

HP Operations Smart Plug-in Upgrade Toolkit

for HP Operations Manager for Linux

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User Guide

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1 Introduction

The HP Operations Smart Plug-in Upgrade Toolkit (**SPI Upgrade Toolkit**) helps you upgrade HP Operations Smart Plug-ins to a higher version while retaining the customizations done on policies. You can use this utility with a browser-based interactive user interface that allows you to select the policy settings of your choice while you upgrade a SPI. You can use the SPI Upgrade Toolkit with HP Operations Manager (**HPOM**).

Policies

SPIs, in conjunction with HPOM, help you monitor the availability and performance data of enterprise systems and applications. Several components of a SPI reside on a node that hosts the application you want to monitor. These components collect performance data of the application from the node at a regular interval and send alert messages to HPOM in the event of threshold violation. The process of data collection and alert generation is governed by sets of rules called policies. Every SPI is equipped with several default policies to facilitate the task of monitoring an application.

A policy is essentially a combination of several rules and specifications. These rules and specifications define the:

- Types of data that can be collected from the node
- Mechanism to collect the data
- Collection interval
- Mechanism to generate an alert at the event of threshold violation

You must deploy policies on the managed nodes to start collecting data. Depending on your requirement, you can choose not to deploy all policies on a single node.

For more information on policies, refer to the *HP Operations Manager* online help.

HPOM lets you customize a policy and change the default settings of a policy. By customizing the default policy settings, you can customize the monitoring activity according to conditions of your IT environment. However, when you upgrade a SPI to the higher version, the SPI installer can introduce and install a new version of the policy with a different setting. This can pose challenges in different policy-deployment scenarios.

Customizing the Policies

The SPIs provide you policies with out-of-the-box settings to start monitoring the applications. However, you can customize these out-of-the-box settings to enhance the application monitoring process and optimally manage your IT environment.

These settings are primarily values of different attributes of a policy. The values set to the attributes of a policy determine the manner in which the policy behaves to collect information. For example, the polling interval attributes of the ADSPI-DIT_TotalDITSize policy—a

Microsoft Active Directory SPI policy—is set to 24 hours. This attribute value defines how frequently the ADSPI-DIT_TotalDITSize policy should poll data from the node. You could, for example, set the polling interval to 12 hours. As soon as you change the attribute value, the SPI creates a new version of the policy.

As you customize the settings or attribute values on the **base** version (the original version of the policy), the SPI creates a new **customer** version of the policy—the version that includes the customization done by you.

When you upgrade the SPI to the higher version, the SPI installer installs a new version of the policy—the **factory** version—with the default settings. You must manually customize the factory version of the policy before deploying the policy on nodes.

The new SPI installer may introduce a completely different value for the polling interval of the ADSPI-DIT_TotalDITSize policy. In this scenario, the new SPI installer introduces the factory version of the policy where the policy settings are not identical to the base or customer version.

SPI Upgrade Toolkit

Consider a scenario where you customized the base version of a policy and deployed the customer version on several nodes. The new SPI installer introduces updated versions of policies with the new version of the SPI with new features and enhancements. After you upgrade the SPI, the factory version of a policy supersedes the customer version. Therefore, you must manually modify the settings of the factory version of the policy before you deploy the policy on managed nodes. Depending on the requirement, the process of customizing the policies can become time consuming and may lead to confusion.

The SPI Upgrade Toolkit gives you a simple way to preserve the customizations done on policies while you upgrade the SPI to the higher version.

A policy may include several attributes, whose default values can be modified to create the customer version of the policy.

For example, the ADSPI-DIT_TotalDITSize policy includes the following attributes:

- Polling interval
- Threshold level
- Service ID
- Message Group
- Severity

Values of all the attributes collectively describe the behavior of the policy on the managed node. You can customize any of the attribute values. However, the new SPI installer may introduce a new value for an attribute that you did not modify. The SPI Upgrade Toolkit enables you select one of the three different values that are assumed by the three different versions of the policy.

Conflicts and Differences

While working with different customized versions of policies, you may encounter the following scenarios:

- *Scenario 1*

The base and factory versions are identical but the customer version of the policy has had customization done to its content. The SPI Upgrade Toolkit presents this scenario as the **customer difference**.

- *Scenario 2*

The base and customer versions are identical but the factory version of the policy has had customization done to its content. The SPI Upgrade Toolkit presents this scenario as the **factory difference**.

- *Scenario 3*

All the three versions—base, customer, and factory—are dissimilar. This scenario is presented as a **conflict**. You must select the settings assumed by one of the following versions: base, customer, or factory since the settings of a policy in all the three versions are different. You can make some configurations to resolve conflicts automatically.

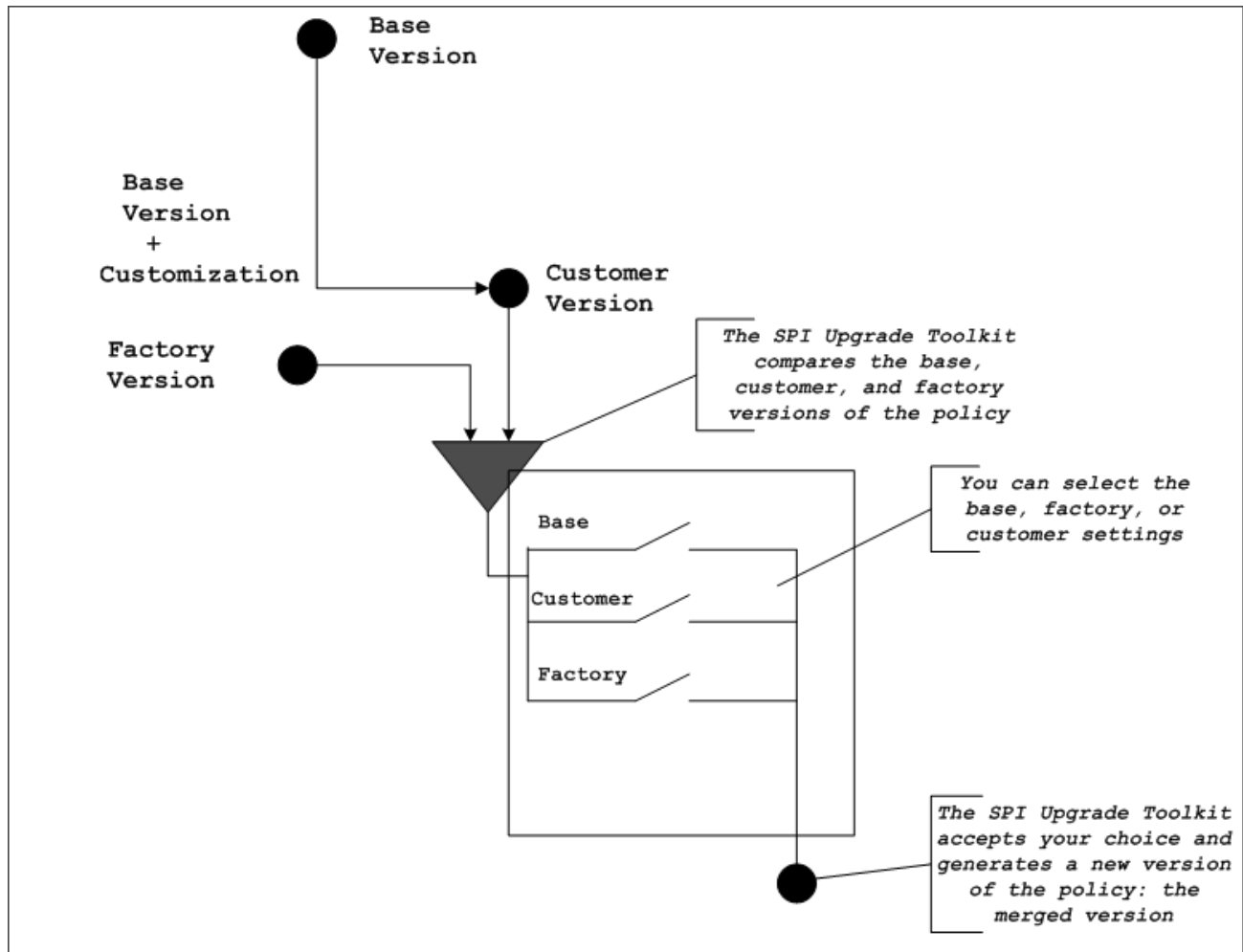
After you select the settings of your choice for a policy for which a difference or conflict was recorded, a new version of the policy is generated by the SPI Upgrade Toolkit. This new version—the **merged** version—includes all the settings (attribute values) of your choice. After upgrading the SPI, you can run the upload script—provided by the SPI Upgrade Toolkit—to upload the merged version of the policies on the management server.

