release notes are available on the product manuals search page at HP Software Support Online:

<http://h20230.www2.hp.com/selfsolve/manuals>

Requirements

Hardware requirements

You can install the BSM Integration Adapter server on a computer that meets the following hardware requirements:

- 1 GB of physical memory
- 1 GB of free disk space (and additional 600 MB temporarily during installation)
- DVD-ROM drive or alternative method to read the BSM Integration Adapter installation media (for example, a network drive)

Software requirements

For up-to-date information on supported BSM Integration Adapter platforms, see the support matrix at HP Software Support Online:

http://h20230.www2.hp.com/sc/support_matrices.jsp

- BSM Integration Adapter server:
 - Windows 2003 Server or Enterprise Edition R2 SP2 (32-bit and 64-bit)
 - Windows 2008 Server or Enterprise Edition SP1 (32-bit and 64-bit)
 - Windows 2008 Server or Enterprise Edition R2 (64-bit)
 - Red Hat Enterprise Linux 5.x (Intel x64 64-bit)
- *Optional*. Cluster software:
 - Microsoft Cluster Server
 - Red Hat Cluster Suite
- BSM Integration Adapter user interface:
 - Internet Explorer 7.0 or higher
 - Firefox 3.0 or higher
 - Adobe Flash Player 10.0 or higher
- Adobe Acrobat Reader 7.0 (or higher) for viewing some documentation.

User Account Requirements

The installing user must have administrative rights on the system where BSM Integration Adapter will be installed.

During the configuration of BSM Integration Adapter, you specify a user name and password for an Apache Tomcat administrator account. Use this user to log into the BSM Integration Adapter user interface. You can add additional users to the Apache Tomcat configuration, if required.

Network Configuration Requirements

BSM Integration Adapter requires a Domain Name System (DNS) server that enables clients to perform forward lookups and reverse lookups. The DNS server must provide correct host (A) and pointer (PTR) records for the BSM gateway server and all BSM Integration Adapter servers.

If some computers in your environment use a different DNS server to others, make sure that all the DNS servers provide correct host and pointer records for the BSM gateway server:

- To check that a DNS server correctly provides a host record for a computer, open a command prompt and type the following command:

```
nslookup <fully qualified domain name>
```

The command should return the correct IP address of the computer.

- To check that a DNS server correctly provides a pointer record for a computer, open a command prompt, and then type the following command:

```
nslookup <IP address>
```

The command should return the correct IP address of the computer.

If a firewall blocks communication between BSM Integration Adapter and the BSM gateway server, open TCP port 383 for the communication broker. Alternatively, reconfigure the communication between BSM Integration Adapter and the BSM gateway server as described in the BSM Integration Adapter online help.

Unsupported Configurations

BSM Integration Adapter does not support the following configurations:

- The HP Operations agent must not already be installed on the system where you plan to install BSM Integration Adapter.
- BSM Integration Adapter does not support the cluster awareness functionality provided by the HP Operations agent.

Install HP BSM Integration Adapter

1. Insert the HP BSM Integration Adapter9.00 installation media into the DVD drive or make it available on a network drive.

2. *Linux only.* Create a directory to mount the DVD drive:

```
mkdir /<mount_point>
```

Example:

```
mkdir /dvdrom
```

Mount the DVD-ROM drive:

```
mount -o ro /dev/<dvdrom_drive_name> /<mount_point>
```

For example, for a local DVD-ROM, you can execute:

```
mount -o ro /dev/dsk/c0t2d0 /dvdrom
```

3. *Optional for Linux installations.* Verify the integrity of the installation files by using the HP Public Key.
To verify that the installation files are original HP-provided code and have not been manipulated by a third-party, you can use the HP Public Key and the verification instructions provided on this HP web site:

<https://h20392.www-2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=HPLinuxCodeSigning>

4. Start the installer. Double-click the installation executable:

- Windows 32-bit: \Windows_Setup\Win32\HPOprIA_<version>_setup.exe
- Windows 64-bit: \Windows_Setup\Win64\HPOprIA_<version>_setup.exe
- Linux 64-bit: /<mount_point>/Linux_Setup/HPOprIA_<version>_setup.bin

Linux only. To start a text-based installation from a console, type:

```
/<mount_point>/Linux_Setup/HPOprIA_<version>_setup.bin -i console
```

Tip: To install BSM Integration Adapter in silent mode (using the defaults), type:

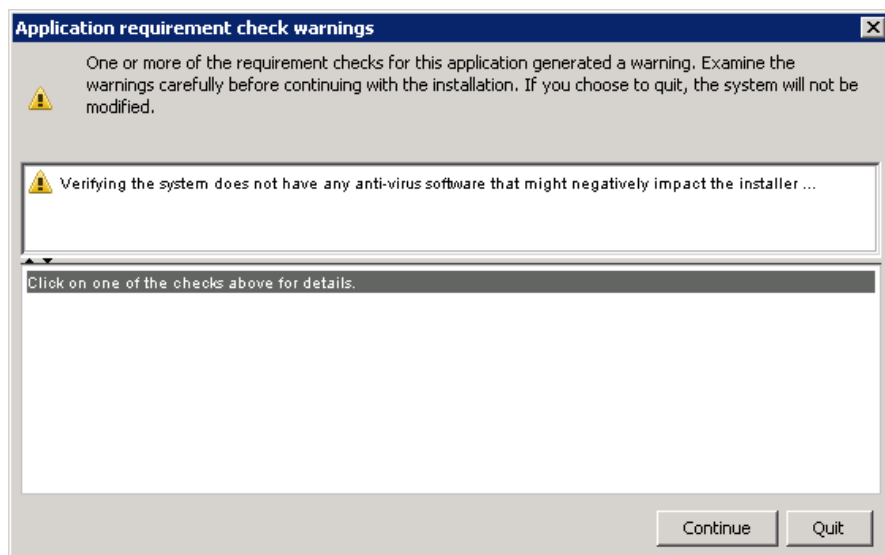
```
/<mount_point>/Linux_Setup/HPOprIA_<version>_setup.bin -i silent
```

For more information about the installation options, type:

```
/<mount_point>/Linux_Setup/HPOprIA_<version>_setup.bin -?
```

The installation begins and performs a requirement check.

