

HP Operations Smart Plug-in for SAP

Configuration Guide

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For HP Operations Manager for Windows



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Support

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This web site provides contact information and details about the products, services, and support that HP Software offers.

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Introduction

This section provides an overview of the HP Operations (HPO) Smart Plug-in for SAP (SPI for SAP). The information in this section describes how the SPI for SAP integrates with other HP software products and helps you understand how to customize both the SPI for SAP and other HP software products to meet the needs of your environment.



Some of the information in this chapter refers to both the SPI for SAP for HPOM for Unix and HPOM for Windows. In some cases the terminology might not always be entirely appropriate for both HPOM management platforms.

What is the Smart Plug-in for SAP?

The HP Operations Smart Plug-in for SAP is a software package linking SAP R/3 to HP Operations and, in addition, to the HP Performance Manager via the HP Performance agent. The union offers a complimentary and consolidated view of SAP performance information and overall resource characteristics.

This integration allows the correlation of SAP R/3 performance data with the performance data of the operating system, the database, and the network—all from one common tool and in one central management system. Integrating SAP R/3 performance data with Performance Manager/Performance agent helps to detect and eliminate bottlenecks in a distributed environment. In addition, the integration allows for system optimization as well as service-level monitoring. The Smart Plug-in for SAP offers the following key benefits:

- Centralized problem management using HPO agents on the SAP R/3 managed nodes. The use of the central HPO management server avoids the duplication of administrative effort.
- Real-time information about events and configuration—including useful on-line instructions—for fast problem resolution
- Powerful monitors detect potential problem areas and keep track of system and R/3 events
- Performance data collectors ensure system throughput and notify you of any performance bottlenecks
- Direct, context-sensitive access to the SAP front-end
- Complements and extends the SAP R/3 Computing Center Management System (CCMS)
- Performance-data collection, monitoring, and reporting
- Central data repository for the storage of event and action records for all SAP R/3 managed nodes
- Utilities for running routine SAP R/3 management tasks
- SAP service discovery and integration of SAP R/3 environments with the HPO service map—the SPI for SAP includes a policy that automatically generates service views of the SAP R/3 systems installed on your managed nodes.

What Does the SPI for SAP Provide?

The SPI for SAP provides the following capabilities for managing your SAP R/3 system:

- “Availability Management” on page 11.
- “Performance Management” on page 14
- “Remote Monitoring with the Smart Plug-in for SAP” on page 15
- “Monitoring ITS” on page 15
- “Monitoring SAP Web AS Java (J2EE)” on page 16
- “Monitoring the SAP Enterprise Portal” on page 16
- “Monitoring the CEN” on page 16
- “Monitoring Stand-alone Enqueue Servers” on page 17
- “Monitoring Security” on page 17
- “Monitoring the ABAP Dispatcher” on page 18
- “Service Reporting” on page 18
- “Combined Availability and Performance Management” on page 19
- “High-availability Environments” on page 19
- “Integration with HPO” on page 19

Availability Management

Availability management is a feature which warns you when something in your R/3 environment is going wrong, for example: a disk is too full or a key process has either stopped prematurely or failed to start at the appropriate time. The combination of the SPI for SAP and HPO warns SAP administrators about such conditions and provides the following additional assistance in the alert message:

- Messages can contain advice on corrective action, if any, that should be taken to help fix the problem to which caused the alert.
- Messages often include a pre-defined operator-initiated action that the administrator can initiate from the message itself.
- Messages can trigger an automatic action, such as an e-mail message to a manager or administrator, if a critical condition occurs.

The SPI for SAP provides an interface with CCMS, which monitors availability issues with R/3. This interface is easy-to-use and allows the SPI for SAP to be made aware of any availability problems identified by CCMS. In addition, the SPI for SAP monitors over 70 R/3-related conditions in the overall SAP R/3 System. When problems occur, the SPI for SAP can call on a wide range of UNIX®, MS Windows®, and SAP management tools to fix the problems it encounters both quickly and efficiently.

The SPI for SAP is particularly strong in the following management tasks:

- CCMS alert monitoring, including:
 - ABAP/4 database events
 - R/3 instance buffer problems
 - Tracing information
 - Enqueue server messages
 - R/3 general messages
 - Rolling and paging activities
 - Internal R/3 database events
 - Configuration status information
 - Syslog messages
- Syslog monitoring:
Via CCMS syslog alerts
- Batch job monitoring:
 - Aborted jobs
 - Long-time running jobs
 - Jobs that failed to start
- Process monitoring:
Monitoring of all processes and conditions associated with an instance
- File monitoring:
Monitoring relevant external files for SAP R/3 (log files, trace files)

- Monitoring SAP R/3 status and events by means of SPI ABAP modules. SAP R/3 status and events include:
 - Change of system operating mode
 - SAP locks
 - ABAP/4 dumps
 - Work process availability
 - Work processes modes (debug, private, no restart)
 - System change options
 - TemSe consistency
 - ALE monitoring
 - RFC-destination monitoring
- Solution-Manager integration
 - Write HPO messages to CCMS
 - Assign alerts to Solution-Manager process steps and use HPO to monitor the alerts

Managing from a Business Perspective

In HP Operations, you can use the Service Map to view the impact of the events that trigger the messages displayed in the HPO console. The Service Map displays the problem in a graphical format that makes you immediately aware of the business impact of lower-level component failures or performance degradations.

Using the Service Map, you can navigate quickly to the root cause of a service failure and, by simple point-and-click navigation, browse to faulty components for further diagnosis and advice about problem resolution.

The SPI for SAP can also perform service discovery and, with the information it collects, automatically generate a service view that shows your SAP R/3 environments from a service perspective. You can use the components of this service view and other HPO service views as building blocks to create line-of-business views that reflect the impact which the events that occur in SAP R/3 and the supporting infrastructure have on your business.

Performance Management

Performance management tells you about problems and bottlenecks that are or could be lowering end-user productivity within your SAP R/3 environment. The combination of the SPI for SAP, the Performance agent, and the HP Performance Manager allows you to collect, analyze, and view metrics which you can then use to generate alerts that the SAP administrators need to help them monitor the SAP landscape.

These fully integrated HP Software products allow correlation of SAP R/3 performance metrics with a variety of other performance data such as metrics for operating systems, databases, and networks. The integration offers a complementary and consolidated view of SAP R/3 performance and overall system-resource characteristics.

The information the integration provides allows you to optimize SAP System performance and, in addition, monitor agreed service levels, which results in improved user productivity and maximum return on investment.

The SPI for SAP monitors the following SAP R/3 metrics:

- Work-process number, type, and status
- Job statistics and state
- End-to-end transaction times (with SAP R/3 4.6 and higher)
- Spool and print jobs
- Work-load statistics
- Buffer statistics
- Memory-performance indicators
- Logged-in users
- Document volumes
- SAP Internet Communication Manager (ICM) status and performance

Remote Monitoring with the Smart Plug-in for SAP

The SPI for SAP includes a feature which allows you to extend the scope of the SPI for SAP so that it can monitor the status of SAP on remote SAP servers, which are *not* HPO managed nodes and where the SPI for SAP is *not* installed. You set up and perform the remote monitoring from an HPO managed node, where the SPI for SAP software *is* installed, correctly configured, and running.

You can use the remote-monitoring feature provided by the SPI for SAP to monitor an SAP System running in an environment that is not supported by the SPI for SAP, for example; a mainframe in an otherwise locally supported environment.

Note that you can use the alert-classes section at the end of the monitor-configuration file to associate an instance of a monitor with a specific host, SAP instance, or processes on the remote server in the same way as you can with a normal (local) managed node. For more information about the remote-monitoring feature, see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

Monitoring ITS

The SPI for SAP includes a dedicated SAP ITS (Internet Transaction Server) monitor, which allows you to monitor the following areas:

- Status and availability:
Check the availability of the various components of the ITS server, including; AGate, WGate, and web server
- Communication Problems:
Pinpoint communication problems between the ITS components even in an environment with multiple ITS instances and complex load sharing

The collected data can then be used with HP-software performance tools such as the HP Reporter to investigate problems and monitor general availability issues.

Monitoring SAP Web AS Java (J2EE)

In order to make sure that complex SAP NetWeaver environments remain available around the clock, it is essential to be able to monitor both the Web AS ABAP and the new Web AS Java. The SPI for SAP is perfectly suited to this task providing as it does, on the one hand, pre-defined monitoring policies for ABAP Web AS and, on the other hand, new capabilities to manage the Web AS Java. The SPI for SAP now allows you to extend the CCMS alert monitor `r3monal` to monitor the SAP J2EE Engine, which is an integral part of the SAP Web Application Server Java (WebAS Java).

Monitoring the SAP Enterprise Portal

The SAP Enterprise Portal provides a secure and stable web interface that gives users global access to the information, applications, and services that they need to work effectively in the SAP landscape. The SPI for SAP allows you to monitor critical aspects of the Enterprise Portal such as availability, response times, configuration, and performance.

If your SAP System provides users with an Enterprise Portal, you can configure the SPI for SAP's CCMS-alert monitor, `r3monal`, to monitor CCMS alerts relating to the portal's availability and send messages to the HPO console when problems occur that require urgent attention. You can also use the SPI for SAP to collect and correlate performance and availability data and display the correlated data in service reports for more convenient viewing.

Monitoring the CEN

If your SAP landscape includes multiple systems and numerous instances, you can reduce management overheads by using the SAP Computing Center Management System (CCMS) to monitor the entire landscape from one system, which SAP calls the central monitoring system (CEN), and then configuring the SPI for SAP to monitor the CEN. The SPI for SAP can then map alerts identified in the CCMS subsystem to messages that it sends to the HPOM console.

Monitoring Stand-alone Enqueue Servers

The enqueue server manages information about the locks currently in use by the users logged into the SAP System; the lock-related information is stored in the lock table of the main memory. If the host on which the enqueue server is running fails, the lock data is lost and cannot be restored even when the enqueue server restarts. In a high-availability environment, you can avoid problems of this kind by configuring a stand-alone enqueue server in combination with an enqueue-replication server running on a separate host.

The SPI for SAP allows you to monitor alerts generated by a stand-alone enqueue server configured in a high-availability WebAS environment. For more information about configuring `r3monal` to monitor a stand-alone enqueue server in WebAS, see *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

Monitoring Security

The availability and smooth operation of the ERP environment is critical for many companies, which often have to invest precious time and money in the constant and proactive protection of these systems against potential attackers. The challenge is not just to monitor security-related events around the clock but also identify insecure system settings, investigate unauthorized attempts to gain access to critical systems, or check any attempts to change system configuration.

The SPI for SAP now allows you to combine the extend the range of the CCMS alert monitor `r3monal` and combine it with the power of the new security monitor `r3monsec` to monitor a wide variety of security events in the SAP sub-system, for example:

- The privileges and authorizations assigned to (and used by) important SAP users
- Insecure (default) passwords in use by SAP and Oracle® users
- SAP System parameters which affect overall system security
- Miscellaneous security events such as failed logins or attempts to change SAP System settings

- SAP security-audit areas, for example: RFC calls and logons, changes to SAP System configuration, starting transactions or reports.

Monitoring the ABAP Dispatcher

The SPI for SAP's ABAP-dispatcher monitor, `r3mondisp`, checks the size, content, and status of the dispatcher queues and reports the different types of SAP work-processes that it finds. If a dispatcher queue becomes so full that it could have an adverse effect on SAP-System performance, or if a low percentage of work processes is idle, the SPI for SAP's ABAP-dispatcher monitor generates an alert, which it sends to the HPO console. You can use this feature to help you troubleshoot performance issues in the SAP Systems you are monitoring with the SPI for SAP and, in addition, improve System performance by ensuring that the SPI for SAP monitors which need to login to SAP check the status of the dispatcher queue before requesting a dialog process.

Service Reporting

The SPI for SAP includes a pre-defined set of service reports, which describe the services running on the SAP managed nodes. Service Reports are produced by HP Reporter (Reporter) using default templates that are designed for display in a web browser. The reports include both graphs and text to represent the state of monitored services in your SAP environment. Reporter allows you to request both scheduled and on-demand versions of reports.



HP Reporter light is no longer bundled with HP Operations; you must install and use the *full* version of the HP Reporter to view SPI for SAP reports.

SPI for SAP service reports correlate the data extracted from either the HP Software Embedded Performance Component (CODA) or the HP Performance agent. You can use the correlated data to generate reports which display short-, medium-, or long-term views of your IT environment and supplement the detailed, real-time graphs available with the HP Performance Manager.

Combined Availability and Performance Management

When using both the availability- and the performance-management capabilities, performance alarms can be automatically forwarded to an SAP administrator. The SAP administrator can then start HP Performance Manager to view the performance problem directly. This consolidated approach allows you to manage availability and performance problems consistently and efficiently.

High-availability Environments

The SPI for SAP provides full support for high-availability environments, allowing you to continue to make use of the product's functionality, even after a fail over, regardless of where the package is running. Whether it is the HPO management server or the SAP servers that are configured to run in a high-availability environment or even a combination of the two, you can install and configure the SPI for SAP quickly and easily to monitor SAP in the way that you see fit. For more information about installing and configuring the SPI for SAP in a high-availability SAP environment, see [“The SPI for SAP in a High-availability Environment” on page 69](#).

Integration with HPO

At the heart of the SPI for SAP is a set of monitors (data collectors) which are designed to check and report on different aspects of SAP R/3 system health. The SPI for SAP includes the following monitors:

CCMS ALERT collects alerts from the SAP R/3 internal monitor, the CCMS alert monitor

Syslog collects messages from the SAP R/3 syslog

Jobs identifies SAP R/3 batch jobs that are in an abnormal state; for example, aborted jobs

Processes	reports on the availability of SAP R/3 work processes and database processes at operating system level
Files	reports on errors in the SAP R/3 trace and log files
SPI ABAP	modules that carry out monitoring tasks within SAP R/3, for example; checks on SAP operation modes, SAP dumps, and the availability of work (and other) processes

The SPI for SAP monitors are completely integrated into HPO, both in their configuration and distribution and, in addition, in the day-to-day tasks of receiving messages and taking actions to resolve problems. This section also discusses the following topics:

- [“Configuration and Deployment Concepts” on page 20](#)
- [“Messages and Actions” on page 20](#)

Configuration and Deployment Concepts

The SPI for SAP handles the process of configuring and deploying monitors automatically by means of the configuration-file policy type. For more information about the configuration-file policy type, see [“Configuring the Smart Plug-in for SAP Monitors” on page 64](#).

Messages and Actions

The SPI for SAP monitors integrate the day-to-day management of the SAP R/3 systems with the features and functionality offered by HPO. The monitors identify conditions and inform the HPO agent on the managed node. The monitors compare the conditions they find on the monitored SAP Systems with conditions defined in the message-source policies and forward matching conditions to the HPO management server in the form of a message. The SPI for SAP assigns messages from its own monitors to SAP-specific message groups, which appear in the HPO console after the installation of the SPI for SAP completes.

The SPI for SAP displays any messages that it sends to the management server in the HPO console. The full range of HPO message facilities are available for SPI for SAP messages, including the differentiation of messages according to severity, a detailed description of the condition together with advice on problem resolution, and pre-defined operator-initiated and automatic actions.

The sequence of events within the HPO message flow is as follows:

- 1 An event occurs on an object that is being monitored by one of the alert monitors, for example; a batch job aborts. The SPI for SAP's batch-job monitor generates an alert and sends a message as a result.
- 2 The HPO agent on the managed node receives the message.
- 3 The HPO agent examines the message and, if necessary, applies filters, which suppress any duplicate messages or messages that match suppress conditions and allow any other messages to continue on to the management server.
- 4 The SPI for SAP stores active messages in the HPO database.
- 5 The SPI for SAP displays messages in the HPO console.
- 6 Administrators and operators can now select messages and, if available, start any operator-initiated actions. An operator-initiated action can take the form of a request to open the SAP GUI if, for example, a job aborts. The related message could have an operator-initiated action which calls the job-overview transaction and displays it in the SAP GUI.
- 7 When the operator acknowledges a SPI for SAP message, the messages is immediately removed from the active database and put into the history database; this helps improve statistics and facilitates reports and other analysis.