The SPI Upgrade Toolkit does not record the addition or deletion of a policy in either the customer or factory version.

Workflow of the SPI Upgrade Toolkit

The SPI Upgrade Toolkit compares every policy setting for all the three versions (base, customer, and factory), and then enables you to choose the setting of one particular version.

Figure 1 Upgrading Policies with the SPI Upgrade Toolkit



The SPI Upgrade Toolkit uses the following workflow to simplify the SPI upgrade process:

- 1 The SPI installer downloads and back up the current version of all the policies into a directory on the management server. If the SPI is installed for the first time on the management server, you must download the current version of all the policies into a directory on the management server.
 - 2 The SPI Upgrade Toolkit compares the following:
 - The original version of the policy with the default settings—the base version.
 - The policy with the customized settings—the customer version.
- 1 The SPI Installer downloads (back up) the policies only if the SPI is already installed. This is applicable only for this release of the SPI DVD.
- 2 If you are upgrading a previously installed version of SPI which is not supported by this version of the SPI DVD, you must manually take the backup of policies.

- The policy that will be installed by the SPI installer after the completion of the SPI upgrade process—the factory version.
- 3 After comparing, the SPI Upgrade Toolkit provides you with a detailed view displaying the following details:
 - The customizations that you made on the default policy settings.
 - Changes in the policy settings that will be introduced by the new SPI installer that will be used for the SPI upgrade process.
 - 4 For every policy that you customized, the SPI Upgrade Toolkit lets you select a setting from among the following:
 - The custom setting.
 - The new setting that will be introduced by the new SPI installer (only if the new SPI installer introduces a setting that is not identical to the above-mentioned settings).
 - 5 After you select all the settings for all the displayed policies, the SPI Upgrade Toolkit creates a new version of all the policies that merged the settings and values you selected.
 - 6 You can upload the merged version of the policies with the help of the upload script. The uploaded policies are available in the management server.

2 Installing the SPI Upgrade Toolkit

The SPI Upgrade Toolkit is packaged along with the *HP Operations Smart Plug-ins DVD* which contains a collection of HP Operations Smart Plug-ins (SPIs) and complimentary components.

Software Requirements

Before you start installing the SPI Upgrade Toolkit, make sure the following software requirements are met:

- **HPOM:** The SPI Upgrade Toolkit version 2.00 support the following version of HPOM for Linux:
 - 9.x
 - **Browser:** To use the browser-based user interface of the SPI Upgrade Toolkit, you must use the following browser:
 - Microsoft Internet Explorer 6.0 and above
 - Mozilla Firefox 2.x and above
-
- ▶ 1 You must enable Java script in the browser if it is not enabled by default.
 - 2 You must always use the Back and Home links available in the SPI Upgrade Toolkit for navigation. The Back and Forward buttons available in the browser should not be used for navigation.

Installation Procedure

The SPI Upgrade Toolkit is packaged with *HP Operations Smart Plug-ins DVD*. When you install the SPIs on the management server, the SPI Upgrade Toolkit is automatically installed.

Removing the SPI Upgrade Toolkit

For Linux, follow these steps:

- 1 To start the removal of the SPI, type the following command:

```
./HP_Operations_Smart_Plug-ins_Linux_setup.bin -i console
```

- 2 Type enter option here to start the uninstallation.
- 3 Type the number corresponding to the feature you want to remove.
- 4 Click **Enter** to continue.

When the removal is complete, you will receive a message which states that the removal is completed successfully.

To remove the folder for the SPI Upgrade Toolkit completely, run the following command:

```
rm -r /opt/OV/sutk
```

Check if `/opt/OV/nonOV/tomcat/b/www/webapps/sutk.war` exist. If the file exist, run the following command:

```
rm -rf /opt/OV/nonOV/tomcat/b/www/webapps/sutk.war
```

Check if `/opt/OV/nonOV/tomcat/b/www/webapps/sutk` folder exist. If the file exist, run the following command:

```
rm -rf /opt/OV/nonOV/tomcat/b/www/webapps/sutk
```

3 Using the SPI Upgrade Toolkit

During the SPI upgrade process, the SPI Upgrade Toolkit enables you to store the modifications done on the customer version of policies. For a specific policy, the SPI Upgrade Toolkit analyzes and compares three versions—base, customer, and factory—and helps you select the settings of the base, customer, or factory version of the policy—depending on your requirement.

The SPI Upgrade Toolkit can be used to upgrade only the following types of policies:

- Measurement Threshold
- Service/Process monitoring
- Scheduled Task
- Logfile Entry
- Windows Event Log
- Open Message Interface
- ConfigFile
- Windows Management Interface

Upgrading Policies

The SPI Upgrade Toolkit helps you choose the policy settings of the base, customer, or factory version of a policy. The SPI Upgrade Toolkit provides you with an user interface—the SPI Upgrade Toolkit console—to help you inspect and analyze the settings of all the three versions of every policy and resolve a conflict.