The application requirement checks page displays errors and warnings that would prevent BSM Integration Adapter from installing correctly.



All errors must be resolved before installation can continue. If the requirement check displays warnings, evaluate them and decide whether they apply to your environment. If a warning does not apply to your environment, you can continue the installation.

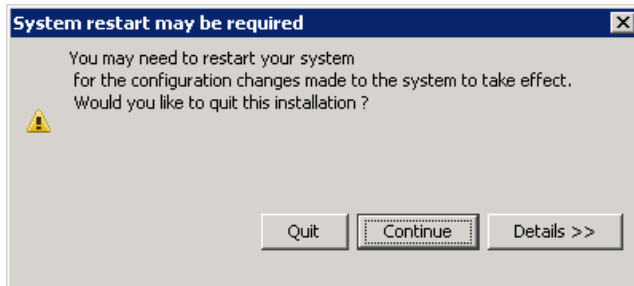
If no errors were detected, click **Continue** to proceed.

HP BSM Integration Adapter

Installing HP BSM Integration Adapter

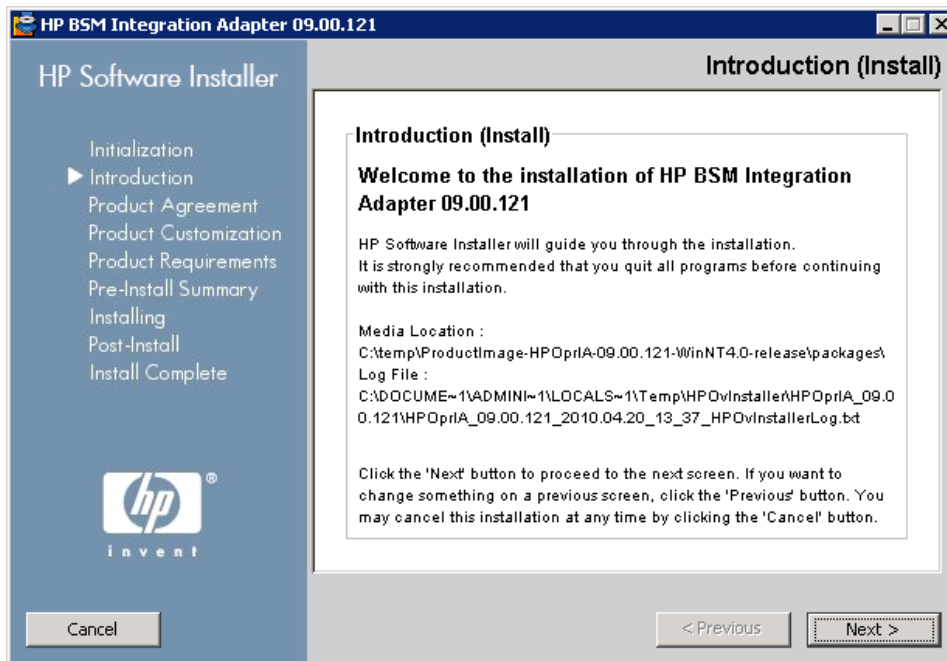
5. If prompted to restart your system, click **Continue** to restart the computer.

A restart may be necessary when file rename operations are pending in the registry.



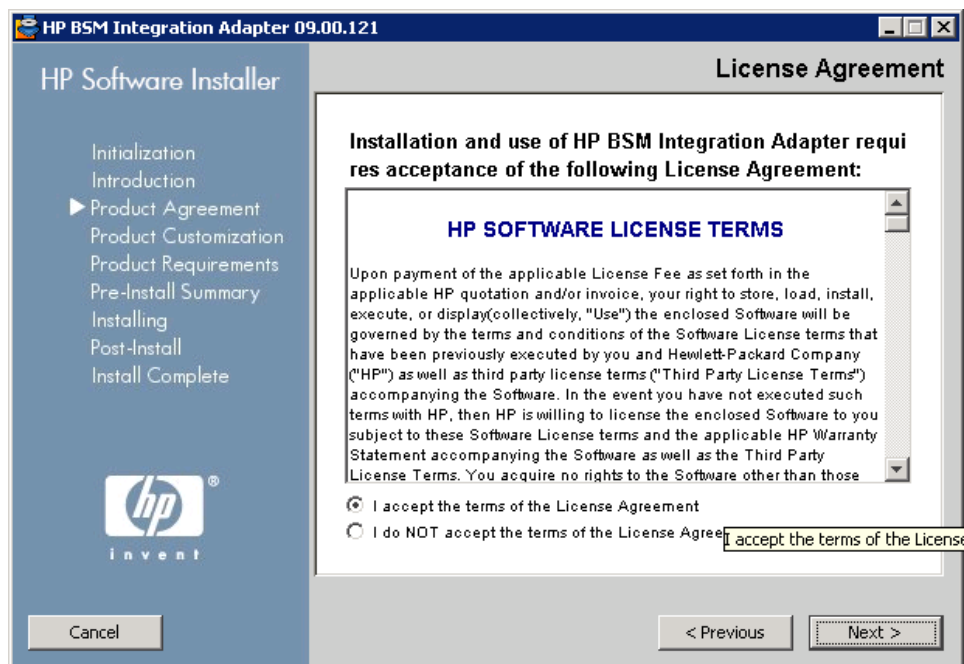
The introduction page opens.

6. Review the introduction page, then click **Next** to continue.



The license agreement page opens.

7. In the license agreement page, accept the license agreement and click **Next** to continue with the installation. If you decline, the installation is canceled.



The application and data folders page opens.

8. Specify the application and data folders.

In the application and data folders page you can use the default destination folder or select a destination folder where you want to install BSM Integration Adapter.