Easy Customization

The information in this section explains how you can customize the flow of messages between SAP R/3 and HPO in both the SAP R/3 environment and HPO, as described in the following two sections:

- [“Customization in SAP R/3” on page 22.](#)

- “Customization in HPO” on page 22.

Customization in SAP R/3

In SAP R/3, you can customize the flow of messages between SAP R/3 and HPO in the following ways:

- Enable or disable SAP R/3 client groups so that these are tracked or not tracked in the CCMS alert monitor. This method is discussed in the *HP Operations for Windows Smart Plug-in for SAP Administrator’s Online Help*.
 - Enabled CCMS alerts: the SPI for SAP identifies specific alerts, generates a message, and forwards the message to the HPO management server, where it appears in the console.
 - Disabled CCMS alerts; no internal SAP R/3 CCMS alerts means there will also be no HPO message.
- Set up selected alert messages so that they are included in the SAP R/3 system log file. More information about this method is available in the *HP Operations for Windows Smart Plug-in for SAP Administrator’s Online Help*.

Customization in HPO

In HPO, you can customize the flow of messages between SAP and HPO in the following ways:

- Configure and use powerful monitors to fine tune the control of your distributed SAP R/3 environment. For more information, see the *HP Operations for Windows Smart Plug-in for SAP Administrator’s Online Help*.
- Configure and apply filters to display only the relevant types of messages in the HPO console. For more information, see the *HP Operations for Windows Smart Plug-in for SAP Administrator’s Online Help*.
- Change the severity of SPI for SAP messages to suit the needs of your specific environment. For more information, see the *HP Operations for Windows Smart Plug-in for SAP Administrator’s Online Help*.

Software Installation

This section provides the information you need to install the Smart Plug-in for SAP (SPI for SAP) software. This section covers the following high-level topics:

- “Before You Begin” on page 23
- “Installation Requirements” on page 24
- “Changes and Modifications to the SPI for SAP” on page 28
- “Upgrading the SPI for SAP” on page 34
- “Configuration Overview” on page 36
- “Installing the SPI for SAP Software” on page 37
- “Verifying the Installation of the SPI for SAP Software” on page 40
- “Installing the SAP R/3 GUI” on page 42

Before You Begin

Before installing the SPI for SAP, make sure you perform the following checks:

- Ensure that the systems on which you want to install the SPI for SAP software meet the requirements listed in the following sections:
 - “Hardware, OS, and Disk Space Requirements” on page 25.

- “Compatible Software Versions” on page 25.
- For each SAP R/3 instance, note the following:
 - Which SAP R/3 version is installed?
 - Is SAP R/3 installed on a central instance or an application server?
- Create a list of all the SAP clients you want to monitor with the SPI for SAP. For each client, list the following data:
 - The hostname of the SAP application server
 - The SAP system ID
 - The SAP Instance number
 - The SAP client number
 - The operating-system platform (UNIX, Linux®, or MS Windows)
 - User name/password to be used for monitoring

You use this information to set up the environment configuration file for the Smart Plug-in for SAP.

Installation Requirements

The information in this section lists the system requirements for the installation of the SPI for SAP software and comprises the following sections:

- “Hardware, OS, and Disk Space Requirements” on page 25
- “Compatible Software Versions” on page 25
- “Obsoleted Software Versions” on page 28

Hardware, OS, and Disk Space Requirements

Before you install the SPI for SAP, use the information provided in [Table 1 on page 25](#) to ensure that your systems (HPO management server and all the managed nodes) meet the requirements for hardware, software, operating-system support, and disk space. For information about which managed-node platforms the Smart Plug-in for SAP supports, see [Table 3 on page 27](#).

Table 1: Hardware, OS, and Disk Space Requirements

Product	Hardware	OS	Minimum Disk Space
Smart Plug-in for SAP on the management server	Intel®	<ul style="list-style-type: none"> Windows Server 2003 Windows Server 2008 	1.3GB
Smart Plug-in for SAP on managed nodes	HP 9000/800:	HP-UX 11.x	30MB ^a
	IBM RS/6000	AIX 5.1, 5.2, 5.3	
	Intel	Windows 2003 ^b	
		Linux ^c	
Sun SPARC	Solaris 8, 9, 10		

a. Includes 8.5MB for the transports

b. Intel i86/x64 and Itanium® platforms

c. SuSE Linux Enterprise Server (SLES) 8 and 9; Red Hat Enterprise Linux (RHEL) 3 and 4 on Intel i86/x64 platforms only

Compatible Software Versions

Before you configure (or upgrade) the SPI for SAP software, use the information provided in [Table 2 on page 26](#) and [Table 3 on page 27](#) to ensure that you are using a version of HPO that is compatible with the current version of the Smart Plug-in for SAP. In addition, you will need to ensure the following:

- HPO server and agent software must be available on the HPO management server
- The standard HPO management-server policies must be available on the HPO management server
- HP Reporter must be available if you want to view service reports for SAP R/3, SAP R/3 performance, and SAP ITS data.



HP Reporter light is no longer bundled with HPO; install the full Reporter product to generate service reports for systems running the HP Performance agent.

If you want to edit existing (or create new) service reports for the SPI for SAP, make sure that Crystal Reports (version 8.5 or later) is available on the machine hosting the HP Reporter (version 03.70 or later)

- For Performance agent functionality (see also the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*):
 - HP Performance Manager/Performance agent must be available on the HPOM management server
 - HP Performance agent software must be available on all the SAP application servers you want to monitor

Table 2 on page 26 lists the software versions for the HPO management server, which the current version of the Smart Plug-in for SAP supports.

Table 2: Supported HPOM Management-Server Platforms

Product Name	Product Version ^a	OS Platform
HP Operations	07.50	Microsoft Windows Server 2003
	08.10	<ul style="list-style-type: none"> • Microsoft Windows Server 2008 • Microsoft Windows Server 2003

a. Installed systems should be patched to the latest required level

Table 3 on page 27 shows which combinations of the SAP R/3 kernel and (in brackets) the SAP R/3 Basis versions of SAP R/3 the SPI for SAP supports, for example: 4.6D (4.6C). Note that the last three columns of Table 3 on page 27 reflect a change to the SAP R/3 version-numbering system and show the SAP R/3 *basis* version and (in brackets) the SAP R/3 *kernel* version. For example, 6.20 (6.20) means SAP R/3 *basis* 6.20 (SAP R/3 *kernel* 6.20).

Table 3: Supported Managed-node Platforms and SAP R/3 Versions

Managed-Node Operating System	SAP R/3 Kernel (Basis) Version	SAP R/3 Basis (Kernel)		
	4.6D ^a (4.6C)	6.20 (6.20/6.40)	6.40 (6.40)	7.0 (7.0)
AIX 5.1, 5.2, 5.3 ^b	•	•	•	•
HP-UX 11.11 ^b	•	•	•	•
HP-UX 11.23 ^{bc} , 11.31 ^{bc}	•	•	•	•
Linux ^d	•	•	•	•
Solaris 8, 9, 10 ^b	•	•	•	•
Windows 2003 ^e	•	•	•	•

a. According to SAP, 4.6D is not a complete SAP R/3 release; the 4.6D kernel is shipped with the R/3 4.6C Service Release 1.

b. 64-bit run time only

c. Both PA-RISC and Itanium

d. SuSE Linux Enterprise Server (SLES) 8 and 9; Red Hat Enterprise Linux (RHEL) 3 and 4 on Intel i86/x64/IA64 platforms

e. Intel i86/x64 and Itanium platforms only

Obsoleted Software Versions

The following, features, software, or operating systems are no longer supported with this version of the SPI for SAP:

- HP-UX 11.00
- The SPI for SAP no longer provides support for the Windows 2000, 2000 Advanced Server operating systems on either the HPO management server or the managed node.
- The current release of the SPI for SAP no longer provides support for the HP-software Self-healing Services (SHS) feature, which is now obsolete.

Changes and Modifications to the SPI for SAP

This section provides information that is designed to help you complete the post-installation phase of the upgrade process by listing the changes and additions, which are introduced with the latest version of the SPI for SAP. This section covers the following topics:

- “General Changes” on page 29
- “Messages and Message Groups” on page 29
- “Tools and Tool Groups” on page 29
- “Policies and Policy Groups” on page 30
- “Message-source Policies” on page 31
- “Alert Monitors and Alert Collectors” on page 32
- “Performance Monitors” on page 33
- “Reports and Graphs” on page 33
- “SAP Transports and User Roles” on page 34

For more detailed information about the topics covered in this section, see the section about customizing the SPI for SAP in the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

General Changes

The current release of the SPI for SAP does not have any Japanese localized policies: Japanese localized policies will be provided in a subsequent, separate release.

The SPI for SAP's central configuration file policy `r3itosap.cfg` no longer contains an example section relating to SAP version 3.1; the current version of the SPI for SAP no longer supports versions of SAP, which are older than SAP 4.6C. For more information about the versions of SAP which the SPI for SAP supports, see [“Compatible Software Versions”](#) on page 25.

Messages and Message Groups

The current release of the SPI for SAP provides no new or changed message groups.

The current release includes the following changes to messages generated by the SPI for SAP:

- Application Name

The Application field in the General tab of the Message-Properties dialog now reads "SAP". Previously, the Application field contained either the string "R/3 <SAPSID> <SAPNumber>", for example: "R/3 T64 00", or the string "OpC/SAP" or "ITS <ITS_SID>". Occasionally, the field contained no information at all.

- Message Text

The `opcmsg` policy now generates a message containing a rule identifier and the name of the policy that generates the message. For more information, see [“Policies and Policy Groups”](#) on page 30.

Tools and Tool Groups

The current release of the SPI for SAP makes the following changes and additions to the SPI for SAP tools and tools groups:

- Version Verify

The Version-Verify tool compares the base version of the SPI for SAP installed with the version of any SPI for SAP components installed on the system. This application is part of the troubleshooting services. For more information about verifying installed software versions, see [“Setting up Troubleshooting Services” on page 139](#).

- Admin R/3 sapdba

The R/3 Admin Database tool is now obsolete and has been removed from the SAP R/3 UNIX and SAP R/3 NT tools groups. R/3 Admin Database has a dependency on the SAP tool `sapdba`, which is no longer available in some versions of SAP.

Policies and Policy Groups

The current release of the SPI for SAP contains the following changes or additions to policies and policy groups:

- Policy Groups

The current release of the SPI for SAP contains one new policy group and one renamed policy group to reflect support for new versions of SAP:

- Renamed Policy Group:

New Name: SAP R/3 4.6/6.x/7.0 AppServer

Old Name: SAP R/3 4.6/6.x AppServer

- New Policy Group:

SAP R/3 7.0 CentralInstance

- Policy Version Number

The current SPI for SAP release updates the version number for all monitor and configuration policies to "10.0".

- Message Text

The message text generated by the `opcmsg` policy now contains a rule identifier that indicates which rule triggers the message and, in addition, the name of the policy that generates the message, as follows:

```
SAPSPI-Policy Rule ID: <Message Text>: Policy Name
```

For example:

```
SAPSPI-101: ABAP-4 Dump occurred on system host=<machine>
SID=<sid> instance=<inst> ID=<eId> by user
<user>. (<$OPTION(MONITOR)>) [Policy: SAP R3 opcmsg]
```

Message-source Policies

Upgrading the SPI for SAP adds a number of new message conditions and, in addition, modifies and improves some of the existing policy conditions. You can use the information in the following lists and tables to help you migrate to the new environment any customizations you made to the old SPI for SAP installation.

- [Table 4, “New SPI for SAP Policy Conditions,” on page 32](#)

Lists *new* conditions, if any, that are available in the latest SPI for SAP software

- [Table 5, “Modified SPI for SAP Policy Conditions,” on page 32](#)

Shows which conditions, if any, have been modified for the new release and indicates what the changes are

- **Obsolete Message-Policy Conditions**

Lists any conditions that are no longer used and have been removed for the current release

The condition numbers indicated in the tables in this section are the default values which are valid immediately after the installation of the new SPI for SAP software. Since condition numbers for a given policy may be changed at any time by the HPO administrator, the numbers are provided here only to ease the task of finding one specific condition name in the list of many conditions displayed. If you change the order of the

conditions after installing the SPI for SAP, the numbers in your list of conditions will clearly not match the default numbers listed here. In this case, you will have to search for the condition using the condition name.

Table 4: New SPI for SAP Policy Conditions

Condition Number	Condition Name	Comment
None	None	There are no new policy conditions for this release of the SPI for SAP.

For more information about the new policies and policy conditions as well as their default configuration, see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

Table 5: Modified SPI for SAP Policy Conditions

Condition Number	Condition Name	Changes and Additions
ALL	ALL	There are no changes or additions to existing policy conditions for this release of the SPI for SAP.

The following list shows the message-source policy conditions which are no longer available with the SPI for SAP; the conditions have been removed because they refer to features and functionality, which have been improved, superseded, or made obsolete:

- No policy conditions have been removed or made obsolete for this release.

Alert Monitors and Alert Collectors

This section contains information about the changes and modifications which the current version of the SPI for SAP makes to the alert monitors (r3monal, r3mondev, etc.) and alert-collector monitors (r3moncol etc.):

- `r3mona1`: the CCMS Monitor

Improvements to the SPI for SAP CCMS alert monitor, `r3mona1`, allow you to monitor the availability of the SAP Enterprise Portal. For more information about the new Enterprise-Portal monitor, see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

- `r3moncol`: the Alert-Collector Monitor

The RemoteMonitoring section in the configuration files of all alert-collector monitors (`r3monale`, `r3mondmp`, and so on) now uses the term "LocalHost" to describe the managed node on which the SPI for SAP runs and "RemoteHost" to describe the remote SAP server to be monitored.

Performance Monitors

The current version of the SPI for SAP provides the following changed performance monitors:

- EP_PERF

The new performance monitor reports the status and performance of the SAP Enterprise Portal (EP) including (but not limited to) all the J2EE components on which it relies. For more information, see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

Reports and Graphs

The current version of the SPI for SAP makes the following changes to the service reports package:

- New reports:
 - SAP Enterprise Portal Availability
 - SAP Enterprise Portal Performance

For more information about the SPI for SAP service-reports integration, see “Upgrading the SPI for SAP Reports” on page 145 and “Installing the SPI for SAP Reports” on page 145.

SAP Transports and User Roles

The current version of the SPI for SAP makes the following additions and changes to SAP transports:

- The SPI for SAP provides new transport files for all supported versions of SAP. For more information about which versions of SAP the SPI for SAP supports, see [“Compatible Software Versions” on page 25](#).
- The SPI for SAP includes new transports for the Enterprise-Portal monitor; you must apply the new transports included in the transport file `SAPSPI_CCMS_Monitors.car` to each of the SAP Systems, to which the SAP CCMS agents report. For more information, see [“Applying the SAP Transport” on page 44](#).
- The current version of the SPI for SAP introduces a new function group (`/HPOV/NW04`) and a new function module (`/HPOV/OV_EP_PERF_MONITOR_2`) for use in combination with the new SPI for SAP Enterprise-Portal monitor. For more information about SPI for SAP function groups, see [“Applying the SAP Transport” on page 44](#).
- For more information about the transports provided with this version of the SPI for SAP, see the following file on the management server after installation of the software bits:

```
%OvShareDir%\Packages\SAPTransports\readme
```



The readme file for the SPI for SAP transports provides information about additional transport files for the new CCMS-based trees for the SAP Enterprise-Portal monitor.