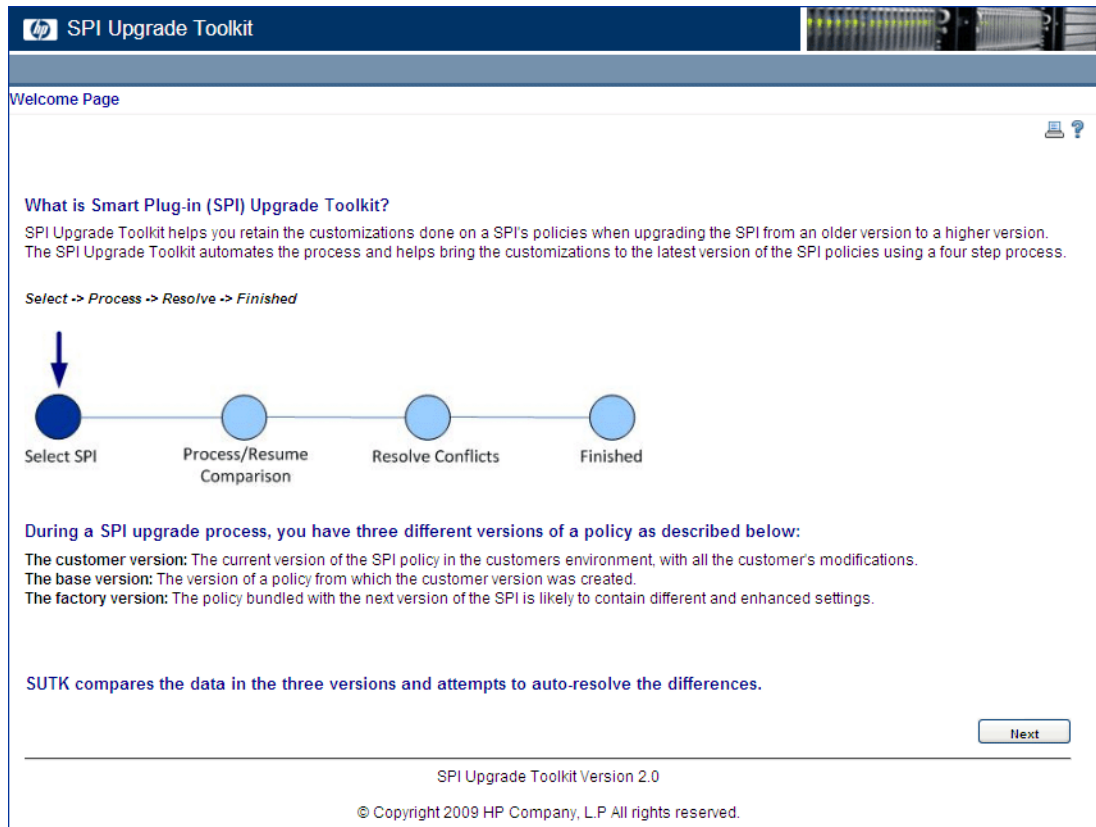
Accessing the Console

The web-based graphical user interface of the SPI Upgrade Toolkit presents the list of supported SPIs that can be upgraded with the SPI Upgrade Toolkit and reports all the changes introduced to the policies—either in the customer version or the factory version. You can access the console from anywhere in the network with the help of a web browser.

To access the console, follow these steps:

- 1 Launch the SPI Upgrade Toolkit console on a web browser by loading the following URL:
`http://<management_server>:8081/sutk`

where *<management_server>* is the fully-qualified domain name or IP address of the management server on which you have installed the SPI Upgrade Toolkit. The Welcome Page appears.

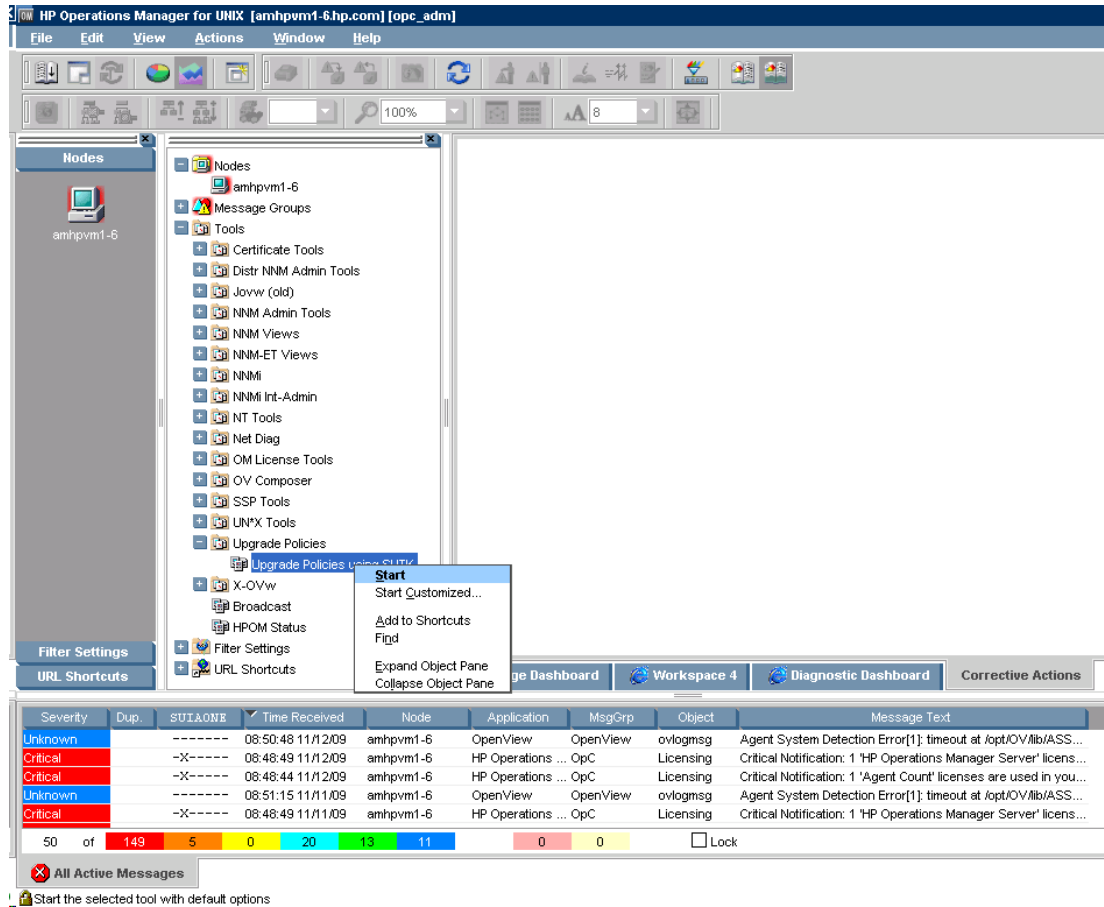


Launching from Tool

To launch SPI Upgrade Toolkit from tool, follow these steps:

- 1 Launch the HPOM for Operational UI.
- 2 Enter the user name and password.

3 Select Tools → Upgrade Policies → Upgrade Policies using SUTK.



4 The SPI Upgrade Toolkit browser will be launched.

Getting Started with the Console

From the SPI Upgrade Toolkit Welcome Page, click **Next**. The Select a SPI page appears. The Select a SPI page presents you the starting point to begin the process to merge the changes with the factory version of the SPIs.