- The default application folder is:
 - Windows: C:\Program Files\HP\HP BTO Software\
 - Linux: /opt/OV/
- The default data folder is:
 - Windows 2003: C:\Documents and Settings\All Users\Application Data\HP\HP BTO Software
 - Windows 2008: C:\ProgramData\HP\HP BTO Software
 - Linux: /var/opt/OV/

To install to the default destination folder, click **Next**.

HP BSM Integration Adapter

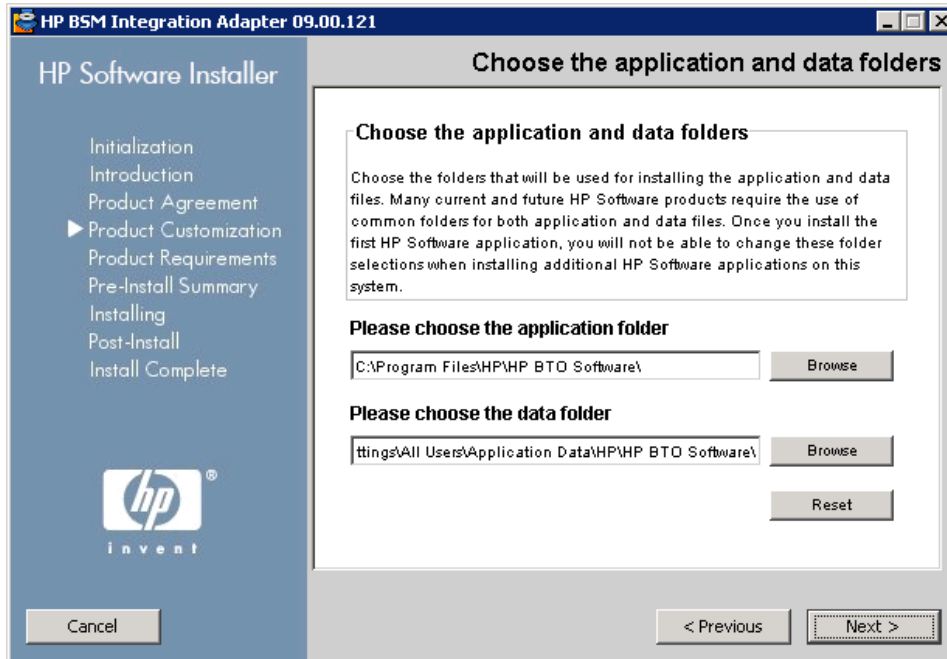
Installing HP BSM Integration Adapter

Windows only. To install to a destination other than the default folder:

- a. Click the appropriate **Browse** button to open the Open dialog box.

The Browse buttons in the application and data folders page are only available for the first HP BTO Software product installations (BSM Integration Adapter). If other HP BTO Software products are already installed, the Browse buttons are disabled.

- b. In the Open dialog box, specify the folder you want and click **OK**. If you have insufficient disk space, you see a message here when you click OK.
- c. In the application and data folders page, click **Next** to proceed.



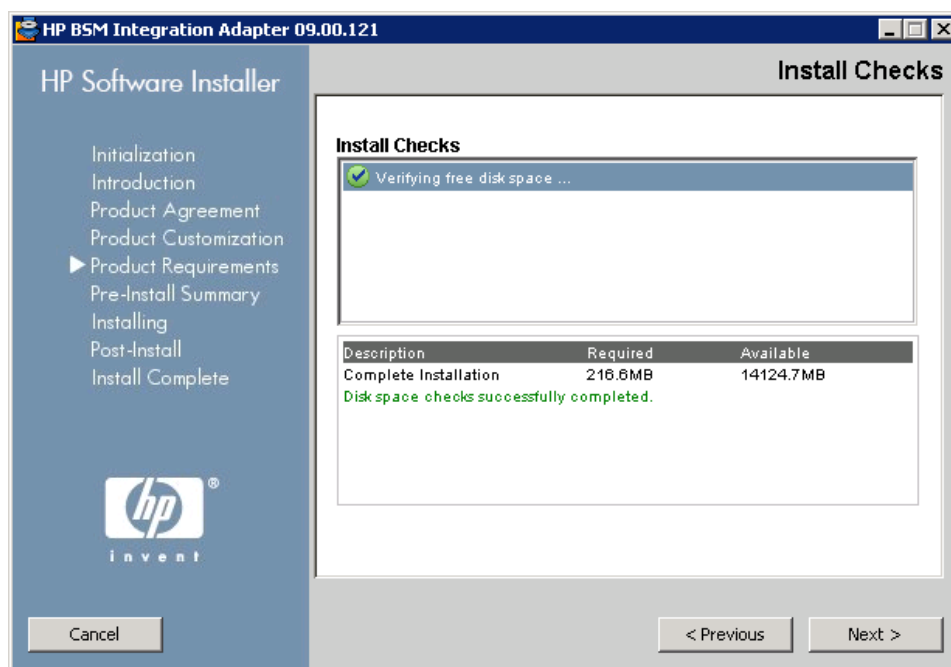
The installation checks page opens.

9. Review installation check results.

The installation checks page displays errors and warnings that would prevent BSM Integration Adapter from installing correctly.

All errors must be resolved before installation can continue. If the installation check displays warnings, evaluate them and decide whether they apply to your environment. If a warning does not apply to your environment, you can continue the installation.

If no errors were detected, click **Next** to proceed.