Upgrading the SPI for SAP

This section describes how to upgrade the SPI for SAP software from version 10.10 or 10.50 to version 10.70. Before you upgrade the SPI for SAP software, read through the recommendations below.

- 1 Ensure you have read and understood the requirements in [“Hardware, OS, and Disk Space Requirements” on page 25](#) and [“Compatible Software Versions” on page 25](#).

- 2 Use a backup facility to save the complete, current configuration. This enables you to restore the configuration in the event that the upgrade is unsuccessful.
- 3 Make safety copies of any configuration-file templates that contain modifications you made to the original configurations. Note that the location of the policy templates from SPI for SAP version B.09.01 onwards is as follows:

`%OvShareDir%\SPI-Share\sapspi`

For more information about the changes to policy templates, see [“Changes and Modifications to the SPI for SAP” on page 28](#).

- 4 Although policies are protected by the version system, it is always a good idea to backup the SPI for SAP policies, which you have deployed to the managed nodes. If you have modified any of the SPI for SAP message-source policies, create a safety copy of the SPI for SAP policy group and all the policies it contains.



You cannot simply overwrite the new policy templates delivered as part of the SPI for SAP version 10.70 with the backup copy of the previous template version: you have to merge any changes you made to the old policy templates into the new policy templates. Since the SPI for SAP includes revised and improved policy templates, overwriting them with an older version can result in unmatched messages and might even cause more serious problems. For more information about the changes to policy templates, see [“Changes and Modifications to the SPI for SAP” on page 28](#).

- 5 If you are using (and want to upgrade) the SPI for SAP performance monitor sub-agent version 10.10, you need to remove the old SPI for SAP performance monitor sub-agent from the managed nodes *before* you remove and upgrade the SPI for SAP. Please read the section [“Upgrading the Performance Monitor” on page 104](#) before continuing with the next step, which concerns the removal of the old SPI for SAP software.
- 6 Install the new SPI for SAP software on the HPO management server according to the instructions provided in [“Installing the SPI for SAP Software” on page 37](#).



The set-up process removes the existing SPI for SAP software on the management server and replaces it with the newer version.

- 7 Install the SPI for SAP integration for the HPO console on any additional system where you intend to run the HPO console remotely in combination with the SPI for SAP. The Common Installer cannot perform this step automatically; you must perform this step manually by locating the console-integration package and double-clicking it to launch the set-up program.

▶ If the set-up program finds an existing SPI for SAP console-integration package, it removes it and replaces it with the newer version.

For more information about the location of the console-integration package, see [“Installing the SPI for SAP Software” on page 37](#).

- 8 Configure the SPI for SAP to monitor SAP R/3 as described in [“Configuration: SAP-Specific Tasks” on page 43](#). These instructions take you through the process of setting up SAP R/3 to allow access to the SPI for SAP monitors and configuring the SPI for SAP monitors to look for and report the information you want to see.
- 9 Configure the SPI for SAP to work with HPO as described in [“Configuration: HPOM Administration Tasks” on page 59](#). These instructions take you through the process of deploying the SPI for SAP instrumentation and policies.
- 10 Upgrade the SPI for SAP performance monitor sub-agent

Before converting any data, please read carefully the instructions in [“Upgrading the Performance Monitor” on page 104](#) and, in addition, in the section about upgrading the SPI for SAP performance monitor sub-agent in the *HP Operations for Windows Smart Plug-in for SAP Administrator’s Online Help*.

Configuration Overview

The complete configuration of the SPI for SAP comprises three distinct phases, performed in the following sequence:

- 1 [“Installing the SPI for SAP Software” on page 37](#)

The InstallShield Wizard installs the SPI for SAP software on the HPO management server. You also need to configure and set up the SAP R/3 GUI for windows.

2 “Verifying the Installation of the SPI for SAP Software” on page 40

You set up an SAP user and the SAP transport for the SPI for SAP and configure the SPI monitors according to the monitoring requirements of your environment.

3 “Installing the SAP R/3 GUI” on page 42

You integrate the SPI for SAP with HPO and bring all SAP application servers under HPO management.

Installing the SPI for SAP Software

Before you install and configure the SPI for SAP software, make sure that you install HP Operations (HPO) and patch it to the latest required level. After completing the installation of HPO, use the *HP Operations Smart Plug-ins DVD* to install the SPI for SAP software.

For more information about software on the *HP Operations Smart Plug-ins DVD*, see the *HP Operations for Windows Smart Plug-in for SAP Configuration Guide*.

To Install the SPI for SAP software

- 1** Use the HP Operations Smart Plug-ins - InstallShield Wizard to install the SPI for SAP software. When the InstallShield-wizard dialog box appears, select SPI for SAP by placing a check mark in the appropriate box as illustrated in [Figure 1: on page 39](#). Note that you have to scroll through one or two screens before you see the check box for the SPI for SAP.
- 2** From the Product Selection Install Wizard dialog box, follow the on-screen instructions.
- 3** Install the SPI for SAP integration for the HPO console on any additional system where you intend to run the HPO console remotely in combination with the SPI for SAP.

The Common Installer does not install the console-integration package automatically on remote systems; you have to install the package manually by locating the console-integration package file and double-clicking it to launch the set-up program. You can find the console-

integration package on the *HP Operations Smart Plug-ins DVD* in the following location:

<DVD>\SPIs\SPIs Console Packages\SPI-SAP-ITO-CONSOLE.msi

- 4** Before continuing with the configuration of the SPI for SAP software ensure the installation process completed correctly by following the instructions listed in [“Verifying the Installation of the SPI for SAP Software”](#) on page 40.

Figure 1: InstallShield Wizard Selection Dialog

HP Operations Smart Plug-ins - InstallShield Wizard

Product Selection
Select the products and components you want to install.

HP Operations Smart Plug-ins For Windows

Product/Component	Version Installed	Action
<input type="checkbox"/> IBM DB2		
<input type="checkbox"/> SPI		
<input type="checkbox"/> Reports		
<input type="checkbox"/> Microsoft Virtual Server		
<input type="checkbox"/> SPI		
<input type="checkbox"/> Graphs		
<input type="checkbox"/> Reports		
<input type="checkbox"/> Oracle Application Server SPI		
<input type="checkbox"/> SPI	5.10	
<input type="checkbox"/> Graphs		
<input type="checkbox"/> Reports	5.10.0	
<input checked="" type="checkbox"/> SPI for SAP		
<input checked="" type="checkbox"/> SPI		Install 10.70.1
<input checked="" type="checkbox"/> Reports		Install 10.70.0
<input type="checkbox"/> PeopleSoft		
<input type="checkbox"/> SPI		
<input type="checkbox"/> Reports		
<input type="checkbox"/> Remedy		
<input type="checkbox"/> SPI for Storage Area Manager		
<input type="checkbox"/> Tuxedo		
<input type="checkbox"/> NDAOM		

Checkboxes are disabled if the latest version of the SPI is already installed. Reports checkboxes are disabled if the HP Reporter is not installed or the reporter service is disabled and Graphs checkboxes are disabled if HP Performance Manager is not installed.

InstallShield

< Back Next > Cancel

Verifying the Installation of the SPI for SAP Software

It is recommended that you carry out a number of simple checks to verify that the installation of the SPI for SAP software has completed successfully and that all the required elements are available before you continue with the configuration of the software.

To Verify the Installation of the SPI for SAP Software

- 1 In the HPO console, browse to the following item:

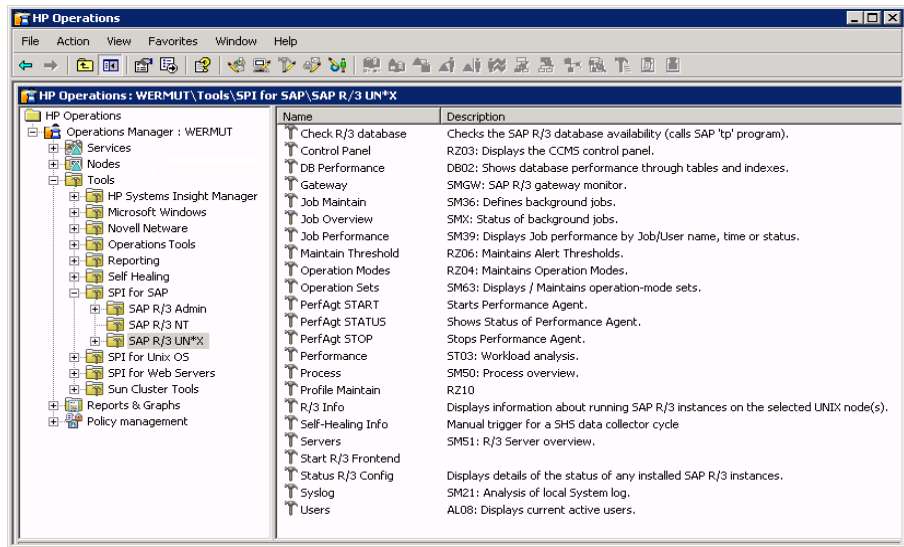
Tools > SPI for SAP

Check the that the following sub-directories are present:

- SAP R/3 Admin
- SAP R/3 NT
- SAP R/3 UN*X

- 2 Clicking each sub-directory in turn to confirm tools are present as illustrated in [Figure 2: on page 41](#).

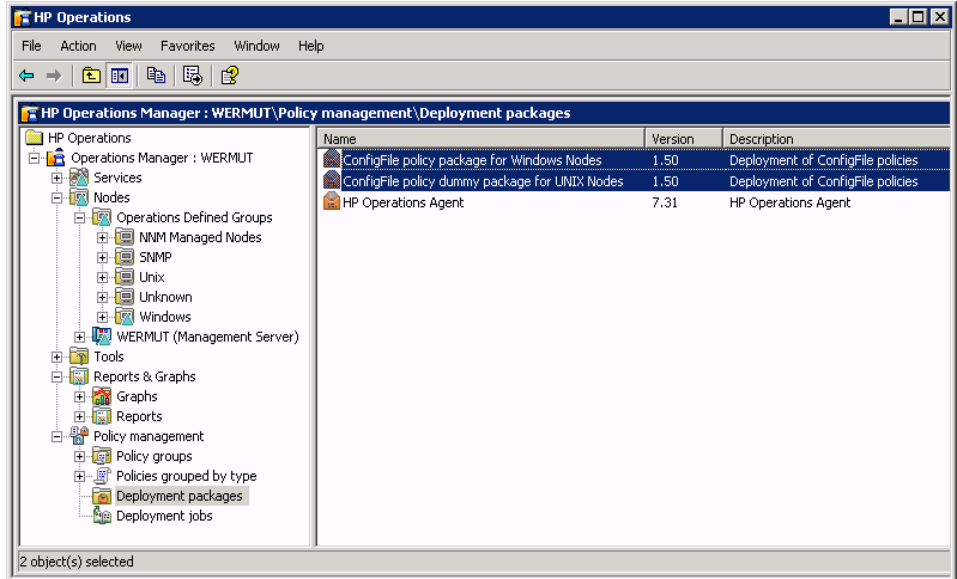
Figure 2: SPI for SAP tools sub-directory



- 3 Although the SPI for SAP does not install them, you should check that the ConfigFile policy packages are available, since they are required. In the HPO console tree, browse to the following item:

Policy management > Deployment packages

- a The following items (belonging to the configuration-file policy type) should be present as illustrated in [Figure 3: on page 42](#).
- ConfigFile policy package for Windows Nodes
 - ConfigFile policy dummy package for UNIX Nodes

Figure 3: Checking the Installed Packages

Installing the SAP R/3 GUI

In this step, you install the SAP GUI on the HPO management server as well as on the machines where you want to run a HPO console. You should use your SAP installation CD to install the most recent version of the SAP GUI available in your environment. Note that most of the operator-initiated actions and tools included in the Smart Plug-in for SAP start the SAP GUI in order to access and display SAP information. For this reason, a SAP GUI *must* be available on the machine hosting the HPO management server and, in addition, on any system where you want to run a remote HPO console. For more information about installing the native GUI for SAP R/3, see the appropriate SAP documentation.

Configuration: SAP-Specific Tasks

This section describes how to complete the SAP-specific part of the installation of the Smart Plug-in for SAP (SPI for SAP). The tasks in this phase require knowledge of SAP transactions and specific monitoring requirements. You will be working with the HPO GUI as well as on the SAP system application servers and will need to log in to HPO as an operator and to the SAP clients as a user with authority to perform the SAP tasks included in this phase.

Overview

The tasks in this section are as follows:

- 1 “Applying the SAP Transport” on page 44.

In this step, you copy the SPI for SAP transport files to each of the SAP R/3 central instances that you want to monitor with the SPI for SAP and apply them.

- 2 “Setting Up an SAP User for HPO” on page 50.

In this step, you enable HPO tools, monitors, and actions to log on to SAP R/3 whenever they need to access SAP data.

- 3 “Setting Up Configuration Values for the SPI for SAP Monitors” on page 54.

In this step, you set up initial configuration values for the Smart Plug-in for SAP monitors. You must complete this task *before* you deploy the monitor-specific configuration files to the managed nodes. This topic is covered in much greater detail in the section on monitor customization in the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

4 [“Modifying Configuration-File Policies” on page 56.](#)

In this step, you use the configuration-file policy editor to create global configuration-file policies. There is much more information on this topic in the section on monitor customization in the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.



After you set up and deploy the configuration-file policies, you must also deploy the corresponding Smart Plug-in for SAP policies to the SAP R/3 managed nodes. See [“Deploying SPI for SAP Policies to Managed Nodes” on page 65.](#)

Applying the SAP Transport

In this step, you copy the transport files provided by the Smart Plug-in for SAP to the SAP transport directories on each HPO managed node that is an SAP R/3 central instance. This section provides further information about the following topics:

- [“The SPI for SAP Transports” on page 44](#)
- [“SAP Transport Naming Conventions” on page 46](#)
- [“To Copy the Smart Plug-in for SAP Transport Files to the HPO Managed Nodes” on page 47](#)
- [“To Import Transport Files using the Command Line” on page 48](#)
- [“To Import Transport Files using the SAP R/3 GUI” on page 49](#)

The SPI for SAP Transports

The SPI for SAP provides a number of different transport files. Since the transports contains monitors that serve a specific purpose, it is important to understand where each transport needs to be imported and why. The SPI for SAP contains the following transports:

- `R3Trans.car`

The `R3Trans.car` transport contains all the ABAP monitors that the SPI for SAP uses along with the default configuration settings; you import the `R3Trans.car` transport into each of the ABAP instances that you want to monitor with the SPI for SAP through SAP's central monitoring system (CEN).

- `SAPSPI_CCMS_Monitors.car`

The `SAPSPI_CCMS_Monitors.car` transport adds the SPI for SAP's CCMS-based monitors for J2EE, System security, standalone-enqueue servers, the Enterprise-Portal, and XI monitoring to the CCMS monitor set HP OV SAP-SPI. You import the `SAPSPI_CCMS_Monitors.car` transport either into the individual SAP systems whose CCMS alerts you want to monitor with the SPI for SAP or, if configured, into the central monitoring system (CEN). In SAP terms, the CEN is the system you configure as the central management point of control for any CCMS alerts originating from anywhere in the monitored SAP landscape.

For more information about the SPI for SAP monitors as well as instructions for modifying existing (or adding new) monitors to standard SPI for SAP monitor sets, see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

SAP Transport Naming Conventions

The SPI for SAP provides transports for SAP versions later than 4.5x that include SPI for SAP functionality in the SAP name space "/HPOV/". As a result of this naming convention, administrators now must use the *new* SPI for SAP name-space transports if they want to use the SPI for SAP to monitor SAP Systems higher than 4.5x. For more information about the SAP versions that the SPI for SAP supports, see [“Installation Requirements” on page 24](#).