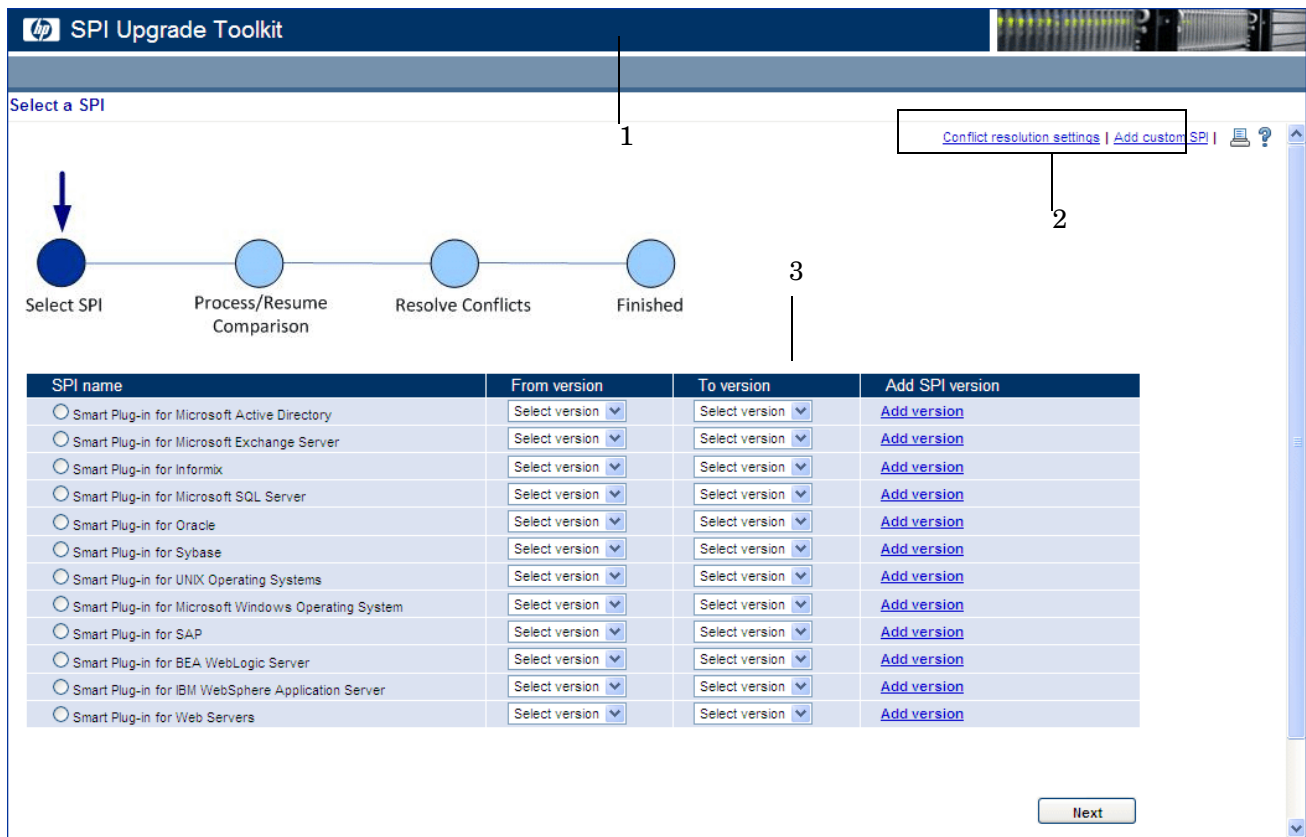


Table 1 The Select a SPI page

Section	Description
1 Title	The title section indicates the product name. Note: Only one user can access SPI Upgrade Toolkit at a time.
2 Pre-Migration Configurations	Use this section to automate the task of creating the merged version of policies. For more information, refer to Automated Conflict Resolution on page 31. This section also enables you to add details for a SPI that is not supported by the SPI Upgrade Toolkit. For more information, see Upgrading Custom SPIs on page 30.
3 Select a SPI for Migration	Use this section to select the SPI that you want to upgrade. This section offers you the versions of the SPI that are supported by the SPI Upgrade Toolkit. You can add the support for any future version of the SPI at any point of time. For more information, see Configuring a New Version of the SPI on page 28.

Upgrade Procedure

To upgrade the policies with all desired changes incorporated, perform the following tasks:

Task 1: Select the SPI to be Upgraded

Before you start upgrading the SPI to the next version, follow these steps:

- 1 In the Select a SPI page, select the SPI that you want to upgrade.

Select a SPI

[Conflict resolution settings](#) | [Add custom SPI](#) | ?

↓

Select SPI Process/Resume Comparison Resolve Conflicts Finished

SPI name	From version	To version	Add SPI version
<input type="radio"/> Smart Plug-in for Microsoft Active Directory	Select version	Select version	Add version
<input checked="" type="radio"/> Smart Plug-in for Microsoft Exchange Server	11.50	12.10	Add version
<input type="radio"/> Smart Plug-in for Informix	Select version	Select version	Add version
<input type="radio"/> Smart Plug-in for Microsoft SQL Server	Select version	Select version	Add version
<input type="radio"/> Smart Plug-in for Oracle	Select version	Select version	Add version
<input type="radio"/> Smart Plug-in for Sybase	Select version	Select version	Add version
<input type="radio"/> Smart Plug-in for UNIX Operating Systems	Select version	Select version	Add version
<input type="radio"/> Smart Plug-in for Microsoft Windows Operating System	Select version	Select version	Add version
<input type="radio"/> Smart Plug-in for SAP	Select version	Select version	Add version
<input type="radio"/> Smart Plug-in for BEA WebLogic Server	Select version	Select version	Add version
<input type="radio"/> Smart Plug-in for IBM WebSphere Application Server	Select version	Select version	Add version
<input type="radio"/> Smart Plug-in for Web Servers	Select version	Select version	Add version

Next

- 2 Select the base version of the SPI from the From Version drop-down list. The From Version should be less than the To Version.
- 3 Select the factory version of the SPI from the To Version drop-down list.

► You can select only one SPI at a time.

- 4 Click **Next**. The Proceed with comparison page appears. (If the Policies are compared for the first time, the following page appears)

Proceed with comparison [Conflict resolution settings](#) | [Add custom SPI](#) |

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Selected SPI information	
SPI selected	Smart Plug-in for Microsoft Exchange Server
From version	11.30
To version	13.00
Customer policies are already available at	/opt/OV/sutk/sutk-work/SPI for Exchange Browse
<input type="checkbox"/> Show report	

[Next](#)

- 5 If policies are already compared, the Proceed with comparison page with Compare again and Resume option appears.

Proceed with comparison [Conflict resolution settings](#) | [Add custom SPI](#) |

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Selected SPI information	
SPI selected	Smart Plug-in for Microsoft Exchange Server
From version	11.50
To version	12.10
Customer policies are already available at	/opt/OV/sutk/sutk-work/SPI for Exchange Browse
Policies are already compared	<input type="radio"/> Compare again <input checked="" type="radio"/> Resume
<input type="checkbox"/> Show report	

[Next](#)

- a Click **Compare again** if you want to compare the policies again.
 - b Click **Resume** to continue with the comparison. By default, **Resume** is selected.
- The **Compare again** and **Resume** option does not appear if the SPI is compared for the first time.
- c Click **Show Report** to view the detailed list of every policy with the number of conflicts and differences recorded for the policy by the SPI Upgrade Toolkit.

- d Click **Browse** to browse for the location of the policies stored on the management server.



The SPI Upgrade Toolkit recognizes the policies renamed by adding prefixes and suffixes.

- e If you choose different location for customer policies the policies will be compared again.

Proceed with comparison

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Selected SPI information	
SPI selected	Smart Plug-in for Microsoft Exchange Server
From version	11.50
To version	12.10
Customer policies are already available at	/opt/OV/sutk/sutk-work/SPI for Exchange_11.50-12.10 Browse
Folder absolute path	/opt/OV/sutk/policies/new/SPI for Exchange_11.50-12.10

Root folders

- A
- C
- D

Sub folders list

- Parent folder

Policies are already compared ☒ Compare again ☐ Resume


Policies will be compared again, since customer policies location has changed.