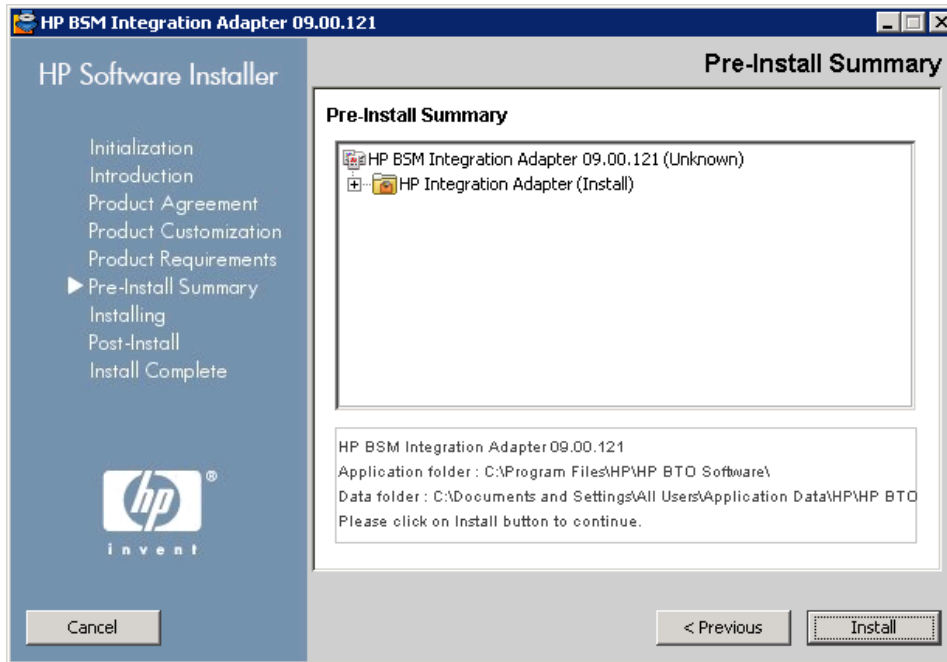
The preinstall summary page opens.

HP BSM Integration Adapter

Installing HP BSM Integration Adapter

10. Review the installation settings.

In the preinstall summary page, review the installation settings, and then click **Install** to begin the installation.



The installation progress page opens.

11. Install the software.

The installer starts to install multiple components. Depending on the speed of your system, the installation could take from several minutes to over an hour. When the installation is complete, click **Next** proceed to the Installation complete page.



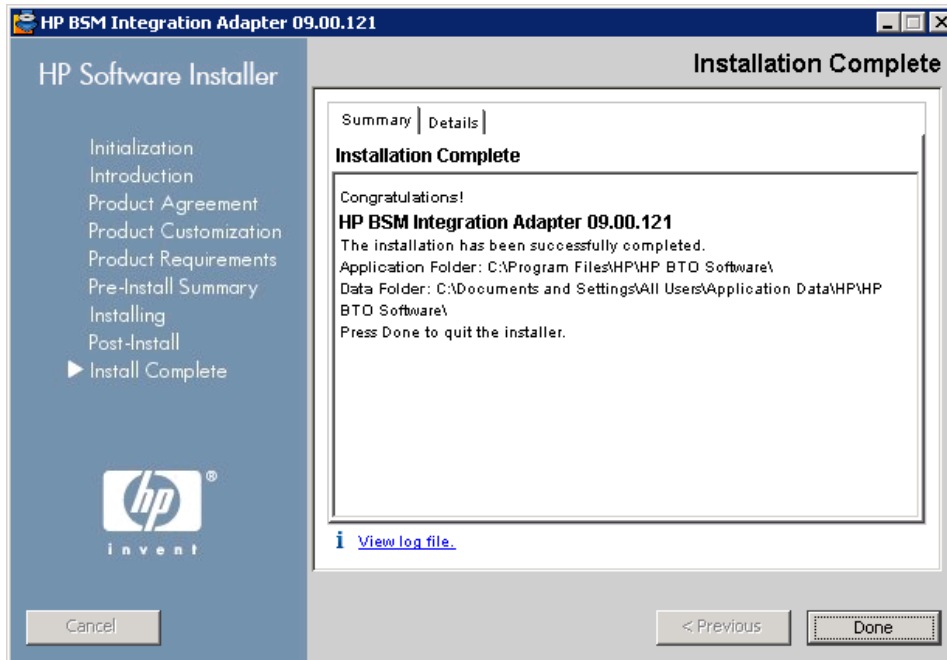
The installation complete page opens.

HP BSM Integration Adapter

Installing HP BSM Integration Adapter

12. Complete the installation wizard.

When the Installation complete page appears, the installation is finished. Click **Done** to conclude the installation.



13. Configure BSM Integration Adapter as described in ["Configuring HP BSM Integration Adapter" \(on page 18\)](#).

Install HP BSM Integration Adapter in a Cluster Environment

For a high-availability BSM Integration Adapter installation to work, it must be installed on all cluster nodes which are designated to run BSM Integration Adapter:

1. Before starting the BSM Integration Adapter installation, make sure that the resource group is online on the cluster node where you plan to install BSM Integration Adapter.
2. Install BSM Integration Adapter on a cluster node as described in ["Install HP BSM Integration Adapter" \(on page 9\)](#). The order in which you install the cluster nodes is not important.
3. Import and activate the same set of policies on all nodes in the cluster. For more information about importing and activating policies, see the BSM Integration Adapter online help.

Note: Make sure that you do not monitor data stored on the shared disk with the same policies activated on multiple cluster nodes. This may result in duplicate events in BSM after a failover. For example, do not activate the same XML interceptor policies on more than one cluster node if the policies monitor an XML file on the shared disk.

Tip: If the IP address of the resource group (also known as virtual IP address) sends SNMP events that you plan to capture, make sure that the IP address is set up as a CI with the attribute "host is virtual" in BSM. Otherwise the events display as unmapped events in the Operations Management event browser.

Configuring HP BSM Integration Adapter

After the installation completes successfully, you must configure BSM Integration Adapter and connect it to HP Business Service Management. If necessary, you can run the configuration program several times to reconfigure BSM Integration Adapter.