It is possible to import the new SPI for SAP name-space transport into an SAP System where previous versions of SPI for SAP transports have already been imported.

[Table 6](#) lists the naming conventions used for the transport objects provided by the SPI for SAP.

Table 6: Naming Conventions for Transport Objects

Transport Class	Transport Object
Development Class	/HPOV/SAPSPI
Function Groups	/HPOV/NW04 /HPOV/ZLPO /HPOV/ZSPA /HPOV/ZSPB /HPOV/ZSPY /HPOV/WEBAS /HPOV/WEBAS70 /HPOV/SOLMAN
Function modules	/HPOV/OV_*
Programs	/HPOV/YSPI* /HPOV/ZHPSPI*
Roles	/HPOV/SAPSPI_MONITORING* /HPOV/SAPSPI_SECURITY_MON

To Copy the Smart Plug-in for SAP Transport Files to the HPO Managed Nodes

- 1 Use the Windows Explorer tool to locate the SAP R/3 transport packages, which by default reside in the following directory on the HPO management server:

```
%OvShareDir%\Packages\SAPTransports
```

The SAP transport package is stored in the SAP-specific `.car` format and is accompanied by a readme file explaining which SAP transports you must import into each SAP R/3 version.

- 2 Use the `ftp` tool to transfer the package to each of the SAP R/3 central instances you want to manage with HPO.



The operating-system user executing the `ftp` operation requires write permission in the transport directory. If necessary, enable write access to the transport directory manually.

- 3 On each of the managed nodes, as SAP administrator (`<SID>adm`) use the `CAR` (or `SAPCAR`) command to unpack the transport files to `/usr/sap/trans`. Enter:

```
- CAR -xvf R3Trans.car
```

`R3Trans.car` contains the SPI for SAP's ABAP monitors.

```
- CAR -xvf SAPSPI_CCMS_Monitors.car
```

`SAPSPI_CCMS_Monitors.car` contains the transport files for the SPI for SAP's CCMS-based monitors.

For more information about the SPI for SAP's transports, see [“The SPI for SAP Transports” on page 44](#); for more information about the SPI for SAP's CCMS monitors, see *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.



The `SAPCAR` command is available on any SAP Kernel CD and replaces the `CAR` command in versions of SAP from 4.6.

- 4 Continue importing the SAP transport files following the instructions described in the following sections; you can use either the command line or the SAP R/3 GUI:
 - “To Import Transport Files using the Command Line” on page 48
 - “To Import Transport Files using the SAP R/3 GUI” on page 49

To Import Transport Files using the Command Line

- 1 Import the Smart Plug-in for SAP transport to your SAP R/3 central instance. For example, enter the following commands as SAP administrator (<SID>adm) on the appropriate HPO managed node:

```
cd \usr\sap\trans\bin
tp addtobuffer <transport_file_name> <SID>
tp import <transport_file_name> <SID> client=<client_number>
```

In this example, <SID> is the SAP system ID and <transport_file_name> is the name of the transport file, which corresponds to the version of SAP R/3 running on the HPO managed node, for example:

```
tp addtobuffer SPIK900132 CIA
```

The transport file name, SPIK900132, and the SAP System ID, CIA, are used here only to illustrate the correct syntax for the `tp` command. For more information about transport numbers and SAP R/3 versions, see the following file on the HPO management server after installation of the software bits:

```
%OvShareDir%\Packages\SAPTransports\readme
```

If the `tp` command indicates that it cannot find files or required information, use the `pf=<path>\TP_DOMAIN_<SID>.PFL` option to define the location of the `tp`-parameters file. In the following example, we assume that you installed SAP R/3 in the `e:\` partition:

```
pf=e:\usr\sap\trans\bin\TP_DOMAIN_<SID>.PFL
```

If for any reason an error occurs, you can clean the buffer using the following command:

```
tp cleanbuffer <SID>
```

Repeat this procedure on each SAP R/3 system you want to manage with HPO.

To Import Transport Files using the SAP R/3 GUI

You only need to perform this procedure for SAP R/3 versions 4.x and higher.

- 1 Log into all SAP Systems where you want to apply the SPI for SAP transport file.

➤ Transports *must* be applied to *each* SAP System.

- 2 In the SAP R/3 GUI, enter the following transaction ID to display the SAP Transport Management System (SMTS) login page: **STMS**
- 3 In the SAP Transport Management System login page, click the **Transport** icon (or press the **F5** function key).
- 4 Select the SID of the SAP System into which you want to import the SPI for SAP transport.
- 5 In the file menu, select the following option:

Extras > Other requests > Add

- 6 In the Transport-Request-to-Import queue, enter the following:

a `<Transport_file_name>`

A readme file lists the SPI for SAP transport file names; you can find the readme file on the HPO management server in the following location:

```
%OvShareDir%\Packages\SAPTransports
```

- b** Enter the target client number (000 is the default client number).

➤ You must import the SPI for SAP user role into the client where you created the SAP user "ITUSER". For more information, see [“Setting Up an SAP User for HPO” on page 50](#). The default client for the SPI for SAP user-role transport is 099.

- c** Select the **Check** [✓] icon or use the **Enter** key to add transaction requests.

- 7 Highlight the desired transport.
 - ▶ If you do not select any transport, SAP assumes you want to select *all* transports in the list.
- 8 Select **Request** > **Import**. The Import Request dialog box appears.
- 9 Check items in the Option tab that are appropriate for your system.
- 10 Click the **Check** [✓] icon or press **Enter**.

Setting Up an SAP User for HPO

You need to provide HPO with an SAP R/3 log on so that SPI for SAP tools, monitors, or actions have access to SAP. For each SID where you want to allow automated logon of HPO users, perform the following actions:

- 1 Log on to SAP R/3
- 2 Call the transaction: **SU01**

- 3 Create a new user named ITOUSER, using the parameters specified in the following table.

User roles: SAP User Roles need to be defined from SAP version 4.6C onwards. Use transaction SU01, as shown in [Figure 4](#). Note that ITOUSER requires authorizations to be able to execute SPI for SAP ABAP functions. Select the following user roles:

- /HPOV/SAPSPI_MONITORING_TCODE

Enables the use of certain SAP transactions and does not place any restrictions on the SPI for SAP functionality.

- /HPOV/SAPSPI_MONITORING_NO_TCD

The role does not contain any SAP transaction authorizations (NO_TCD) and restricts the SPI for SAP functionality by preventing the SAP user from starting SPI for SAP applications or operator-initiated actions. The SAP user can, however, still logon to SAP.

- /HPOV/SAPSPI_SECURITY_MON

If you plan to use the r3monsec monitor to monitor SAP System security, you must also assign to ITOUSER (or the user under which r3monsec runs) the authorizations defined in /HPOV/SAPSPI_SECURITY_MON, the SPI for SAP security user role.

User type: **DIALOG** - If you do *not* set the user type to DIALOG and do *not* define a corresponding password, the SAP GUI will *not* work and many of the operator-initiated actions and applications within HPO will *not* be available. However, performance and event monitoring *do* work with the CPIC/SYSTEM user.

Initial password: Any SAP-admissible value except **HPSAP_30** - The password **HPSAP_30** is associated with the use of the =default value in the SPI for SAP's central configuration file `r3itosap.cfg`. If you intend to use the =default value, you cannot enter **HPSAP_30** now as you will need it when you first log in to SAP (as ITOUSER) after completing setup, and SAP prompts you to set ITOUSER's password.

Since user-role transports are client-dependent, you must create the SAP user "ITOUSER" in the same SAP client as the import client of the SPI for SAP user-role transport. If you do not, it is not possible to assign user role "/HPOV/SAPSPI_MONITORING*" to the newly created "ITOUSER".

- 4 Activate the profile and assign it to the SAP user "ITOUSER", which you have already created.

When assigning SPI for SAP roles, it is important to verify that all required authorization objects are active and the user comparison completes successfully. SAP uses the color green to indicate that user authorization objects are active or that user comparisons complete successfully; the color red indicates that you need to activate user authorization objects or complete a user comparison.

- 5 Log on to SAP R/3 as user ITOUSER.
- 6 SAP R/3 prompts you to change the password, which you initially defined for ITOUSER. If you do not need to define your own SAP user logins and intend to make use of the =default value in the SPI for SAP's central monitor-configuration file `r3itosap.cfg`, enter the following new password: **HPSAP_30**.

Figure 4: SAP R/3 4.6C User Roles for ITOUSER

The screenshot shows the SAP R/3 4.6C 'Display User' transaction for user ITOUSER. The user's status is 'Saved' and the last change was on 30.03.2006 at 12:57:35. The 'Roles' tab is selected, displaying a table of role assignments.

Reference user for additional rights:

St.	Role	Type	Valid From	Valid to	Name
■	/HPOV/SAPSPI_MONITORING_TCODE	GR	01.03.2006	31.12.9999	OpenView Smart Plug-in f
■	/HPOV/SAPSPI_SECURITY_MON	GR	01.03.2006	31.12.9999	OpenView mySAP.com SF

Bottom status bar: G11 (1) 100 sodom OVR

Setting Up Configuration Values for the SPI for SAP Monitors

To conclude the SAP-specific tasks, you have to set up initial configuration values in monitor-specific configuration files for each of the Smart Plug-in for SAP monitors *before* you deploy the configuration files to the managed nodes. The Smart Plug-in for SAP includes the monitors listed in [Table 7](#): below.

Table 7: Smart Plug-in for SAP Monitors

Monitor Name	Description
r3monaco	Alert collector for TemSe calls
r3monale	ALE monitor
r3monal	CCMS monitor
r3monchg	System change monitor
r3moncts	Correction and Transport system monitor
r3mondev	Trace monitor of the SAP logfile: <SID>/<INSTANCE>/work/dev*
r3mondmp	ABAP/4 Dump monitor
r3mondisp	ABAP/4 Dispatcher monitor
r3monjob	Job monitor
r3monlck	Lock check monitor
r3monoms ^a	Operation mode switch monitor
r3monpro	Operating system process monitor
r3monrfc	SAP RFC destination monitor
r3monsec	Security monitor
r3monspl	Spool monitor

Table 7: Smart Plug-in for SAP Monitors (Continued)

Monitor Name	Description
r3montra	Transport monitor
r3monupd	Update monitor
r3monusr	User monitor
r3monwpa	Work-process availability monitor
r3status	SAP R/3 status monitor

a. Due to changes in SAP, the operation-mode monitor r3monoms is not supported with SAP Netweaver 04/WebAS 07.

The Smart Plug-in for SAP also includes two sets of configuration and distribution tools as follows:

Global tools which apply to *all* managed nodes

Local tools which apply only to a *specified* managed node

For more information about (and instructions for) configuring monitors see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

Modifying Configuration-File Policies

In this step you use the configuration-file policy editor and the default policy templates to create your own global configuration-file policies for each of the SPI for SAP R/3 monitors, which run on the SAP R/3 servers you want to monitor with the SPI for SAP. Note that HPO keeps track of the changes you make by saving the modified policy with an numeric suffix that increments with each new version of the policy; if the default policy version number is 10.0, the new version you save will be 10.1.



The SPI for SAP provides a default configuration-file policy for each configuration file. Although you can use the default configuration for initial deployment, you will need to modify the configuration to suit the needs of your SAP environment.

To modify a configuration-file policy for the SPI for SAP monitors

- 1 In the HPO console, browse to the following directory:
Policy Management > Policy Group > Policies grouped by type
- 2 In the details pane, double click the configuration-file policy corresponding to the SPI for SAP monitor that you want to modify, for example: `r3mondmp`. The configuration-file policy for `r3mondmp`, the ABAP Dump monitor, appears in the configuration-file policy editor.
 - ▶ The filename `r3mondmp.cfg` is used here only as an example. If you want to modify the default configuration files, edit the global configuration file which corresponds to each of the Smart Plug-in for SAP monitors you want to deploy to (and run on) the SAP R/3 managed nodes.
- 3 Scroll down through the configuration-file policy and make the appropriate modifications for your environment.

- 4 Click Save to confirm the changes to your configuration-file policy and exit the editor. The new version of the configuration-file policy for the SPI for SAP R/3 monitor appears in the list of policies in the details pane.

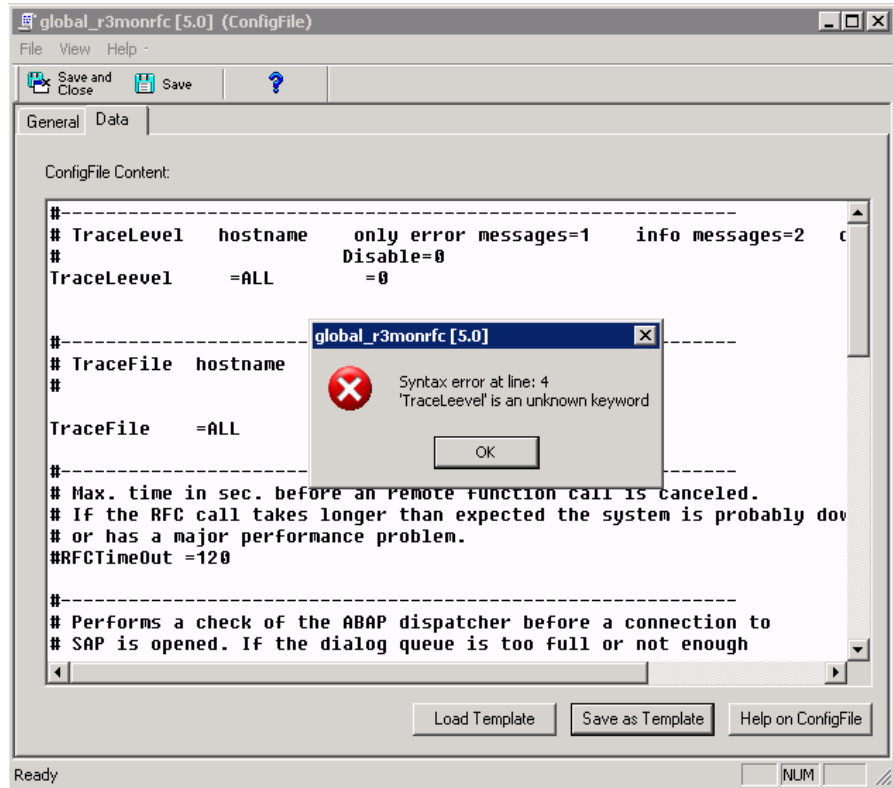


If you use HPO tools to edit a configuration file which uses the `r3moncol` structure, the SPI for SAP automatically validates the contents of the file when you attempt to save it and will not allow you to save a file that contains a configuration error. For more information about the validation tool and the error messages it generates, see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

If the SPI for SAP finds an error in the modified configuration file, it displays a message indicating what the problem is. For example, if you misspell the keyword `TraceLevel` when attempting to set the trace level (info, all, debug) in a monitor configuration file, you see the following (or similar) message when trying to save the modified file: "TraceLeevel is an unknown keyword", as illustrated in [Figure 5: on page 58](#). You will have to locate and fix the problem before trying to save the file again. When the SPI for SAP is sure that the modified file is valid, it saves the file and increments the file version number, too.

- 5 Deploy the newly created configuration-file policies to the SAP R/3 managed nodes as described in [“Deploying SPI for SAP Policies to Managed Nodes” on page 65](#).

Figure 5: Configuration-file parsing error.



Configuration: HPOM Administration Tasks

In this phase of the SPI for SAP configuration, you use the HPO console to integrate the SPI for SAP with HPO and bring all the SAP servers that you want to monitor under HPO management. In this section, you complete the following tasks:

- 1 “Specifying SAP R/3 Systems to Monitor” on page 59.
- 2 “Configuring the Smart Plug-in for SAP Monitors” on page 64.
- 3 “Deploying SPI for SAP Policies to Managed Nodes” on page 65.