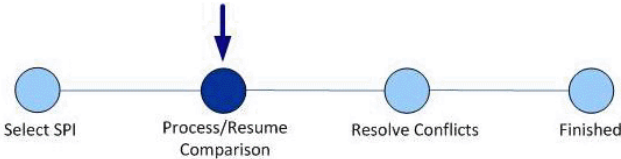
☐ Show report

- 6 Click **Next**.

- 7 Select **Show Reports** checkbox to show the reports.

Policy group based difference report

[Conflict resolution settings](#) | [Add custom SPI](#) | 




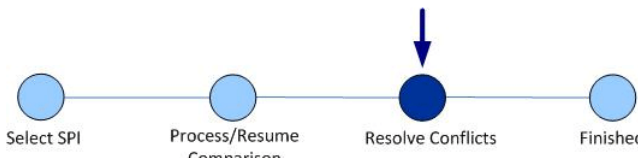
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Policy group	Conflicts	Un-resolved conflicts	Customer differences	Factory differences
▶ SPI for Exchange	3	0	4	3
▶ Exchange 2000	3	0	4	3
▶ Auto Deploy Groups	3	0	4	3
▶ Availability	0	0	0	0
▶ Client Accessibility	0	0	0	0
▶ IMAP4	0	0	0	0
▶ MAPI	0	0	0	0
▶ OWA	0	0	0	0
▶ Back End	0	0	0	0
▶ Front End	0	0	0	0
▶ POP3	0	0	0	0
▶ Cluster	0	0	0	0
▶ Directory	0	0	0	0
▶ Information Store	0	0	0	0
▶ Epoxy	0	0	0	0
▶ Full Text Index	0	0	0	0
▶ Mailbox	0	0	0	0
▶ Performance	0	0	0	0


- 8 Click **Next**. The Policy summary page appears.







Policy summary

[Conflict resolution settings](#) | [Add custom SPI](#) | 



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There are 6 of 6 un-resolved conflicts. Click on  Conflicts to resolve the conflicts.

-  Conflicts
-  Differences
-  Policies deleted
-  Policies added
-  Policies renamed
-  Policies skipped

[Merge](#)

Task 2: Resolve Conflicts and Differences

To start resolving conflicts and differences, follow these steps:

- 1 The Policy summary page lists every policy with the number of conflicts and differences recorded for the policy by the SPI Upgrade Toolkit. The Policy summary page also has the following tabs:
 - a Conflicts - List the summary of policies with conflicts
 - b Differences - List all the differences between the policies.
 - c Policies deleted - List the summary of policies deleted between versions
 - d Policies added - List the summary of all policies added between versions
 - e Policies renamed - List the summary of policies renamed during versions
 - f Policies skipped - List the summary of policies skipped during migration

You can expand a tab to view details of all policies.

Policy summary

[Conflict resolution settings](#) | [Add custom SPI](#) |

Select SPI Process/Resume Comparison **Resolve Conflicts** Finished

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There are 6 of 6 un-resolved conflicts. Click on **Conflicts** to resolve the conflicts.

Conflicts

S.No	Policy name	Policy type	Conflicts	Un-resolved conflicts	Customer differences			Factory differences		
					Changes	Inserts	Deletes	Changes	Inserts	Deletes
1	EXSPI-6.0-0800	Measurement Threshold	3	3	2	0	0	0	0	0
2	EXSPI-6.0-0802	Measurement Threshold	3	3	1	0	0	0	0	0

Differences

Policies deleted

Policies added

Policies renamed

Policies skipped

[Merge](#)

- 2 Click the policy which has a conflict from the Conflicts tab. The Policy differences and conflicts page appears.

- Click on an attribute that raised a conflict. The details of the conflict appear in the page.

Policy differences and conflicts

[Conflict resolution settings](#) | [Add custom SPI](#) |

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Policy information			
Policy name : EX SPI-6.0-0800			
Policy type : Measurement Threshold			


S.no	Attribute	Type	Resolved
1	THRESHOLD	Conflict	No
2	RESET	Customer change	Yes
3	SEVERITY	Conflict	No
4	MSGKEY	Conflict	No
5	THRESHOLD	Customer change	Yes

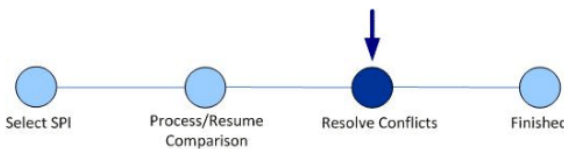
1.	Difference Details for Attribute Name : THRESHOLD
Not resolved	
Type	Conflicting
Attribute	THRESHOLD
Base value	10.000000
Customer value	30.000000
Factory value	20.000000
Custom value	<input type="text"/>
* Resolution Option	<div style="display: flex; align-items: center;"> <div style="border: 1px solid #ccc; padding: 2px 5px;">Select</div> <div style="margin-left: 5px;">▼</div> </div>
<input type="button" value="Apply"/>	

- From the Resolution Option drop-down box, select one of the following:
 - CUSTOM:** Select this to set a value for the attribute different from the base, factory, or customer value. Type a new value in the Custom Value text box.
 - CUSTOMER:** Select this to retain the attribute value of the customer version of the policy.
 - BASE:** Select this to retain the attribute value of the base version of the policy.
 - FACTORY:** Select this to retain the attribute value of the factory version of the policy.

5 Click **Apply**. The status of the policy is displayed as resolved.

Policy differences and conflicts

[Conflict resolution settings](#) | [Add custom SPI](#) | 



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Policy information

Policy name : EXSPI-6.0-0800
Policy type : Measurement Threshold

S.no	Attribute	Type	Resolved
1	THRESHOLD	Conflict	Yes
2	RESET	Customer change	Yes
3	SEVERITY	Conflict	No
4	MSGKEY	Conflict	No
5	THRESHOLD	Customer change	Yes

1.
Resolved to

Custom value
12

Type
Attribute

THRESHOLD

Base value

10.000000

Customer value

30.000000

Factory value

20.000000

Custom value

12

* Resolution Option

CUSTOM

Apply



The **Merge** button is enabled only after you resolve all the conflicts.

6 After you click **Merge**, the Preview Options appears.

Policy differences and conflicts

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Policy information

Policy name : EXSPI-6.0-0801

Policy type : Measurement Threshold

S.no	Attribute	Type	Resolved
1	THRESHOLD	Conflict	Yes
2	SEVERITY	Conflict	Yes

1.

Resolved to

Customer value

1000.000000

Type

Conflicting

Attribute

THRESHOLD

Base value

1200.000000

Customer value

1000.000000

Factory value

1024.000000

Custom value

1000.000000

Resolution Option

CUSTOMER

Apply

Merge

Preview Options

[Customer and merged policy differences](#)[Merged policy preview](#)

- Click **Customer and merged policy differences** to view a data-file comparison of the customer and merged versions of the policy.