Configure HP BSM Integration Adapter

1. Start the BSM Integration Adapter configuration program.

- Windows:

- i. Open a command prompt and type:

```
cd %OvDataDir%\installation\HPOprIA
```

- ii. Start the BSM Integration Adapter configuration program, type:

```
ia-config.bat
```

- Linux:

Start the BSM Integration Adapter configuration program, type:

```
/var/opt/OV/installation/HPOprIA/ia-config.sh
```

2. When prompted, type the fully qualified domain name (FQDN) of the HP Business Service Management (BSM) server. Depending on the BSM deployment, choose the gateway server or, if a load balancer serves multiple gateway servers, choose the FQDN of the load balancer.
3. Type or accept the default user name and password for an Apache Tomcat server administrator account. The configuration program adds this user to the Apache Tomcat configuration.
4. Type or accept the default HTTP port for the Apache Tomcat server.

The configuration program starts to install multiple components. The configuration is complete when the message `Configuration successfully completed` appears.

5. *Optional.* Review the configuration log file at:

Windows: %OvDataDir%\log\opc_inst.log

Linux: /var/opt/OV/log/opc_inst.log

Configure HP BSM Integration Adapter in Silent or Unattended Mode

You can also configure BSM Integration Adapter in silent or unattended mode. The configuration program uses the following defaults:

- Apache Tomcat user: `admin`
- Apache Tomcat password: `admin`
- Apache Tomcat port: `8081`

When starting the BSM Integration Adapter configuration program in silent or unattended mode, you must specify the name of the BSM server on the command line.

1. Start the BSM Integration Adapter configuration program in silent or unattended mode.

- Windows:

- i. Open a command prompt and type:

```
cd %OvDataDir%\installation\HPOprIA
```

- ii. Start the BSM Integration Adapter configuration program, type:

```
ia-config.bat -silent -srv <BSM_server>
```

- Linux:

Start the BSM Integration Adapter configuration program, type:

```
/var/opt/OV/installation/HPOprIA/ia-config.bat -silent -srv <BSM_server>
```

<BSM_server> is the fully qualified domain name (FQDN) of the BSM server. Depending on the BSM deployment, choose the gateway server or, if a load balancer serves multiple gateway servers, choose the FQDN of the load balancer.

The configuration program starts to install multiple components. The configuration is complete when the message `Configuration successfully completed` appears.

2. *Optional.* Review the configuration log file at:

Windows: `%OvDataDir%\log\opc_inst.log`

Linux: `/var/opt/OV/log/opc_inst.log`

Connect HP BSM Integration Adapter to HP Business Service Management

Certificates enable BSM Integration Adapter to communicate securely with HP Business Service Management (BSM).

During the configuration phase, BSM Integration Adapter sends a certificate request to the BSM gateway server, which automatically forwards the request to the data processing server. You must then grant the certificate on the BSM data processing server:

1. On the BSM data processing server, open a command prompt and type:

```
ovcm -listpending
```

The output lists all pending certificates.

2. On the BSM data processing server, grant the pending certificate, type:

```
ovcm -grant <request ID>
```

3. Linux only. On BSM Integration Adapter servers that run a Linux operating system, ensure that the PATH variable contains the path to the agent commands. Open a command prompt or shell and type:

```
export PATH=/opt/OV/bin:$PATH
```

4. On the BSM Integration Adapter server, verify that the certificate has been granted, type:

```
ovcert -list
```

```
ovcert -check
```

5. On the BSM data processing server, verify the HTTPS connection to the BSM Integration Adapter server, type:

```
bbcutil -ping <BSM Integration Adapter hostname>
```

6. On the BSM Integration Adapter server, verify the HTTPS connection to the BSM server, type:

```
bbcutil -ping <BSM hostname>
```

7. On the BSM Integration Adapter server, validate the settings for CERTIFICATE_SERVER and MANAGER, type:

```
ovconfchg -edit
```

Reconnect HP BSM Integration Adapter to a Different BSM Server

Use the following procedure to reconnect BSM Integration Adapter to a different BSM server.

1. Remove the installed certificate.

- a. On the BSM Integration Adapter server, open a command prompt and type:

```
ovcert -list
```

The alias of the certificate is the long sequence of characters, which appears under the headings "Certificates" and "Trusted Certificates". For example:

```
+-----+
| Keystore Content                                |
+-----+
| Certificates:                                  |
|   332305d2-bd82-7545-197a-8390f5b870b9  (*)   |
+-----+
| Trusted Certificates:                          |
|   CA_c1028ea2-5137-7545-0bb7-f156574bea8c     |
+-----+
```

- b. Remove the certificate, type:

```
ovcert -remove <alias>
```

For example:

```
ovcert -remove 332305d2-bd82-7545-197a-8390f5b870b9
```

```
ovcert -remove CA_c1028ea2-5137-7545-0bb7-f156574bea8c
```

2. Reconfigure the HP Operations agent.

- a. On the BSM Integration Adapter server, change to the following folder:

Windows 32-bit: `cd %OvInstallDir%\bin\OpC\install`

Windows 64-bit: `cd %OvInstallDir%\bin\win64\OpC\install`

Linux: `cd /opt/OV/bin/OpC/install/`

- b. Run the `opcactivate` program, type:

Windows: `cscript opcactivate.vbs -srv <new_BSM_server>`

`-cert_srv <new_BSM_server> -force_config_mode`

Linux: `./opcactivate -srv <new_BSM_server>`

`-cert_srv <new_BSM_server> -force_config_mode`

<new_BSM_server> is the fully qualified domain name (FQDN) of the BSM server to which you want to connect the HP Operations agent. Depending on the BSM deployment, choose the gateway server or, if a load balancer serves multiple gateway servers, choose the FQDN of the load balancer.

During the configuration phase, BSM Integration Adapter sends a certificate request to the BSM gateway server, which automatically forwards the request to the data processing server.. You must then grant the certificate on the BSM data processing server as described in ["Connect HP BSM Integration Adapter to HP Business Service Management" \(on page 20\)](#).