The tasks in this section assume that the SAP R/3 systems you want to monitor with the SPI for SAP are *already* HPO managed nodes. If this is not the case, see the HPO on-line help for instructions that explain how to add managed nodes to HPO.

Specifying SAP R/3 Systems to Monitor

This section describes how to use the configuration-file policy editor to define which SAP R/3 Systems you want to monitor with the Smart Plug-in for SAP. You use the `r3itosap.cfg` configuration file to define the SAP R/3 Systems to monitor with the Smart Plug-in for SAP.

Telling the SPI for SAP which SAP R/3 Clients to Monitor

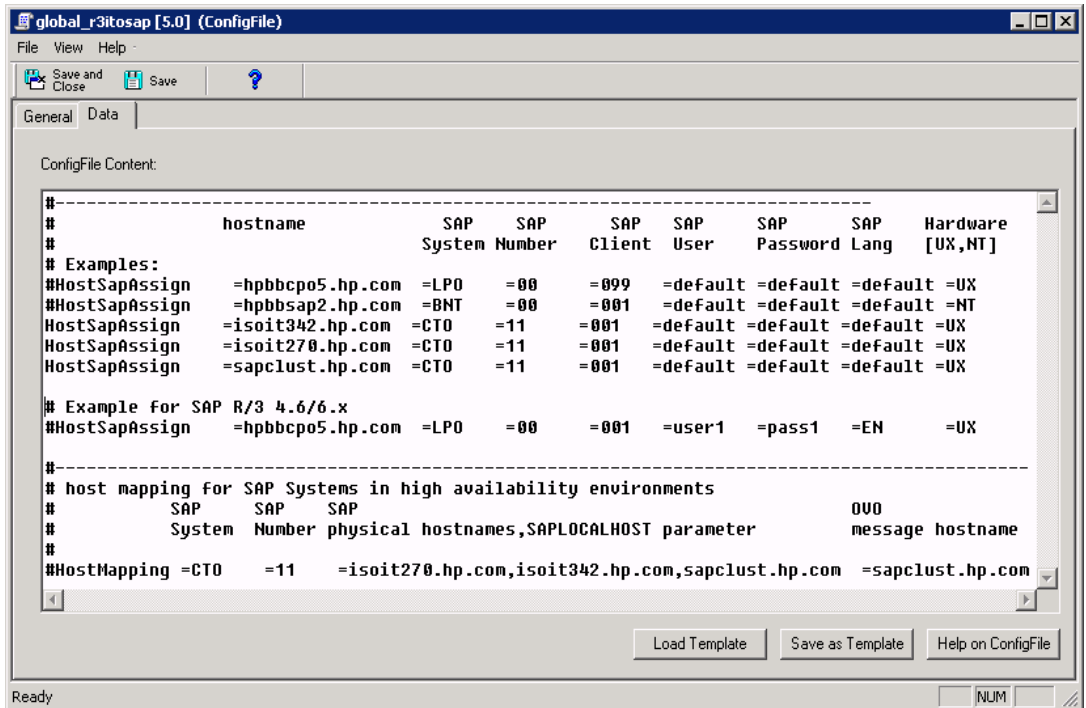
- 1 In the HPO console, browse to the following directory:

Policy management > Policy groups > SPI for SAP

- ▶ You have to set up SAP R/3 users for each SAP R/3 client so that the users have permission to display and maintain CCMS. The list of SAP R/3 clients you made in “[Before You Begin](#)” on page 23 includes the information you need for each configuration line. For more information about how to set up SAP users for HPO, see “[Setting Up an SAP User for HPO](#)” on page 50.
- 2 In the HPO console, locate and double-click the `global_r3itosap` policy template. The configuration-file policy editor displays the selected file as illustrated in [Figure 6: on page 61](#).
 - 3 Using the format of the examples in the `r3itosap.cfg` configuration file, add a `HostSapAssign` entry for each SAP R/3 instance, which you want to monitor with the SPI for SAP. When adding entries to `r3itosap.cfg`, bear in mind the following important points:
 - The language specified in each `HostSapAssign` entry determines the language the SPI for SAP monitors use when logging in to SAP and must be one of the languages currently supported by the SPI for SAP transports, for example: `=EN` (English) or `=JA` (Japanese). The language you specify here does not affect or determine the language used when starting the SAP GUI.
 - `r3status`, the tool the SPI for SAP uses to monitor the status of SAP Systems, does not attempt to verify or validate the existence of the SAP Systems specified in `r3itosap.cfg`. If `r3status` cannot find a named SID, for example: because of a spelling mistake, it reports the SID as unavailable.
 - In the central, SPI for SAP, monitor-configuration file `r3itosap.cfg`, the string `=default` is associated with the default ITOUSER password “HPSAP_30”. If you intend to make use of your own SAP user logins, you need to replace `=default` with the appropriate user password. As long as you use the HPO policy editor to edit the `r3itosap.cfg` file, the password is encrypted automatically when you save the file. By default, the SPI for SAP resolves the name of the

managed nodes that generate messages as the host name defined in the SAP variable, SAPLOCALHOST.

Figure 6: Editing the r3itosap.cfg File



- 4 If the hosts you add to the `r3itosap.cfg` file are configured in a high-availability cluster, you need to add an extra entry to the host-mapping section of the `r3itosap.cfg` file: the information in the host-mapping section maps the names of the physical nodes in the high-availability cluster to the name of the node defined in the SAP variable, `SAPLOCALHOST` and, in addition, to the host name you want to associate with any messages from the cluster when they appear in the HPO console or the Service Map.

The host names specified in the `r3itosap.cfg` file *must* be known to HPO and be resolvable. Whether you choose to use long or short host names depends on how you have set up name resolution in your network.

The cluster host-names appear in the HostMapping entry in the form of a comma-separated list. The last item in the HostMapping entry defines the name of the host with which you want to associate any messages that are generated by nodes in the high-availability cluster. For example;

```
=ClusterHostA,ClusterHostB,SAPLOCALHOST =<HPOM_Msg_Node>
```

- ▶ Short host names are not allowed in the host-mapping section of the `r3itosap.cfg` file. Make sure you use fully qualified host names for all the host names you specify in the host-mapping section of the `r3itosap.cfg` file.

Example 1 on page 62 shows the entry you would add to the host-mapping section of the `r3itosap.cfg` file if you want to use the SPI for SAP to monitor a high-availability cluster in which the names of the two physical nodes are “True” and “False”, the SAP variable `SAPLOCALHOST` is defined as “maybe”, and the name of the host with which to associate messages from the cluster is “mezcal”.

Example 1: Mapping SAP hosts in a cluster

```
# cluster host mapping
HostMapping =EP7 =78 =true.com,false.com,maybe.com =mezcal.com
```

In a high-availability cluster, the name of the host with which you associate HPO messages (<*HPOM_Msg_Node*> in the example above) is usually (but does not *have* to be) the same as the host defined in `SAPLOCALHOST`. Whether `SAPLOCALHOST` is (or is not) the same as <*HPOM_Msg_Node*> has an impact on what you need to include in the host-mapping section, as follows:

- If `SAPLOCALHOST` and <*HPOM_Msg_Node*> are the same host:
No entry for `SAPLOCALHOST` is required in the list of physical cluster nodes, for example:

```
=ClusterHostA,ClusterHostB =<HPOM_Msg_Node>
```
- If `SAPLOCALHOST` and <*HPOM_Msg_Node*> are *not* the same host:
You need to add an entry for `SAPLOCALHOST` at the end of the list of physical cluster nodes, for example;

```
=ClusterHostA,ClusterHostB,SAPLOCALHOST =<HPOM_Msg_Node>
```



All physical nodes in the high-availability cluster must appear in the HPO console. You also need to add to the HPO console as node type "Other" (Message only) the host which you define in `<HPO_Msg_Node>` in the example above. For more information about setting up the SPI for SAP in a high-availability environment, see [“Configuring the SPI for SAP in a Cluster Environment” on page 79](#).

To ensure that automatic or operator-initiated actions are always able to open an SAP GUI on the node where the SAP instance is running in the high-availability cluster, you need to add a HostSapAssign entry to the `r3itosap.cfg` file, which specifies the cluster-host name defined in the variable `<HPO_Msg_Node>`.

See also [“Host Mapping on Cluster Nodes” on page 81](#) for information about how to avoid problems with HPO agent settings for host names and IP addresses overriding settings defined in the host-mapping section of the SPI for SAP’s central configuration file, `r3itosap.cfg`, which could cause the wrong host name to appear in messages originating from the cluster.

- 5 Save your changes and exit the policy editor. When saving the policy, we recommend you use the configuration-file policy-type naming conventions, for example: `global_r3itosap`.
- 6 Deploy the `r3itosap.cfg` policy to the managed nodes you want to monitor with the SPI for SAP. Right click the `r3itosap.cfg` policy you modified and use the following menu option:

All Tasks > Deploy on...



The information in the `r3itosap.cfg` policy is used by the service auto-discovery policy, `r3sdisc`, to generate a service view of your SAP landscape. If you intend to use the service-views feature, make sure that you deploy the `r3itosap.cfg` policy to the managed node(s) for which you want to generate service views before you run the service auto-discovery. For more information about running service discovery and setting up service views, see the *HP Operations for Windows Smart Plug-in for SAP Administrator’s Online Help*.

Configuring the Smart Plug-in for SAP Monitors

The SPI for SAP monitors which you deploy to the SAP R/3 servers that are managed by HPO require information about what to monitor and how. The monitors obtain this information from default configuration files, which are installed by the Smart Plug-in for SAP. Each of the SPI for SAP monitors has its *own* default configuration file.

In this step you use the configuration-file policy editor to edit global configuration files (from the default files) for *each* of the SPI for SAP monitors which runs on the SAP R/3 servers. After you have edited the configuration files, you deploy them to the SAP R/3 servers using the standard HPO policy-deployment mechanism.

To modify an existing configuration-file policy for the Smart Plug-in for SAP monitors

- 1 In the HPO console tree, browse to the following directory:
Policy Management > Policy Groups > SPI for SAP
- 2 In the details pane, locate and double-click the configuration file associated with the monitor you want to configure, for example; the `global_r3mondmp` file. The configuration-file policy editor displays the selected file as illustrated in [Figure 6: on page 61](#).
 - ▶ The `r3itosap.cfg` file shown in [Figure 6: on page 61](#) is not associated with any one, particular monitor; it is the SPI for SAP's central configuration file, which all the other monitors use to login to the SAP Systems you want to manage. This is the *only global* configuration file that *must* be edited.
- 3 Although all other *global* configuration files can be used in their default state, they generate a large number of messages, some of which you might not at first need. If you want to modify a configuration file, for example to ensure you only receive the messages you *do* need, scroll down to the end of the Configuration File content box, where you will find the alert definitions and can make any changes as required. For more information about the contents and syntax of the SPI for SAP monitors, see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

- 4 Save your policy and exit the configuration-file policy editor. The modified configuration-file policy for the SPI for SAP `r3moncmp` monitor appears in the list of policies in the details pane.



If you use HPO tools to edit a configuration file which uses the `r3moncol` structure, the SPI for SAP automatically validates the contents of the file when you attempt to save it and will not allow you to save a file that contains a configuration error. For more information about the validation tool and the error messages it generates, see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

- 5 Deploy the modified configuration-file policies to the SAP R/3 managed nodes as described in “[Deploying SPI for SAP Policies to Managed Nodes](#)” on page 65.

Deploying SPI for SAP Policies to Managed Nodes

The SPI for SAP policies are organized into default groups, all of which are part of the policy group SPI for SAP. The SPI for SAP policy groups are:

- SAP ITS 6.20
- SAP R/3 4.6/6.x CentralInstance
- SAP R/3 4.6/6.x/7.0 AppServer
- SAP R/3 7.0 CentralInstance

You can assign only *one* policy group to a managed node. Which policy group you assign is determined by the software and software version

running on the managed node and whether the node is a central instance or an application server.



Remember to deploy an alert monitor's configuration-file policy before deploying the corresponding alert monitor itself. The alert monitors read these configuration files on startup. For example, you need to deploy the `r3moncts` configuration-file policy before you deploy the corresponding alert monitor, `r3moncts`. For more information, see [“Configuring the Smart Plug-in for SAP Monitors” on page 64](#).

The SPI for SAP default policy groups contain all the SAP R/3 monitors supplied with the Smart Plug-in for SAP. Deploying a policy group automatically activates the monitors, which the group contains. In addition, since all SPI for SAP policies belong to the Category "SPI for SAP Instrumentation", when you deploy a SPI for SAP policy or policy group, the policy-deployment operation triggers the deployment of the required SPI for SAP instrumentation. The SPI for SAP instrumentation package contains the actions, commands, and monitors, which the SPI for SAP requires to ensure features and functionality work as expected.

To Avoid Receiving Unnecessary or Unwanted Messages

- 1 Make copies of the default policy groups and modify the *copies* to create your own policy groups containing only those monitors and policies you need.
- 2 Tune the policies and monitors to suit the requirements of your environment before deploying them to the nodes you want to manage with the Smart Plug-in for SAP. This will help prevent additional unwanted messages.

To Create Policy Groups

As HPO administrator, make your own policy group as illustrated in [Figure 7: on page 68](#). You should then remove those policies and monitors you *do not* need from the new policy group, as follows:

- 1 Expand the `Policy Groups` item and select and expand `SPI for SAP` to display all the default policy groups for the Smart Plug-in for SAP.
- 2 Create a new policy group by selecting and right-clicking `SPI for SAP` and selecting the following menu:

New > Policy Group

- 3 Enter a name for the new policy group in the fields provided and click **OK**.
- 4 In the left pane, select the existing policy group from which you want to copy policies and, in the details pane, drag the policies you want to place in the new policy group over and drop them on to the policy group you have just created.

To Deploy Policy Groups

Deploy the new policy group to the SAP R/3 nodes by following the instructions below. Which policies and policy groups you deploy depends on which SAP R/3 version is installed on the managed nodes and whether the nodes host a central instance or an application server.

- 1 In the console tree, select and right click the new policy group or groups you have created (containing the monitors you need) and use the following menu option:

All Tasks > Deploy on...

- 2 Use the Deploy Policies on... window to select the managed nodes to which you want to deploy the new policy group
- 3 Click **OK** to finish deploying policies.

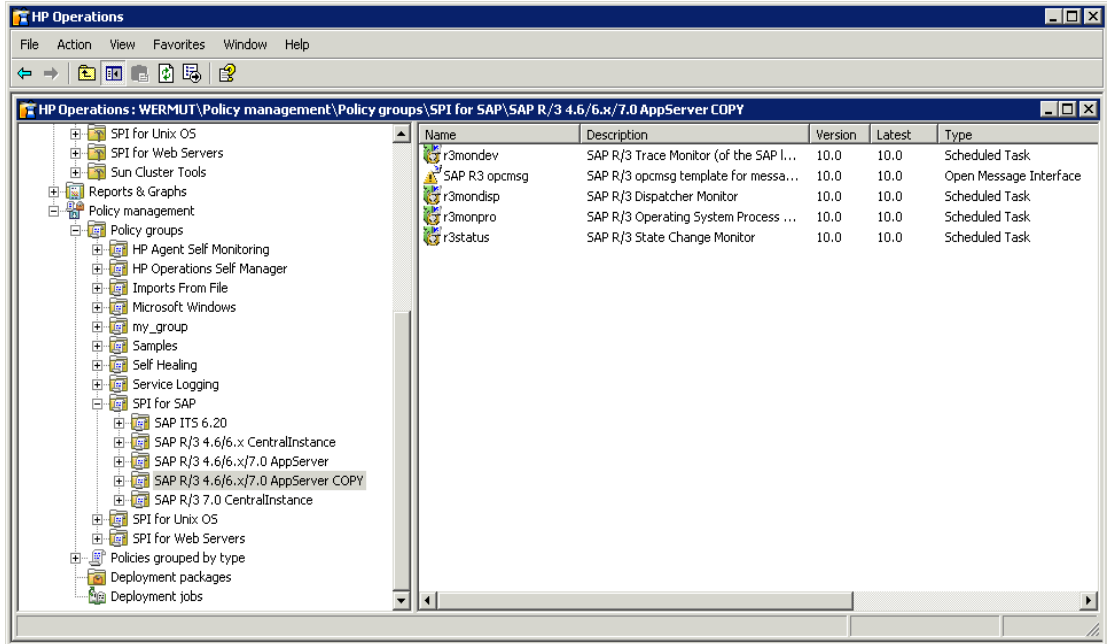
▶ You can use this opportunity to deploy any other policies not present in the SAP R/3-specific policy groups.