SPI Upgrade Toolkit

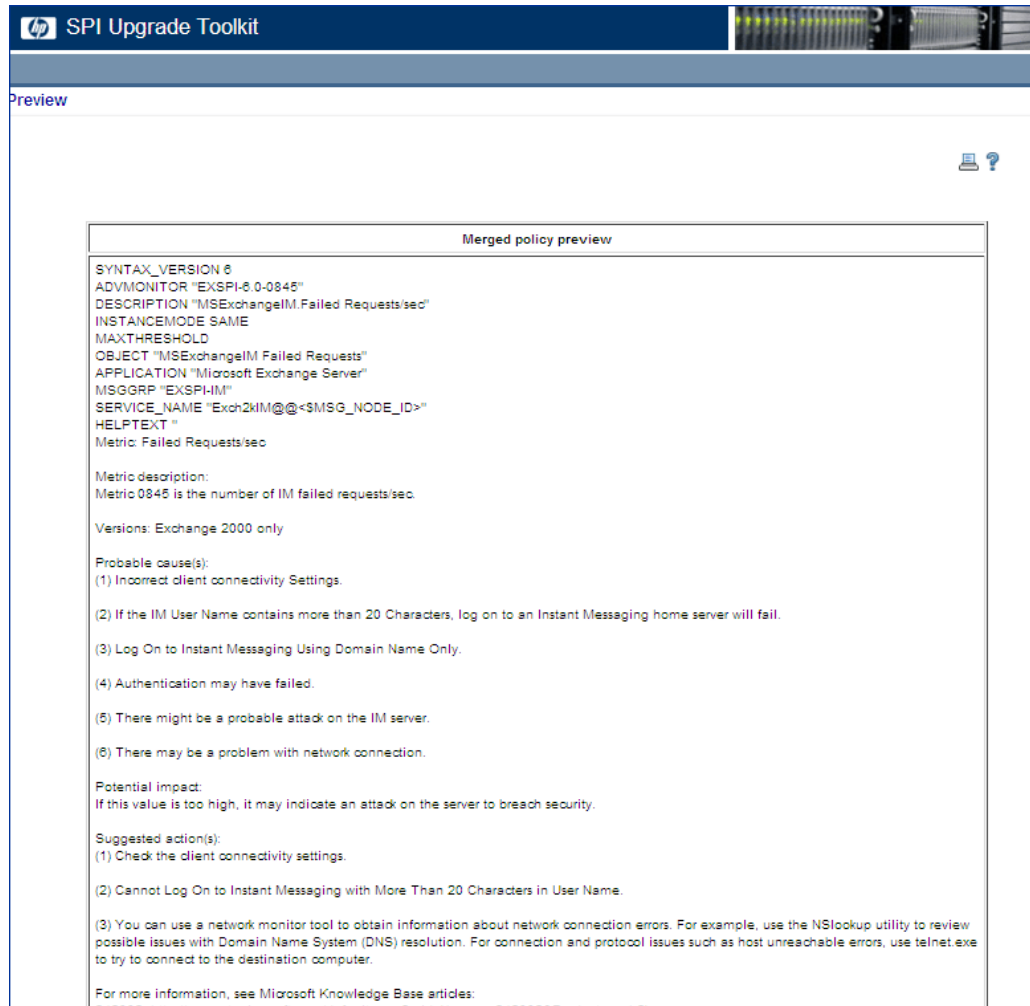
Preview

Change Insert Delete

Customer and Merged policy preview

	Customer Policy		Merged Policy
1	SYNTAX_VERSION 4	1	SYNTAX_VERSION 4
2	SCHEDULE "EXSPI-8.0 10m-MCU"	2	SCHEDULE "EXSPI-8.0 10m-MCU"
3	DESCRIPTION "10m Scheduler for MCU conferencing trends"	3	DESCRIPTION "10m Scheduler for MCU conferencing trends"
4	MINUTE "16,26,36,46,56"	4	MINUTE "16,26,36,46,56"
5	HOUR "8-17"	5	HOUR "8-17"
6	MONTH "1-12"	6	MONTH "1-12"
7	WEEKDAY "1-5"	7	WEEKDAY "1-5"
8	MONTHDAY "1-31"	8	MONTHDAY "1-31"
9	SCHEDPROG "%OvAgentDir%\bin\instrumentation\hexspi_e2k.exe" -a -m 803,804"	9	SCHEDPROG "%OvAgentDir%\bin\instrumentation\hexspi_e2k.exe" -a -m 803,804"
10	USER "SAGENT_USER"	10	USER "SAGENT_USER"
11	SEND_OUTPUT	11	SEND_OUTPUT
12	FAILURE	12	FAILURE
13	SET	13	SET
14	SEVERITY Critical	14	SEVERITY Warning
15	OBJECT "10m-MCU"	15	OBJECT "10m-MCU"
16	APPLICATION "HP Exchange Server SPI"	16	APPLICATION "HP Exchange SPI"
17	MSGGRP "EXSPI-FAULT-Found"	17	MSGGRP "EXSPI-FAULT-Found"
18	SERVICE_NAME "VP_SM:Agent.ServicesProcesses@@<MSG_NODE_ID>"	18	SERVICE_NAME "VP_SM:Agent.ServicesProcesses@@<MSG_NODE_ID>"
19	MSGKEY "<NAME>:<MSG_NODE_NAME>:<MSG_OBJECT>"	19	MSGKEY "<NAME>:<MSG_NODE_NAME>:<MSG_OBJECT>"
20	MSGKEYRELATION ACK "<NAME>:<MSG_NODE_NAME>:<MSG_OBJECT>" ICASE	20	MSGKEYRELATION ACK "<NAME>:<MSG_NODE_NAME>:<MSG_OBJECT>" ICASE
21	TEXT "EXSPI: 10m Scheduler for MCU conferencing trends failed"	21	TEXT "EXSPI: 10m Scheduler for MCU conferencing trends failed"

- Click **Merged policy preview** to view the data file format of the merged policy.



- Resolve all the conflicts by following [step 3](#) through [step 5](#).
- Click **Back**. The Policy summary page opens.

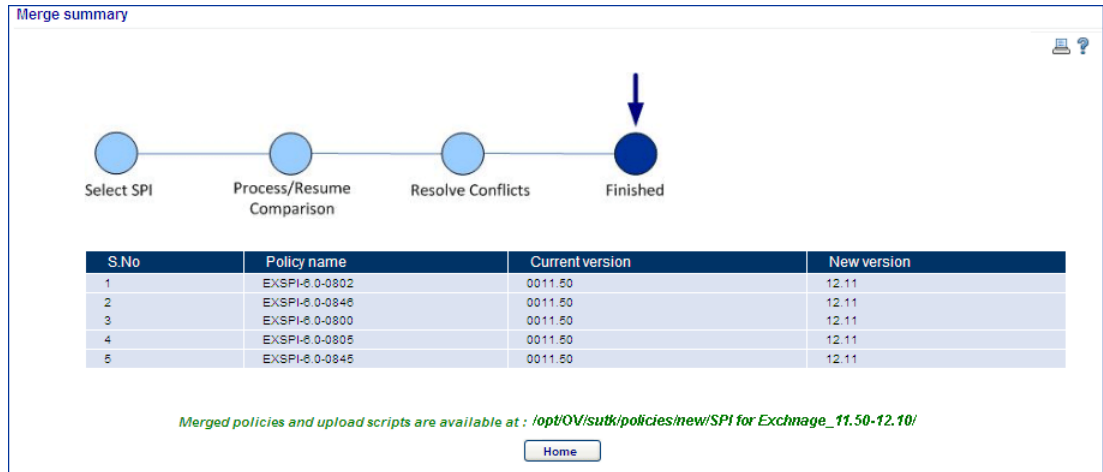


Conflicts and differences recorded in the policies that are not supported by this version of the SPI Upgrade Toolkit must be manually resolved before you proceed to the next task.