Add Users to HP BSM Integration Adapter

BSM Integration Adapter places the Apache Tomcat user configuration file into the following folders:

Windows: %OvInstallDir\nonOV\tomcat\b\conf\tomcat-users.xml

Linux: /opt/OV/nonOV/tomcat/b/conf/tomcat-users.xml

You can add additional users to this file. For details, see the Apache Tomcat documentation.

Restart Apache Tomcat after the configuration change:

Windows: ovc -restart ovtomcatB

Linux: /opt/OV/bin/ovc -restart ovtomcatB

Change the Apache Tomcat Port

By default, BSM Integration Adapter configures port 8081 for Apache Tomcat. To configure a different port, follow these steps:

1. On the BSM Integration Adapter server, open a command prompt and type:

```
ovconfchg -ns NONOV.TomcatB -set HTTPPort <port>
```

2. Restart Apache Tomcat:

Windows: ovc -restart ovtomcatB

Linux: /opt/OV/bin/ovc -restart ovtomcatB

HP BSM Integration Adapter

Starting the HP BSM Integration Adapter User Interface

Starting the HP BSM Integration Adapter User Interface

After you start the BSM Integration Adapter user interface, you must provide the credentials of an Apache Tomcat user to authenticate yourself. Once logged in, you remain logged in until the browser session ends.

Start the BSM Integration Adapter user interface

1. Open a web browser at the following URL:

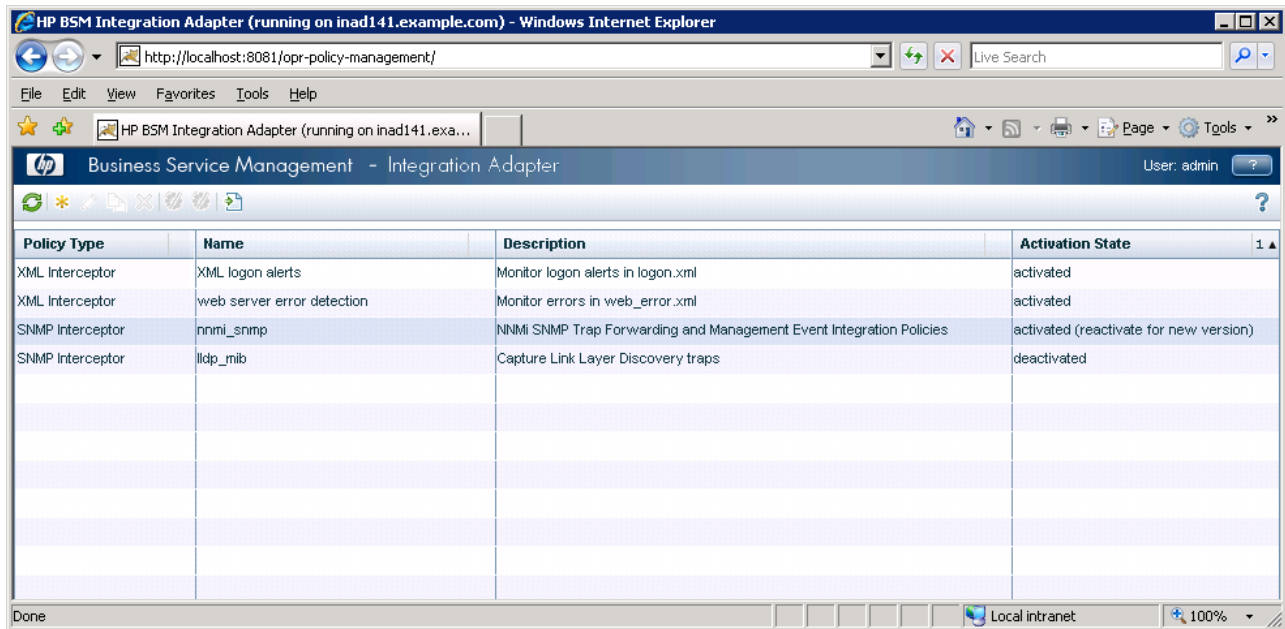
`http://<Integration Adapter system>:8081/opr-policy-management/`

`<Integration Adapter system>` is localhost or the hostname of the BSM Integration Adapter server. If Apache Tomcat is configured to use a different port, use this port instead. For details, see ["Change the Apache Tomcat Port" \(on page 22\)](#).

2. Type the user name and password of the Apache Tomcat user. This is the user that was added to the Apache Tomcat configuration during the configuration of BSM Integration Adapter. For details, see ["Configuring HP BSM Integration Adapter" \(on page 18\)](#).

If you have added additional users to the Apache Tomcat configuration, you may also use one of these users. For details, see ["Add Users to HP BSM Integration Adapter" \(on page 22\)](#).

The following illustration shows the BSM Integration Adapter user interface.



You are encouraged to read the BSM Integration Adapter online help. The online help provides a product overview and details the configuration steps you need to perform.

Uninstalling HP BSM Integration Adapter

Before uninstalling BSM Integration Adapter, run the configuration program with the `-clean` option to remove the HP Operations agent from the system.

Unconfigure HP BSM Integration Adapter

Run the configuration program with the `-clean` option. This option removes the HP Operations agent from the system.

1. Start the BSM Integration Adapter configuration program.

- Windows:

- i. Open a command prompt and type:

```
cd %OvDataDir%\installation\HPOprIA
```

- ii. Start the BSM Integration Adapter configuration program, type:

```
ia-config.bat -clean
```

- Linux:

Start the BSM Integration Adapter configuration program, type:

```
/var/opt/OV/installation/HPOprIA/ia-config.sh -clean
```

2. When prompted, confirm that you want to unconfigure BSM Integration Adapter and uninstall the HP Operations agent.

The unconfiguration is complete when the message `Cleanup successfully completed` appears.

3. Uninstall BSM Integration Adapter as described in ["Uninstall HP BSM Integration Adapter" \(on page 25\)](#).

Uninstall HP BSM Integration Adapter

1. Start the uninstallation by double-clicking `setup.exe` (Windows installations) or `setup.bin` (Linux installations) from the installation media.