- 4 To check that the policies deployed successfully, right click a managed node and selecting the following menu option from the drop-down menu that appears:

Policy Inventory > Deployment jobs

▶ Some of the monitors may require SAP configuration. See [“Configuration: HPOM Administration Tasks”](#) beginning on page 59 for additional information on SAP-Specific tasks.

Figure 7: Removing Policies from a Policy Group



The SPI for SAP in a High-availability Environment

The information in this section helps you to understand the process of installing and configuring the SPI for SAP in a high-availability environment such as MC/ServiceGuard or Microsoft cluster. Although the information provided in this section concentrates on example configurations, the basic concepts are the same for any high-availability environment as far as the SPI for SAP is concerned.



The information in this section explains how to set up the SPI for SAP to manage SAP on *managed nodes*, which are configured in a high-availability environment. If you want to set up the HPO management server in a high-availability environment, see the HPO documentation.

This section covers the following topics:

- “Cluster Configurations” on page 70

A short description of the most common implementations of high-availability software in an SAP R/3 landscape

- “Before You Begin” on page 74

A check list of points to be aware of before you install and configure the SPI for SAP in a cluster environment

- [“Installing the SPI for SAP in a Cluster Environment” on page 76](#)
Instructions which help you through the process of installing the SPI for SAP in a cluster environment
- [“Configuring the SPI for SAP in a Cluster Environment” on page 79](#)
Helpful tips and tricks to use when configuring the SPI for SAP in a cluster environment
- [“Performance Tools in a Cluster Environment” on page 91](#)
How to set up and use the HP Performance agent tools to best effect with the SPI for SAP in a cluster environment
- [“Service Reports and Performance Graphs in a Cluster Environment” on page 92](#)
How to generate SPI for SAP service reports and performance graphs for managed nodes in a cluster environment
- [“Service Views in a Cluster Environment” on page 93](#)
Using tools provided by the SPI for SAP, you can generate Service Views of the SAP environment automatically.
- [“Removing the SPI for SAP Software in a Cluster Environment” on page 93](#)
Instructions to take you through the process of removing the SPI for SAP from managed nodes in a cluster environment

Cluster Configurations

The most typical implementations of high-availability software in SAP R/3 landscapes involve configuring the central-instance server and the database server in a cluster and installing either one *combined* high-availability package on the central-instance server or, alternatively, two *separate* high-availability packages on the central-instance server and the database server, respectively. Typically, application servers are not configured as part of the high-availability cluster. The two configurations which we describe in more detail in this section are as follows:

- the single-package configuration

In the single-package configuration, the SAP database and central instance are located on the *same* server and included in the same high-availability package. The combined package can be switched temporarily to the adoptive node in the event of problems.

- the twin-package configuration

In the twin-package configuration, the SAP database and central instance are located on *different* servers. Either package can be switched temporarily to the alternative node in the event of a problem on the host or adoptive node.

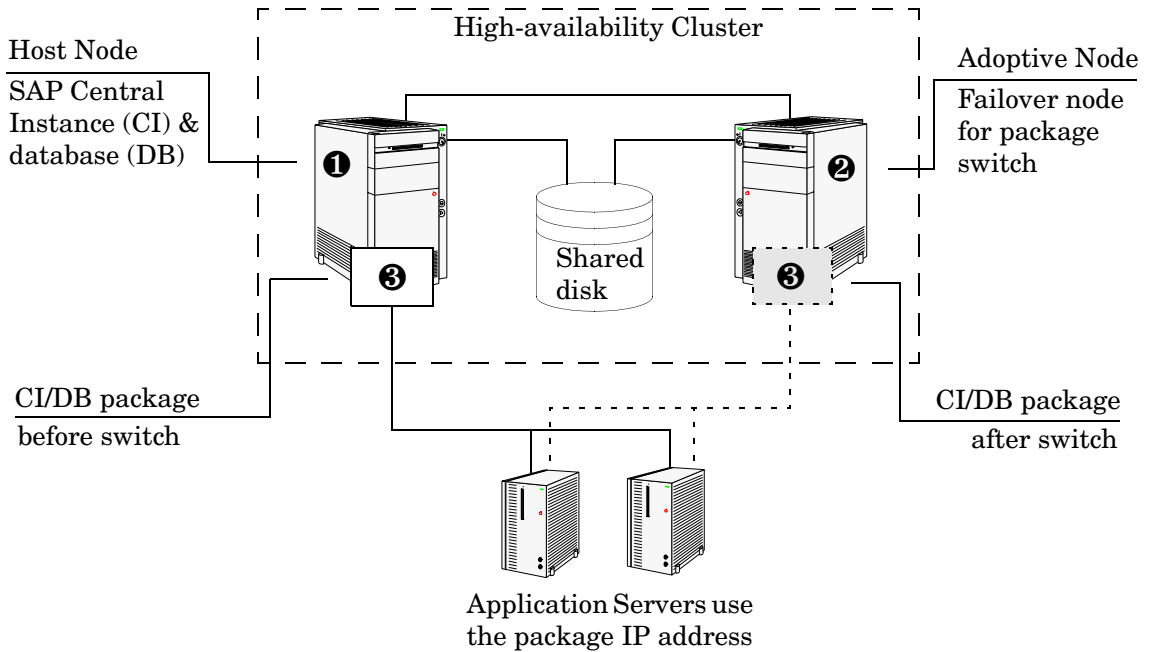
The Single-Package Configuration

In the single package concept, the server where the database and central instance normally run is included in a cluster with another server, which will act as the adoptive node in the event of a package switch. The adoptive node can perform any one of the following roles:

- SAP application server
- SAP R/3 test or development system
- Stand-by

In [Figure 8: on page 72](#), the application servers, which are not included in the cluster, reference the cluster package (Ⓢ) by means of its re-locatable IP address, not by reference to the fixed IP address of the node on which the cluster package is running. If a problem occurs, the central instance and database are taken down on the *host* node (cluster node ①), and then brought up again on the *adoptive* node (cluster node ②). At the same time, the shared disks are deactivated on the host node and reactivated on the adoptive node.

Figure 8: The Single-Package Configuration

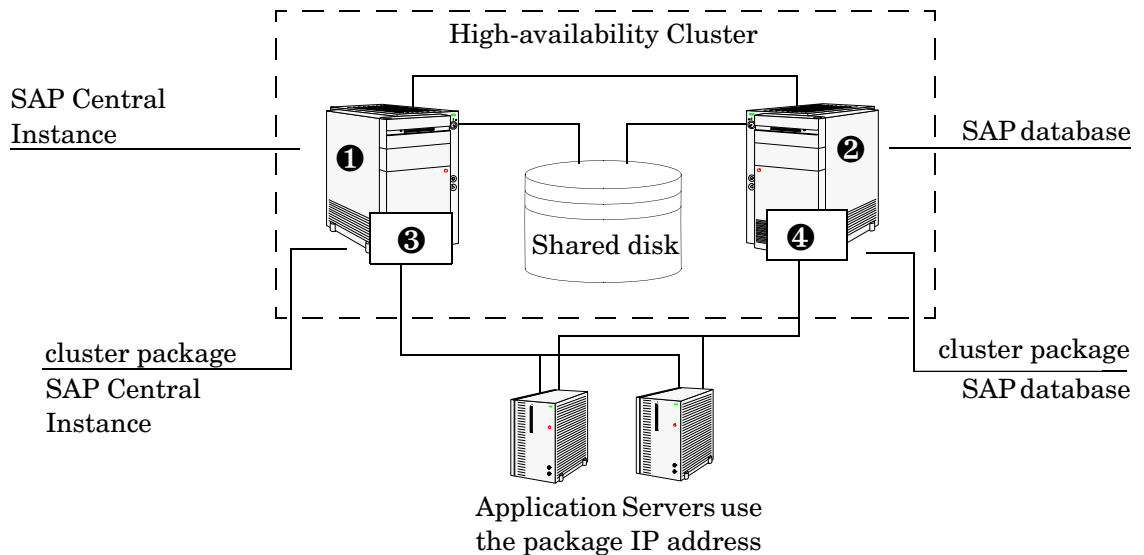


After the cluster software completes these actions, the application servers can reconnect to the central instance and database (③ in [Figure 8: on page 72](#)) using the same relocatable IP address, which, as the name suggests, moves with the package.

The Twin-Package Configuration

In the twin-package configuration, the central instance and the database are installed on different servers, which for the sake of convenience we can call cluster nodes ① and ② respectively, as illustrated in [Figure 9: on page 73](#). The central-instance server and the database server form a high-availability cluster, where each server can act as the adoptive node for the other in the event of a package switch.

Figure 9: The Twin-Package Configuration before a Package Switch

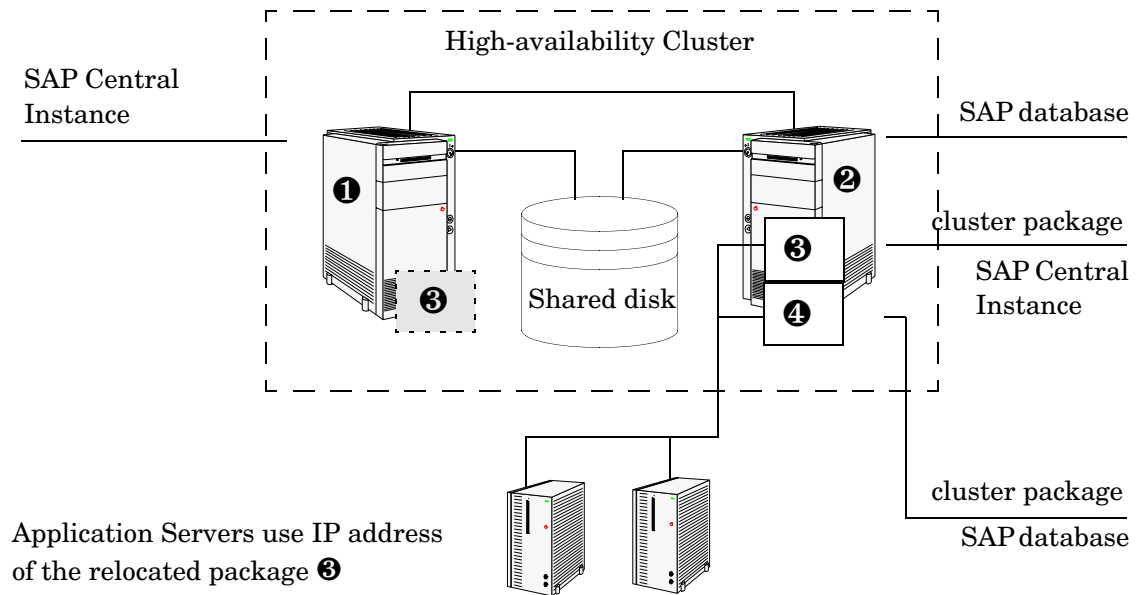


The application servers are not included in the cluster and, as illustrated in [Figure 9: on page 73](#), reference each package by means of each package's own relocatable IP address—not the fixed IP addresses of cluster-nodes 1 and 2.

If a problem is identified on the central-instance server, the central instance (3) is taken down on cluster node (1), and then brought up again on the cluster node (2). At the same time, the central instance shared disk is deactivated on the host node and reactivated on the adoptive node.

[Figure 10: on page 74](#) shows the situation *after* the switch of the SAP central-instance package (3). As soon as the central-instance package is up and running on the cluster node (2), the application servers can reconnect to the central instance using the same IP address as before the failover, namely; the central-instance package's relocatable IP address, which moves along with the package at the time the failover occurs.

Figure 10: The Twin-Package Configuration after a Package Switch



Before You Begin

The information in this section is designed to help you install and configure the SPI for SAP in a high-availability environment: it is not intended to explain either how to set up the high-availability software or HPO. Before you start the process of installing the SPI for SAP in a high-availability environment, please read through and consider the information included in the following sections:

- “Software Requirements” on page 75
- “Configuration Requirements” on page 75
- “Service Reports and Performance Graphs” on page 75
- “Service Views” on page 76

Software Requirements

The cluster software must already be correctly installed and configured in your SAP landscape, and the cluster should function correctly. For example, you have to decide whether to configure one package for the central instance and the Database Server or set up separate packages for each part. These decisions become important later in the configuration process.

Configuration Requirements

The SAP servers in the high-availability cluster must already be configured as HPO managed nodes with the appropriate HPO agent software and functionality installed and running.



All physical nodes in the high-availability cluster must be added to the HPO console. You also need to add to the HPO console as node type "Other" (Message only) the host name which you define as the HPO message host name in the host-mapping section of the `r3itosap.cfg` file. For more information, see [“Specifying SAP R/3 Systems to Monitor” on page 59](#).

Service Reports and Performance Graphs

If you want to generate SPI for SAP service reports and performance graphs for all the nodes in the high-availability cluster, make sure that the following conditions are true:

- The appropriate performance-agent functionality (HP Software Embedded Performance Component or the HP Performance Agent) must be installed, configured, and available on all the nodes in the cluster
- The appropriate SPI for SAP performance sub-agent functionality must be installed, configured, and available on all the physical nodes in the high-availability cluster. For more information about installing and configuring the SPI for SAP Performance sub-agent, see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

- Both HP Performance Manager and HP Reporter must be installed, correctly configured, and available on a machine that can see the nodes in the high-availability cluster. Note that these services are not usually (and do not need to be) part of the cluster itself.

Service Views

You can use tools provided by the SPI for SAP to generate Service Views automatically. If you want to make use of Service Views with the SPI for SAP, you need to set it up to see the services you want the SPI for SAP monitor in the SAP environment.



The service-discovery process uses information stored in the `r3itosap.cfg` file to determine which SAP Systems are to be monitored. You need to ensure that you have entered in the Host Mapping section of the `r3itosap.cfg` file the names of the nodes in the high-availability cluster. For more information, see [“Configuring the SPI for SAP in a Cluster Environment”](#) on page 79.

Installing the SPI for SAP in a Cluster Environment

To use the SPI for SAP in a high-availability environment, you have to install the HPO agent, the SPI for SAP instrumentation, and policies on *all* nodes in the cluster where the SAP package can run—this means, both the host node and adoptive node(s).



It is always a good idea to make sure that the daily backup of the SAP environment is correctly set up and that there is a valid backup available for restore *before* you start the installation of the SPI for SAP actions, commands, monitors, and policies.

Before you deploy the SPI for SAP to the cluster nodes, you need to deploy the appropriate SPI for SAP policies. For example, you have to deploy a central-instance policy group such as `SAP R/3 4.6/6.x Central Instance` to all

managed nodes, where a package that includes a SAP R/3 4.6/6.x central instance runs or the policy group `SAP R/3 7.0 CentralInstance` to all managed nodes where a package that includes a SAP R/3 7.0 central instance runs.

If no SAP instance is running on the node, the SPI for SAP monitors will work immediately after installation, but will not generate any messages. Note that SPI for SAP tools which open a SAP dialog will return an error if you try to execute them on a stand-by node, where no SAP package is running.