Task 3: Merge the Policies

To merge these settings, click **Merge** on the Policy summary page.

This process may take several minutes. After the merge process is complete, note down the location displayed at the bottom of the Merged Policies List table. The SPI Upgrade Toolkit stores the merged policies into this location and also creates a .tar version of the merged policies.



- For SPIs that were supported on HPOM for UNIX 8.x, policy version will be listed as unavailable because policy version was not supported on HPOM for UNIX 8.x.

Task 4: Upload the Policies

After merging the setting to the downloaded policies, you must upload the policies on the management server to work with the SPI. To upload the policies, follow these steps:

- 1 Go to the location on the management server that was noted down after the merge /opt/OV/sutk/policies/new/<SPI_Toplevel_Policy_GroupName>_<Fromversion>-<Toversion>.

- 2 Extract the .tar version of the merged policies following command:.

```
/opt/OV/bin/OpC/opccfgupld -verbose -replace -subentity  
<Complete-Path-Of-Extracted-Tar>
```

For example, /opt/OV/bin/OpC/opccfgupld -verbose -replace -subentity
/opt/OV/sutk/policies/new/SPI for Exchmage_11.50-12.00/omu/omu

- To unregister the new version of the policies from the management server, go to /opt/OV/sutk/policies/new/<Top-level-policy-groupname>_<From version>_<To Version> and run **unreg.sh**.

After you upload the merged policies, all the policies are increment with a minor version.

Instead of resolving conflicts for every individual policy, you can configure the properties files to automate the task of conflict resolution. For more information, refer to [Automated Conflict Resolution](#) on page 31.

- The log files for tracing information are available in the directory /opt/OV/sutk/logs/sutk*.log

Configuring a New Version of the SPI

The home page of the SPI Upgrade Toolkit console enables you to add support for a new version of a SPI, which is not listed by the SPI Upgrade Toolkit currently.

Prerequisites

To take advantage of this feature, you must have at least one additional HPOM management server available in your environment. You must download the policies for the SPI that you want to upgrade from the HPOM console.

Download HPOM for UNIX 8.x Policies on the Management Server

To download the 8.x policies, follow these steps:

- 1 Log on to the HPOM for UNIX secondary management server console with an administrator's privileges.
- 2 Click **Actions > Server > Download Configuration**.
- 3 Click **Templates**.
- 4 Select the policy group that you want to upgrade, and then click -->.
- 5 Click **Select All Contained Templates**.
- 6 Click **OK**.
- 7 In the Specify download location text box, specify the location on the server where you want to download the selected policies.
- 8 Click **OK**. All the selected policies are downloaded in the directory.

Download HPOM for UNIX 9.x Policies on the Management Server

To download the 9.x policies, follow these steps:

- 1 Log on to the HPOM for UNIX secondary management server console with an administrator's privileges.
- 2 Run the following command:

```
/opt/OV/bin/OpC/Utils/opctempl -download pol_group=<policy group name> dir=<dir>
```
- 3 The policies are downloaded on the management server.

Configuration Procedure

To configure the support for a new SPI version, follow these steps:

- 1 Install the new SPI version on the secondary management server.
- 2 Download the HPOM for UNIX policies by referring the above steps.
The policies are downloaded on the secondary management server. The policies are arranged in an order which you can reuse on the primary management server.
- 3 Copy these policies to the primary management server.

- 4 In the SPI Upgrade Toolkit console go to the Select a SPI page.
- 5 Select the SPI for which you want to add new version support.
- 6 Click **Add version**. The Add SPI Version page opens.

The screenshot shows the 'Add SPI Version' page. At the top, there are links for 'Conflict resolution settings', 'Add custom SPI', and a help icon. Below these are '<Back' and '<<<Home' buttons. The main content area is divided into two sections. The first section, 'Details of the supported SPI', contains a table with the following information:

Details of the supported SPI	
SPI name	Smart Plug-in for Microsoft Exchange Server
Policy group	SPI for Exchange
Supported versions	11.30,11.50,12.10,13.00

The second section, 'Provide new version information', contains two input fields: 'SPI version' and 'Full path of policies downloaded'. The 'Full path of policies downloaded' field has a 'Browse' button next to it. At the bottom of this section is an 'Add' button.

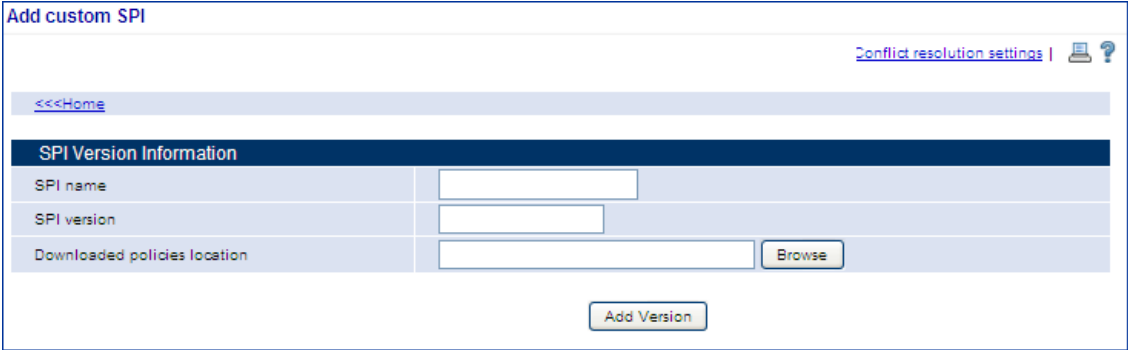
- 7 Type the version of the SPIClick **Browse** to browse for the location of the policies stored on the management server.
- 8 Click **Add**.
- 9 The new version number appears in the drop-down boxes in the Supported SPIs page.

Upgrading Custom SPIs

The SPI Upgrade Toolkit enables you to extend its capability to support SPIs that are not listed in the Select a SPI page. You must have at least one additional HPOM management server available in your environment.

To add support for a custom SPI, follow these steps:

- 1 Install the SPI on the management server.
 - ▶ Before you begin, you must download the policies on the management server. Follow the steps in the section [Configuring a New Version of the SPI](#) on page 28.
- 2 In the Select a SPI page, click **Add custom SPI**. The Add custom SPI page appears.



The screenshot shows a web interface titled "Add custom SPI". At the top right, there is a link for "Conflict resolution settings" and a help icon. Below this is a navigation bar with a "<<<Home" link. The main section is titled "SPI Version Information" and contains three input fields: "SPI name", "SPI version", and "Downloaded policies location". The "Downloaded policies location" field has a "Browse" button next to it. At the bottom center of the form is an "Add Version" button.