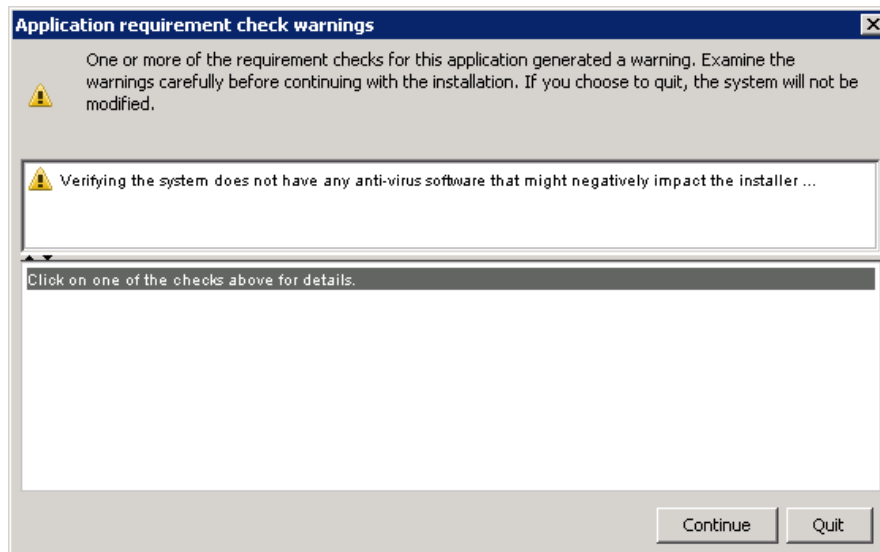
Windows only. You can also uninstall BSM Integration Adapter using Add or Remove Programs (Windows 2003) or Programs and Features (Windows 2008). (Select HP BSM Integration Adapter in the list of currently installed programs.)

Linux only. You can also uninstall BSM Integration Adapter using RPM Package Manager, or in text mode from a console with:

```
/<mount_point>/HPOprIA_09.00.171_setup.bin -i console
```

The uninstallation begins and performs a requirement check.

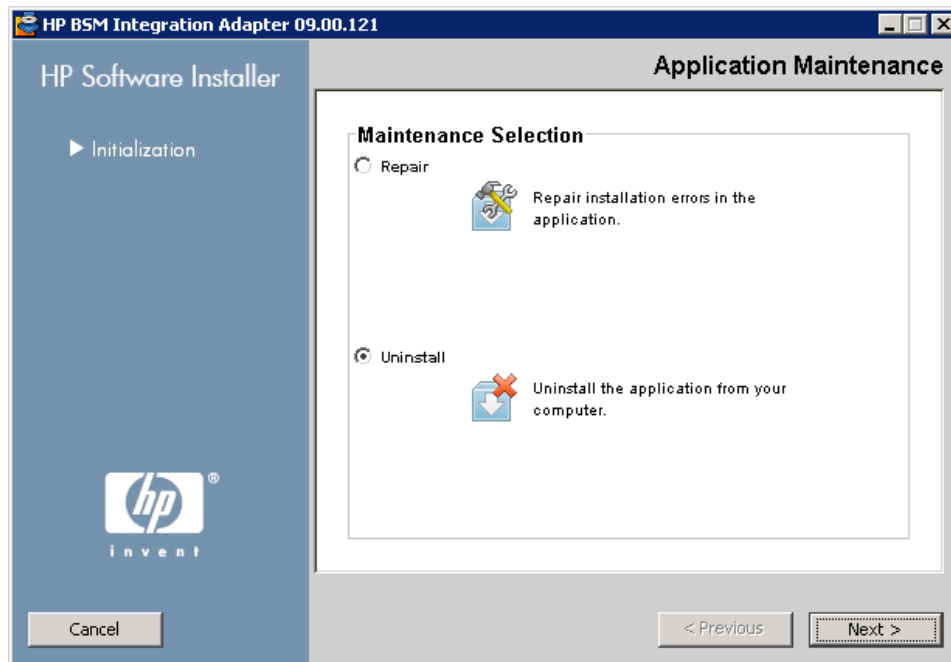
The application requirement checks page displays errors and warnings that would prevent BSM Integration Adapter from uninstalling correctly.



All errors must be resolved before uninstallation can continue. If the requirement check displays warnings, evaluate them and decide whether they apply to your environment. If a warning does not apply to your environment, you can continue the uninstallation.

If no errors were detected, click **Continue** to proceed.

2. In the application maintenance page, select **Uninstall** and click **Next**.



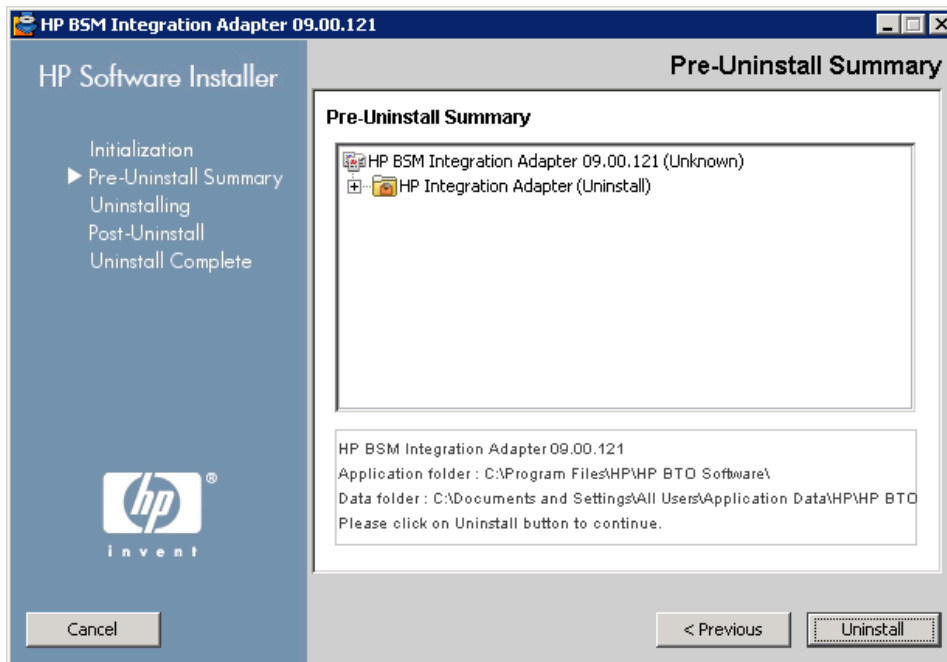
The pre-uninstall summary page opens.