If an application-server instance is already running on the managed cluster-node, the monitors will run and generate messages relating to the Application-server instance. You should configure the monitors that normally only run on a central-instance server in such a way that, when they start after a package switch, they do not generate messages relating to problems with the Application-server instance, too, since this could lead to the generation of duplicate or misleading messages. For more information, see [“Special-Case Scenarios” on page 87](#).

To Install the SPI for SAP Monitors

You install the SPI for SAP monitors in a high-availability environment in the same way as in a normal environment, that is; using the standard HPO policy-deployment mechanisms. The only difference is that you have to perform the operation once for each physical node in the cluster, as follows:

1 Pre-requisites:

Before you start the installation of the SPI for SAP monitors described in this section, make sure that you have completed *all* the steps described in the section [“Configuration: SAP-Specific Tasks” on page 43](#), which walks you through the process of setting up the appropriate accounts, logins,

paths, and permissions required to ensure that SAP and HPO can communicate efficiently.



If you do not ensure that the appropriate user accounts and permissions have been set up in both SAP and HPO *before* you start the installation and configuration of the SPI for SAP described in this section, the SPI for SAP action, commands, and monitors will not function correctly. This could lead to the generation of incorrect or duplicate messages and the collection of misleading performance data.

2 Set up the `r3itosap.cfg` file to reflect the high-availability cluster.

You need to enter information about the configuration of the high-availability cluster in the Host-mapping section of the `r3itosap.cfg` file: the `r3itosap.cfg` file is the file you use to specify the SAP Systems, which you want to monitor with the SPI for SAP. For more information about the `r3itosap.cfg` file, see [“Specifying SAP R/3 Systems to Monitor” on page 59](#).

3 Check the monitor configuration:

Configure the SPI for SAP monitors, which you want to run on the cluster nodes. The configuration must be identical for all the nodes in the high-availability cluster in order to avoid the generation of confusing messages and potentially misleading performance data after a package switch. For more information, see [“Setting Up Configuration Values for the SPI for SAP Monitors” on page 54](#).



The only exception to this rule is when the adoptive node is already configured as an application server. For more information, see [“Special-Case Scenarios” on page 87](#).

4 Deploy the SPI for SAP components:

Use the HPO console to deploy the appropriate SPI for SAP components to *each* physical node in the cluster. The policies you deploy must match the version of SAP, which is running on the managed node. In addition, you must make sure that you deploy exactly the same components (instrumentation and policies) to *all* the nodes in the cluster. In this way,

you ensure that the SPI for SAP continues to monitor the same SAP instances in the same way, regardless of where the SAP instance is running.

For more information about deploying SPI for SAP components to HPO managed nodes, see [“Configuration: HPOM Administration Tasks” on page 59](#). You will need to complete all the instructions for *each* node in the high-availability cluster.

5 Special Considerations:

On each node in the high-availability cluster, ensure that each monitor can see its history file, `r3<monitor_name>.his`, both before and after a failover package switch by setting the history path in each monitor’s configuration file, `r3<monitor_name>.cfg`. For more information about the location of SPI for SAP monitor history files and the options you need to set and change, see [“Monitor History Files in a High-availability Cluster” on page 83](#).

Configuring the SPI for SAP in a Cluster Environment

In a high-availability cluster where the host and adoptive nodes have identical roles, you approach the process of configuring the SPI for SAP in the same way as if you had to configure the SPI for SAP twice, with the following caveats:

1 SAP logins and user accounts for the SPI for SAP

Use the `HostSapAssign` section in the `r3itosap.cfg` file to set up the SAP logins, accounts etc. required by the SPI for SAP on *all* physical nodes in the cluster. For more information, see [“Defining SAP Logins in a High-availability Environment” on page 86](#).

2 Tell the SPI for SAP about the high-availability cluster nodes, which you want to monitor.

You need to enter information about the configuration of the high-availability cluster in the Host-mapping section of the `r3itosap.cfg` file: the `r3itosap.cfg` file is the file you use to specify the SAP Systems, which you want to monitor with the SPI for SAP. For example, you need to

specify the names of the *physical* hosts in the high-availability cluster and the name of the virtual or relocatable host with which you want to associate the messages originating from the cluster when the messages appear in the HPO console. You might also need to specify in the list of physical nodes the name of the host defined in `SAPLOCALHOST`, but only if it is different from the host you want to associate with incoming messages.

- ▶ If the HPO agents are running on the physical nodes in the cluster, you must perform an additional, manual, configuration step to ensure that messages in the console display the correct node name. For more information, see [“Host Mapping on Cluster Nodes” on page 81](#).

For more information about the `r3itosap.cfg` file, the entries you need to add to the host-mapping section, and the required syntax, see [“Specifying SAP R/3 Systems to Monitor” on page 59](#).

3 Configure the SPI for SAP Monitors

You have to configure the SPI for SAP monitors in exactly the same way on *all* the physical nodes in the cluster, where the package is configured to run. For more information about configuring the SPI for SAP monitors, see [“Configuring the Smart Plug-in for SAP Monitors” on page 64](#).

A local configuration that is specific to one particular node in the cluster is not recommended as it can lead to a situation where different monitoring conditions are applied after a package is switched. [“Special-Case Scenarios” on page 87](#) describes one or two exceptions to this rule.

4 Deploy the SPI for SAP components

In this task, you assign and distribute the appropriate SPI for SAP components to *all* the physical nodes in the high-availability cluster, where the package is configured to run. For more information about deploying the SPI for SAP components, see [“Deploying SPI for SAP Policies to Managed Nodes” on page 65](#).

5 History files for the SPI for SAP Monitors

Make sure that the correct history file is available for each SPI for SAP monitor both before and after a failover package switch. For more information, see [“Monitor History Files in a High-availability Cluster” on page 83](#).

6 Special Requirements in your SAP environment

Make sure that any special requirements in your SAP environment are known to the SPI for SAP monitors. For more information, see [“Special-Case Scenarios” on page 87](#).



If the adoptive node in the cluster has the additional role of application server, make sure you read the instructions in [“Special-Case Scenarios” on page 87](#) before you start the configuration process.

Host Mapping on Cluster Nodes

If the HPO DCE agent discovers that multiple IP addresses are assigned to a single physical node in the high-availability cluster, the messages the agent sends show the host name associated with the IP address that is registered on the HPO management server for the cluster node. This is the name of the node where the cluster package is running at the time the message is sent.

Although this behavior is a feature of the HPO DCE agent in cluster environments, it overrides the SPI for SAP’s host-mapping functionality, which can lead to a situation where the wrong name appears to be associated with messages displayed in the console. To ensure that the host-mapping feature works as intended and the correct host name is displayed in SPI for SAP messages coming from the high-availability cluster, you must disable the DCE agent feature on HPO nodes, as follows:

- 1 Log on as a user with administrative privileges to each physical node in the high-availability cluster where an HPO DCE agent is running and open a command shell.
- 2 Locate and open the `opcinfo` file for editing; you can find the `opcinfo` file in the following locations:
 - UNIX and Linux operating systems:


```
/opt/OV/bin/OpC/install/opcinfo
```
 - Microsoft Windows operating systems:


```
%OvAgentDir%\bin\OpC\install\opcinfo
```

- 3 For DCE agents managed by HPO, use the keyword `OPC_SET_PROXY_FLAG_FOR_IP_ADDRESSES` in the `opcinfo` file on each physical node in the high-availability cluster to specify the IP address of the package (the virtual node) that you want to replace the cluster-node name as registered on the HPO management server, when a message from one of the cluster nodes appears in the console. For example:

```
OPC_SET_PROXY_FLAG_FOR_IP_ADDRESSES <Pkg_IP_Address>
```

If your high-availability cluster has multiple packages running (for example, for SAP and for Oracle), use commas "," to separate multiple IP addresses in the list, as follows:

```
OPC_SET_PROXY_FLAG_FOR_IP_ADDRESSES \  
<SAP_Pkg_IP_Address,Oracle_Pkg_IP_Address,...>.
```



Spaces are *not* allowed in the list of IP addresses defined by `OPC_SET_PROXY_FLAG_FOR_IP_ADDRESSES`. Never include the IP address specified in `OPC_IP_ADDRESS` in the list of IP addresses.

- 4 Restart the agent with the new configuration using the following commands:

```
opcagt -kill; opcagt -start
```

[Example 2 on page 82](#) shows how to set the proxy flag in the `opcinfo` file.

Example 2: Setting the proxy flag in the `opcinfo` file

```
#####  
# File:          opcinfo  
# Description:   Installation Information of HPO Managed Node  
# Package:      HP Operations  
#####  
OPC_INSTALLED_VERSION A.07.29  
PERF_INSTALLED_VERSION A.07.27  
SVCDISC_INSTALLED_VERSION A.07.28  
COMM_INSTALLED_VERSION 2.6.8.0  
OPC_MGMT_SERVER pc057.test.test  
OPC_INSTALLATION_TIME 01/15/06 16:58:51  
OPC_SG FALSE  
OPC_SET_PROXY_FLAG_FOR_IP_ADDRESSES 12.34.67.89
```

Monitor History Files in a High-availability Cluster

The SPI for SAP alert monitors `r3monal`, `r3mondev`, `r3monpro` and `r3status` have their own history file with the extension `.his`, for example; `r3monal.his`. Each time one of these SPI for SAP monitors starts, it relies on the contents of its history file `r3<monitor_name>.his` to determine the last events monitored and, as a result, the point at which the current monitor run should start. This mechanism is designed to avoid the problem of duplicate messages.

Note that `r3monal` writes new information to their respective history files if, and only if, the SAP System they are monitoring is available and the SPI for SAP monitors can connect. If the SAP System being monitored is *not* available, these monitors only update the time stamp to reflect the time of the latest monitor run. The monitors `r3mondev`, `r3monpro`, and `r3status`, on the other hand, write to their respective history file after each monitor run whether or not the SAP System they are monitoring is available or not.

Example 3: The `r3monal` Monitor's History File `r3monal.his`

```
#-----
# Keyword          SAP      SAP      SAP      Last Scan
#                  System   Number   Instance Time
LastScannedSystem =SP6     =33      =DVEBMGS33 =1073908785
#-----
```

The history files for the SPI for SAP monitors reside on the managed node where the monitors are running in a directory specified in each monitor's configuration file, `r3<monitor_name>.cfg`. By default, this directory is `%OVAGENTDIR%\conf\sapspi` for MS Windows managed nodes and `/var/opt/OV/conf/sapspi` for all UNIX managed nodes except AIX, which uses the directory `/var/[lpp | opt]/OV/conf/sapspi` for [DCE | HTTPS] managed nodes.



If the SPI for SAP monitor cannot find or read its history file, it does not know when the last monitor run took place and, as a consequence, has no way of determining which alerts need reporting and which it can safely ignore.

If a SPI for SAP monitor cannot find or read its history file, the monitor assumes it is starting for the first time and, with the exception of the alert monitor `r3moncol` which reads the relevant tables in the SAP-alerts log database, parses the SAP trace and log files for any information gathered in the two days prior to the monitor start time. This could lead to the generation of a large number of duplicate messages.

If the cluster package switches to another node, then the SPI for SAP monitors can no longer access the most recent history files stored on the failed cluster node. This will lead to the generation of duplicate messages concerning problems, which have already been sent to the HPO console.

To ensure that the history files for the SPI for SAP monitors remain available to the monitors after the package switches, you have to store the history file *locally* for each monitor on each physical node in the cluster where the package is configured to run and, in addition, define the local history path in the appropriate monitor-specific configuration file. [Example 4 on page 84](#) shows a configuration file for the `r3monale` monitor. In this example, the history path is set according to the operating system running on the cluster node. You can change this setting and, in addition, modify `<hostname>` to match the name of the *physical* cluster-node on which the monitor is to run.

Example 4: Modifying the History-file Path in the `<monitor>.cfg` File

```
#-----  
# History          hostname          path  
# Path  
#  
HistoryPathUnix   =<hostname_1>   =default  
HistoryPathAIX    =<hostname_2>   =default  
HistoryPathWinNT  =<hostname_3>   =default  
#-----
```

Changing the configuration file in this way ensures that, in the event of a package switch, the SPI for SAP monitors know where to find their history file and, for the most part, do not send duplicate messages. The same process applies when the package is switched from the adoptive node back to the host node in the cluster, too.



In a situation where the path for the history file is defined in more than one place, for example; the environment variable SAPOPC_HISTORYPATH and the `r3<monitor_name>.cfg` monitor configuration file, the environment variable SAPOPC_HISTORYPATH takes precedence.

Special Considerations for the Alert Monitors

This section contains information which is intended to help you set up the SPI for SAP alert monitors in a high-availability environment. For more detailed information about the alert-monitor configuration files and keywords for `r3monal` in particular, see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*. To set up the SPI for SAP alert monitors in a high-availability environment, you need to carry out the following steps:

- 1 Enable (=1) the `r3monal` monitor's auto-acknowledgement feature for CCMS alerts in SAP to avoid duplicate messages appearing in the HPOM console
- 2 Define a CCMS Monitor Set, for example; "HPO", and a CCMS Monitor, for example; "SPI Monitoring", for the messages you want to forward from CCMS to the HPOM console. Note that the monitor-set feature can be only used with the XMI/XAL interface.

[Example 5 on page 85](#) shows which parameters you should use in `r3monal.cfg` file to set up the `r3monal` monitor to use the XMI/XAL interface, which is available with SAP 4.6 and higher and *must* be enabled for the `r3monal` monitor in a cluster environment.

Example 5: CCMS Monitor Sets

```
# Triggers auto-acknowledge of CCMS alerts
#-----
# CCMSAcknowledgeMessage SAP      Ack. filtered   Enable=1
#                               System Messages      Disable=0
```

```

CCMSAcknowledgeMessage   =SP6      =0              =1

# A Monitor Set defines the messages you want to forward to
# the HPO console.
#-----
# Monitor Set      SAP      SAP      Monitor Set  Monitor
#                  System    Number
CCMSMonitorSet      =SP6      =33      =HPO      =SPI-Monitoring
#-----

```

In addition, in order to prevent `r3monal` sending duplicate messages in the event of a package failover, you have to use the keyword `CCMSAcknowledgeMessage` to enable the `r3monal` monitor's auto-acknowledgement feature for CCMS alerts in SAP. This feature automatically acknowledges CCMS Alerts in SAP so that they are not repeatedly found by the SPI for SAP and used to generate messages.

Defining SAP Logins in a High-availability Environment

When setting up the SPI for SAP in a high-availability environment, remember to include references to SAP instances running on all *physical* nodes in the cluster in the `r3itosap` file, the file which the SPI for SAP uses to define all SAP logins. When you enter the information for the SAP logins in this file, it is essential that you use the names of the *physical* nodes in the high-availability cluster, since the SPI for SAP monitors reference the physical node (and not the relocatable IP address associated with the package) when they do a host-name lookup. For more information about specifying SAP logins in a cluster environment, see [“Specifying SAP R/3 Systems to Monitor” on page 59](#).



The SPI for SAP uses the host-mapping section of the `r3itosap.cfg` file to define information about the configuration of the high-availability cluster, such as the names of the physical hosts and the name of the managed node to be associated with messages originating from the cluster. For more information, see [“Configuring the SPI for SAP in a Cluster Environment” on page 79](#).

If the adoptive node in the high-availability cluster is already configured as an application server, then the logins for both the central instance (=CI) and the application server (=APP) can lead to problems with some of the SPI for SAP components, for example; `r3moncol` and `r3monpro`, both of which require special configuration as described in “[Special-Case Scenarios](#)” on page 87.

Special-Case Scenarios

For reasons of efficiency or cost, the adoptive node in a high-availability cluster might already be in use as an application server. If this is the case in your environment and regular high loads mean that you need the central instance to maintain the same performance level after the failover package switch as before, you have the option of shutting down the application server on the adoptive node after the failover so that the machine’s performance is available solely to the central instance. You can then share the user load between any other available application servers.