- 3 Enter the SPI name and SPI version.
- 4 Click **Browse** button in the Downloaded policies location to select the policies from management server.
- 5 Click **Add Version**.
- 6 When a new version of the SPI is available, perform the steps in the section [Configuring a New Version of the SPI](#) on page 28. The SPI Upgrade Toolkit will now enable you to merge the changes done on the base version to the newly released version.
- 7 To complete the procedure to upgrade the SPI to the newly released version, perform the steps in the section [Upgrading Policies](#) on page 13.

4 Automated Conflict Resolution

You can automate the process of conflict resolution with the SPI Upgrade Toolkit. You can set the Automatic Conflict Resolution setting before proceeding to upgrade the SPI.

Set Rules

To set the rules to automate the process, perform one of the following:

- [Set the Conflict Resolution Rule](#)
- [Set Policy Specific Conflict Resolution Rule](#)

Set the Conflict Resolution Rule

You can find the Conflict Resolution Settings link on the top of every page in the SPI Upgrade Toolkit. Click **Conflict resolution settings** and the Choose Conflict Resolution Settings page appears.

Global settings				
Resolve all conflicts to	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Don't auto resolve
<input type="checkbox"/> Advanced options				

Apply

You can set the Global Conflict Resolution Settings option to **FACTORY**, **CUSTOMER**, **BASE**, or **Don't auto resolve**.

- **FACTORY:** Set this value to accept only the factory version settings while creating the merged version of the policy.
- **CUSTOMER:** Set this value to accept only the customer version settings while creating the merged version of the policy.
- **BASE:** Set this value to accept only the base version settings while creating the merged version of the policy.
- **Don't auto resolve:** Set this value if you do not want to resolve the conflicts automatically. By default, this option is selected.
- **Advanced options:** Select this option to resolve conflict for different policy types. For more information on resolving policy specific conflicts, see [Set Policy Specific Conflict Resolution Rule](#).

After you have selected an option, click **Apply** to resolve the conflicts automatically.

Set Policy Specific Conflict Resolution Rule

Instead of setting a global rule for conflict/difference resolution, you can set different rules for different policy types, depending on your requirement. You can select a policy type, and then specify the policy attributes to CUSTOMER, BASE, FACTORY, or Use global setting. By default, the Use global setting is selected. While you upgrade the SPI with the SPI Upgrade Toolkit, the merged version of policies will assume the attribute values based on the settings that you configure here.

To set the rules for conflict resolution, follow these steps:

- 1 Select the **Advanced options** from the Choose Conflict Resolution Settings page.
- 2 Select a policy type from the Settings for policy type drop-down list. The list of attributes for the selected policy type appears.

Choose Conflict Resolution Settings

[Add custom SPI](#) |

[<<<Home](#)

Global settings

Resolve all conflicts to: ☐ FACTORY ☐ CUSTOMER ☐ BASE ☒ Don't auto resolve

☒ Advanced options

Settings for policy type: Measurement Threshold

S.No.	Attribute	Resolve to			
1	ADVMONITOR	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
2	APPLICATION	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
3	ATTRIBUTE	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
4	AUTOACTION	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
5	AUTOMATIC_MSGKEY	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
6	CHSET	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
7	CLASS	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
8	CODA	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
9	COLLECTION	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
10	CONDITION	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
11	CONDITION_ID	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
12	COUNTER	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
13	COUNTER_THRESHOLD	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
14	CUSTOM	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
15	DATASOURCE	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting
16	DDF	<input type="radio"/> FACTORY	<input type="radio"/> CUSTOMER	<input type="radio"/> BASE	<input checked="" type="radio"/> Use global setting

- 3 Set the attributes to CUSTOMER, BASE, FACTORY, or Use global setting. You can select the Don't Auto Resolve option in the Global Settings if you want to resolve the policies manually.
- 4 Click **Apply**. For information to upgrade policies, see the [Upgrade Procedure](#) on page 17.
- 5 To return to the home page, click the **Home** link on top of the page.



If the settings in the Conflict Resolution settings page is changed, the policies must be compared again. For more information, see [Upgrading Custom SPIs](#) on page 30.

5 Troubleshooting

Tomcat Issue

If you face issues with the existing Tomcat version while working on HPOM for UNIX or HPOM for Linux versions 9.x, follow these steps:

- Download tomcat:

Use the following link to download tomcat 6 : **<http://mirror.cloudera.com/apache/tomcat/tomcat-6/v6.0.20/bin/apache-tomcat-6.0.20.zip>** or go to **<http://tomcat.apache.org/download-60.cgi>** and download zip version of tomcat.

- Install tomcat:

Unzip this file into a directory. For example, /tomcat

- Install the SPI Upgrade Toolkit.

If SPI Upgrade Toolkit is already installed, uninstall and install again.

Copy the file /opt/OV/nonOV/tomcat/b/www/webapps/sutk.war to <tomcat-installtion Dir>/webapps folder.

- Change tomcat port:

Go to <tomcat installation Dir>/conf

Open server.xml file in a text editor.

- a From the following text, change the port number. For example, 1111.

```
<Connector port="8080" protocol="HTTP/1.1" connectionTimeout="20000"
redirectPort="8443" />
```

- b From the following text, change the port number. For example, 2222.

```
<Server port="8005" shutdown="SHUTDOWN">
```

- c From the following text, change the port number. For example, 3333.

```
<Connector connectionTimeout="20000" port="2222" protocol="HTTP/1.1"
redirectPort="8443"/>
```



The port numbers you choose should not clash with other application on the server.

Save and close the editor.

- Start tomcat:

In the command prompt, run the following commands:

```
cd <tomcat installation Dir>/bin
```

```
JRE_HOME=/opt/OV/nonOV/jre/b/
```

```
OR
```

```
JRE_HOME=<JRE Installed directory>
export JRE_HOME
JAVA_OPTS=-Dsun.lang.ClassLoader.allowArraySyntax=true
export JAVA_OPTS
startup.sh
```

- Use the url **http://localhost:<theChangedPort>/sutk**. For example, **http://localhost:1111/sutk**
- To close tomcat:

In the command prompt, run the following commands:

```
cd <tomcat installation Dir>/bin
shutdown.sh
```

Error: Improper policy data provided when adding custom SPI or custom version of SPI.

This could be a folder lock issue by the Operating System, which prevents certain renaming of folders which are required for SPI Upgrade Toolkit

The policy downloaded location specified must be the exact output of the ovpmutil/opctempl command.

In case of HPOM for UNIX 8 policy data, the policy data specified should be the exact output of the download mechanism specified. For more information, see [Download HPOM for UNIX 8.x Policies on the Management Server](#) on page 28.

Error: Folder rename failed

This could be a folder lock issue by the Operating System, which prevents certain renaming of folders which are required for the SPI Upgrade Toolkit.

Close all files which are opened from /opt/OV/sutk or its subfolders.

Glossary

Base version of policy

The original version of the policy installed and available on the management server, prior to customizing or upgrading the SPI.

Customer version of policy

The version of the policy with customized settings (attribute values).

Factory version of policy

The version of the policy introduced by the new SPI installer.

Merged version of policy

The version of the policy created by the SPI Upgrade Toolkit after resolving all conflicts and differences.

Conflict

The state where all the three versions (base, customer, and factory) of a policy have dissimilar settings.

Customer Difference

The state where a policy has identical base and factory versions but a dissimilar customer version.

Factory Difference

The state where a policy was not customized by the user but new settings are introduced in the factory version of the policy.

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