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3. Review the uninstallation settings.

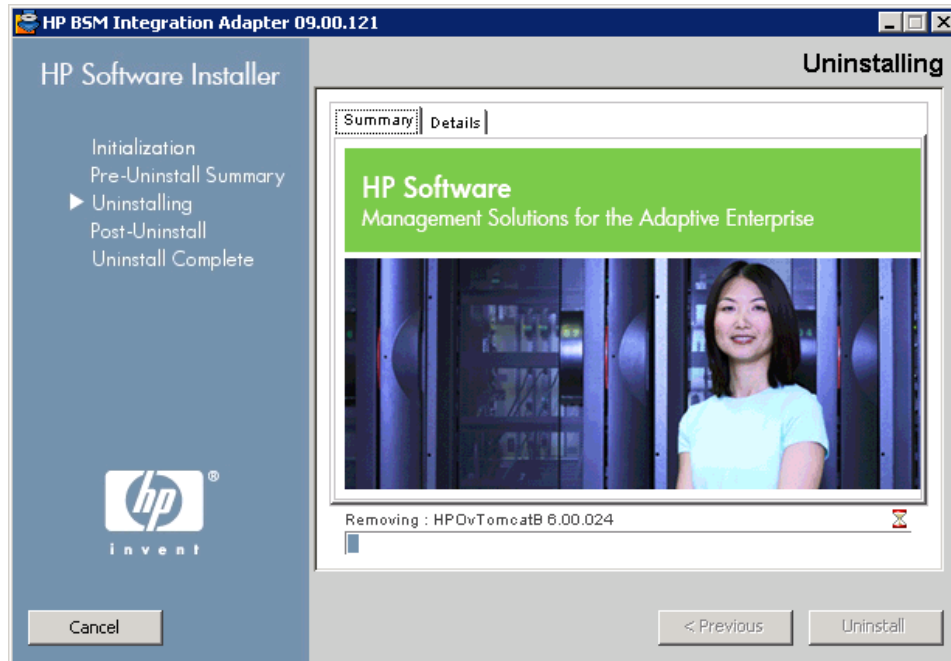
In the pre-uninstall summary page, review the uninstallation settings, and then click **Uninstall** to begin the uninstallation.



The uninstallation progress page opens.

4. Uninstall the software.

The installer starts to uninstall. Depending on the speed of your system, the uninstallation could take from several minutes to over an hour. When the uninstallation is complete, click **Next** proceed to the Uninstallation complete page.



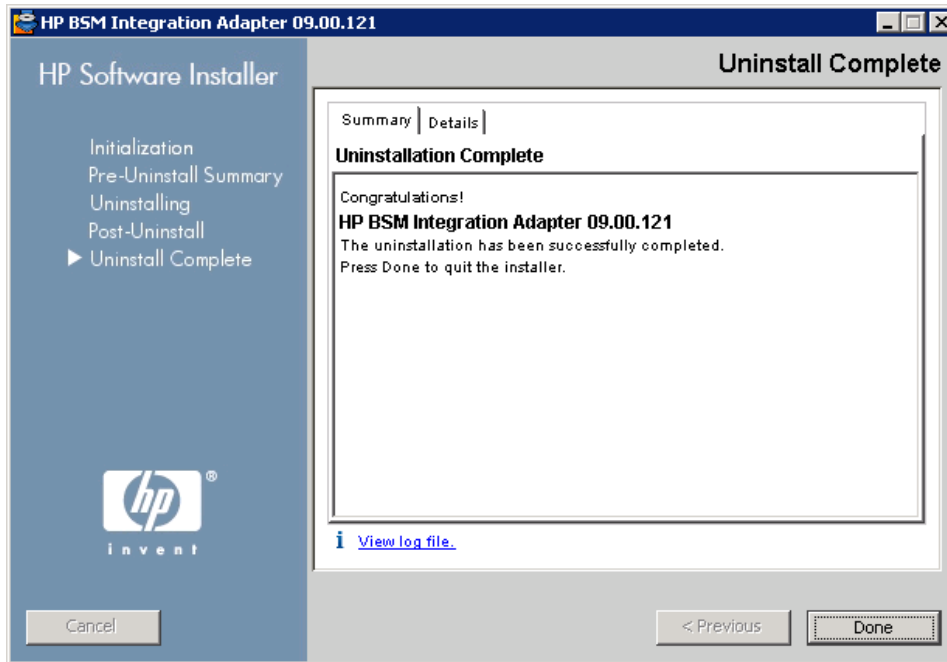
The uninstallation complete page opens.

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5. Complete the uninstallation wizard.

When the Uninstallation complete page appears, the uninstallation is finished. Click **Done** to conclude the uninstallation.



6. Manually delete any remaining BSM Integration Adapter files and folders.

Uninstall HP BSM Integration Adapter in a Cluster Environment

You must uninstall BSM Integration Adapter on all cluster nodes where it is installed.

1. When you uninstall BSM Integration Adapter in a cluster environment, make sure that the resource group is online on the cluster node from where you plan to remove the software.
2. Uninstall BSM Integration Adapter on a cluster node as described in ["Uninstall HP BSM Integration Adapter" \(on page 25\)](#). The order in which you uninstall the nodes is not important.