If performance is not an issue in your environment, you can choose to keep the application server instance running on the adoptive node even after the failover package switch. However, if an instance of an SAP application server is running on the same machine as an SAP central instance, you will need to ensure that the SPI for SAP monitors are made aware of this fact and do not generate messages for both the central-instance and the Application-Server. The SPI for SAP monitors which are only designed to work with the central instance should be set up to exclude monitoring of the Application-Server instance. The `r3moncol` and `r3monpro` monitors, for example, require special attention.

Each SPI for SAP monitor has a configuration file that you use to define which SAP R/3 instances in your SAP landscape it should watch and, in addition, what information it should collect. For example, you use the `r3monpro.cfg` file to configure the `r3monpro` monitor to collect information about either the central-instance processes or the processes

tioned to the Application-Server instance. Note that the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help* has much more information about the individual SPI for SAP monitors as well as additional hints about what aspects you can configure to suit the requirements of your environment.



The SAP instance number associated with the application server already running on the adoptive node cannot be the same as the SAP instance number associated with the SAP central instance, which starts on the adoptive node after the failover package switch.

Table 8 shows which monitors apply to which SAP instance types.

Table 8: SPI for SAP Monitors and SAP Instance Types

SPI for SAP Monitor Name	Central Instance	Application Server
r3monaco	✓	
r3monale	✓	
r3monal ^a	✓	
r3monchg	✓	
r3moncts	✓	
r3mondev	✓	✓
r3mondisp	✓	✓
r3mondmp	✓	
r3monjob	✓	
r3monlck	✓	
r3monoms ^b	✓	
r3monpro	✓	✓
r3monrfc	✓	

Table 8: SPI for SAP Monitors and SAP Instance Types

SPI for SAP Monitor Name	Central Instance	Application Server
r3monsec	✓	
r3monspl	✓	
r3status	✓	✓
r3montra	✓	
r3monupd	✓	
r3monusr	✓	
r3monwpa	✓	

a. CCMS 4.x only

b. Due to changes in SAP, the operation-mode monitor r3monoms is not supported with WebAS 7.0.

The r3moncol Monitor in a High-Availability Cluster

The r3moncol monitor collects alerts from all the SPI for SAP alert-collector monitors such as; r3monale, the iDOC-Status Monitor, and r3mondmp, the ABAP-dump monitor. The alert monitors themselves ensure that alert collectors are executed according to a defined schedule and report any messages that come back from the called function.

The r3moncol monitor is only intended to run on an SAP central instance: it is not designed to run on an application server. As a consequence, if the adoptive node in a high-availability cluster is running an application server, care has to be taken to ensure that the monitors that are started when the central instance comes up on the adoptive node after the failover switch do not become confused about which SAP instance to monitor—application server or central instance.

To avoid problems when the central instance and the application server are running on the same cluster node at the same time, for example; after a system failover, you need to ensure that each of the monitors which the r3moncol starts when the central instance comes up on the adoptive node is configured to ignore alerts associated with the application server and monitor

only those alerts that belong to the central instance. This means modifying the configuration file of *each* of the SPI for SAP's central-instance monitors listed in [Table 8 on page 88](#) in such a way as to make sure that the monitor is tied to a particular SAP central-instance number, for example; 00. By default, the SPI for SAP monitors are configured to monitor *all* SAP instances present on the node, which in this special-case scenario would include the unwanted Application-Server instance, too.

[Example 6](#) illustrates how the configuration file for the `r3monale` monitor on the *adoptive* node would look if you configured `r3monale` to monitor only the central instance (for example=00) on the adoptive node `nodename2.com` and *not* the instance of the application server (=01), which is already running. Note that the node name you specify in this file is the name of the *physical* cluster node: `<CI>` refers to the SID for the central instance. Note, too, that the configuration files illustrated in [Example 6 on page 90](#) and [Example 7 on page 91](#) are incomplete (...) and are included in this form only for the purposes of illustration.

Example 6: Tying the `r3monale` Monitor to an SAP Instance Number

```
#AlertMonFun  SAP          SAP  SAP  SAP  Alert  Enable=1 (...)
#              Host          Sys  Num  Client Monitor  Disable=0 (...)
#-----
AlertMonFun  =node2.com  =<CI> =00  =099  =ALE    =1          (...)
```

The `r3monpro` Monitor in a High-Availability Cluster

The `r3monpro` monitor scans for and checks all processes associated with a given SAP instance, for example; the dialog, enqueue, update, batch, dispatch, message, gateway, and spool work processes. However, the `r3monpro` monitor can be used to monitor database processes, too.

If the adoptive node in a high-availability cluster is running an application server, then care has to be taken after a package switch that the `r3monpro` monitor started by the package does not assume that the processes associated with the application server also need to be monitored along with the processes belonging to the central instance. One way of ensuring this is to specify the exact number of processes to be monitored by `r3monpro` in the `r3monpro.cfg` file (in the column: `Process number=#`). The number of processes to monitor must be the same on each node both before and after the failover package switch.

In addition, if you want to ensure that the `r3monpro` monitors only those processes belonging to a specific SAP instance on a node where multiple SAP instances are running, for example; after a package switch, you have to make sure that the `r3monpro` monitor knows which SAP instances it is supposed to watch. You can do this by modifying the `r3monpro.cfg` file on the adoptive node in the cluster in such a way that each SAP instance number (defined in the column: `SAP Num=`) is linked to a specific process name, and a defined number of process instances, as illustrated in [Example 7](#).

Example 7: Tying the `r3monpro` Monitor to an SAP Instance Number

```
#AlertInstMonPro  SAP      SAP      Process  Enable  Mode   Proc   (...)
#                  Sys      Num      Name     =1      =Min   Num   (...)
#-----
AlertInstMonPro   =T11    =00      =dw.sapSID*  =1      =Min   =9     (...)
AlertInstMonPro   =T11    =01      =dw.sapSID*  =1      =Min   =6     (...)
```

Performance Tools in a Cluster Environment

If you are using the Performance agent (or HP Software Embedded Performance Component) to monitor SAP R/3 in a high-availability environment, you must install the performance agents on both nodes in the cluster, namely; the *host* and *adoptive* nodes, and then configure the performance agent to monitor the same SAP System IDs on both nodes.

In the event of a failover and subsequent package switch, the Performance agent stops collecting values for the SAP metrics on the host node and, as soon as the package comes up on the adoptive node, starts to monitor and report the appropriate SAP metrics on the adoptive node. Metrics for physical components such as CPU and disk performance continue to be collected on

both nodes irrespective of where the package is running. This needs to be taken into account when generating and publishing performance reports and graphs.



The SAP SPI service reports correlate the values collected by the Performance agent on the cluster over time. This means that if a package switches from the host node to the adoptive (backup) node, the values for the switched instance will be split between the two nodes in the cluster. If the scenario described reflects the situation in your environment, you will have to use the reports from both nodes to get a complete view of SAP performance.

Service Reports and Performance Graphs in a Cluster Environment

If you want to generate SPI for SAP service reports and performance graphs for all the nodes in the high-availability cluster, make sure that both the HP Performance Manager and HP Reporter are installed, correctly configured, and running on a machine which can see the cluster nodes. You will also have to ensure that the appropriate performance-agent functionality (HP Software Embedded Performance Component or the HP Performance Agent) is installed, configured, and available on all the physical nodes in the high-availability cluster and the appropriate SPI for SAP performance sub-agent integration functionality is installed and correctly configured.



Note that operating-system (OS) reports are tied to the individual physical nodes in the cluster. This means that the SPI for SAP monitors are collecting OS data even when the SAP package is not running, for example; on the backup (adoptive) node.

You can generate reports and graphs for the high-availability cluster using SAP-, hardware-, and network-related metrics, which the performance agents collect from the physical nodes in the cluster. Since the performance agents run on all the physical nodes in the cluster and are independent of the SAP package, reports which use hardware- or network-related metrics can even be configured to include the periods

during which the SAP package is not running, for example; on the adoptive node *before* a package switch and on the host node *after* the package switch. Note that SAP-related metrics such as status and availability are linked to the physical node where (and during the time which) the package is running.

Service Views in a Cluster Environment

You can use tools provided by the SPI for SAP to generate Service Views of the SAP environment automatically. If you want to make use of Service Views with the SPI for SAP, you need to set it up to see the services you want the SPI for SAP to monitor in the SAP landscape and ensure that incoming messages are linked to the correct physical nodes in the cluster.

The service-discovery policy needs to be able to read the `r3itosap.cfg` file to determine the SAP Systems which the SPI for SAP is monitoring and, more specifically, the host-mapping section. The information in the host-mapping section of the `r3itosap.cfg` file specifies the names of the nodes in the high-availability cluster and, in addition, which node name should be associated with messages generated by nodes in the cluster. For more information about the contents of the `r3itosap.cfg` file, see [“Configuring the SPI for SAP in a Cluster Environment” on page 79](#) and [“Specifying SAP R/3 Systems to Monitor” on page 59](#).



Only physical nodes can appear in the service tree, and data can only be collected for the physical node on which the package is running at a given point in time.

Removing the SPI for SAP Software in a Cluster Environment

The SPI for SAP software and functionality has to be removed from each individual physical node in the high-availability cluster, where the product was installed and configured. This will involve the following steps:

- 1** If you installed the SPI for SAP Performance Sub-agent on the managed nodes in the cluster, you will have to remove it and its components from the SAP managed nodes in the high-availability cluster before you proceed to step two. For more information, see [“Removing SAP-management Functionality from Managed Nodes”](#) on page 153.
- 2** After removing the SPI for SAP Performance Sub-agent, you have to remove the SPI for SAP components from the SAP managed nodes in the high-availability cluster. For more information, see [“Removing SAP-management Functionality from Managed Nodes”](#) on page 153.

SAP Internet Transaction Server (ITS) Monitoring

This section describes how to install and configure the ITS Performance Monitor so that you can make full use of the functionality provided by the SPI for SAP to monitor the load and performance of the SAP Internet-transaction Server 6.20. The instructions in this section assume that either HP Software Embedded Performance Component (CODA) or the Performance agent is already available on all the HPO managed nodes, where you want to run the ITS Performance Monitor.



The SPI for SAP ITS monitor is designed to monitor the Agate server. If your environment has the Agate server and the Wgate servers running on separate hosts, make sure that you install the ITS Performance Monitor on the host where the Agate server is running.

To install the ITS Performance Monitor on an HPO managed node, you need to perform the steps indicated below, each of which is described in more detail in the subsections that follow:

- “Installation Pre-requisites” on page 96.
- “Setting up the ITS Monitor” on page 97
- “Deploying the ITS Performance Monitor Instrumentation” on page 99.
- “Deploying the ITS Configuration-file Policies” on page 99.

- “Deploying ITS Policies on the ITS Node” on page 100
- “Verifying Deployment of the ITS Configuration-file Policies” on page 100.

Installation Pre-requisites

Before you start the installation of the SPI for SAP ITS Performance Monitor, make sure that the ITS AGate node on which you have chosen to install the ITS Performance Monitor meets the following requirements:

- Your SAP ITS instance must be running on one of the following operating system:
 - Windows 2000 or Windows 2003
 - SuSE Linux Enterprise Server (SLES) 8 or 9
 - Red Hat Enterprise Linux (RHEL) 3 or 4
- HPO agent is installed and running
- ConfigFile policy package for MS Windows node is available
- Either the Performance agent for MS Windows or the HP Software Embedded Performance Component must be running on the SAP ITS 6.20 server
- SAP ITS 6.20 must be installed and configured
- *Optional:* HP Performance Manager must be available (but not necessarily on the ITS 6.20 server machine) if you want to generate and view performance graphs.
- *Optional:* HP Reporter must be installed and available (but not necessarily on the ITS 6.20 server machine) if you want to generate and view service reports.
- The ITS Performance Monitor depends on the presence of the SPI data collector instrumentation in the following location on the HPO management server:

```
%OvInstallDir%\Instrumentation\<OS_Tree>\SPI Data Collector
```


Setting up the ITS Monitor

The SPI for SAP's ITS Performance Monitor uses information in the ITS `global.srvc` configuration file to provide a default configuration automatically. However, to set up the ITS Performance Monitor to collect performance information, you need to perform the following configuration tasks:

1 Set the `SAP_REGISTRY_PATH` environment variable

In order to find the installation location of the ITS 6.20 on the AGate node, the `r3monits` monitor needs the environment variable `SAP_REGISTRY_PATH` to point to the ITS 6.20 XML registry. This variable must be visible to the HPOM agent. On MS Windows operating systems, the variable is set during the installation of ITS 6.20. On Linux operating systems, the variable has to be set manually during the installation of the ITS 6.20 software.

If you do not change the suggested installation directories, the default values for the `SAP_REGISTRY_PATH` environment variable are as follows:

- Linux operating systems:
`/usr/sap/its/6.20/config`
- MS Windows operating systems:
`C:\Program Files\SAP\ITS\6.20\config`

2 Configure the `its_ping` service

The `r3monits` monitor uses information in the ITS 6.20 `global.srvc` configuration file to provide a default configuration automatically. However, since the `r3monits` monitor uses the `its_ping` service to determine the status of the system, you must configure the `its_ping` service by using the ITS 6.20-administrator web console to add the following entries together with the appropriate values to the file `its_ping.srvc`:

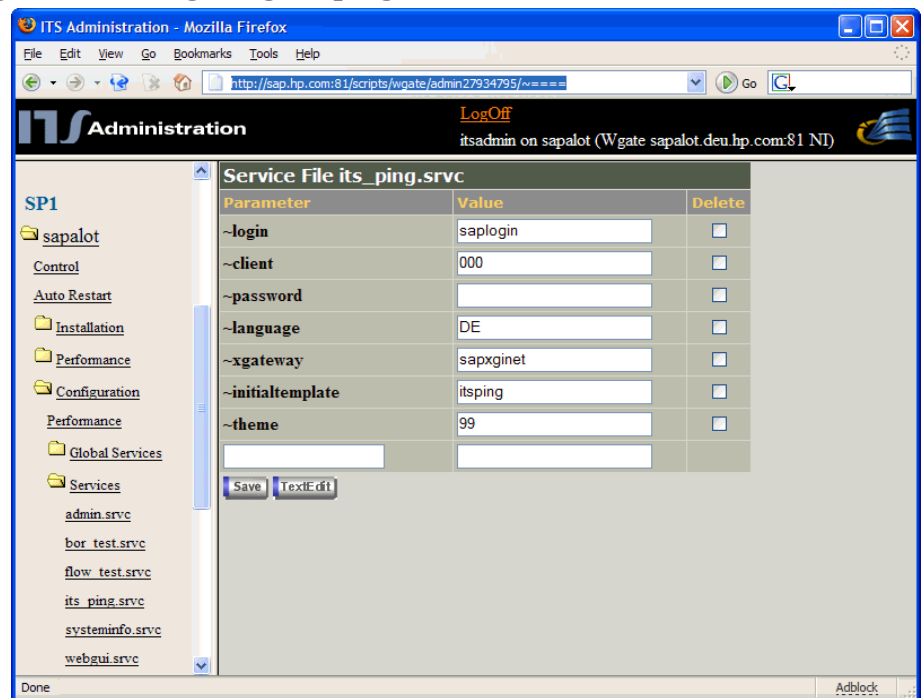
- `~client`, for example: `000`
- `~language`, for example: `EN`
- `~login`, for example: `<valid_SAP_user>`

- ~password, for example: <password_for_valid_SAP_user>
- 3 Check that the configuration of the `its_ping` service completed successfully; open a web browser and enter the following URL:

**http://<WGateHost>:<WGatePort>/scripts/wgate/its_ping/!
!~agate_routing=<AGateHost>:0**

If you have configured the `its_ping` service correctly, the browser displays a page indicating the status of the SAP System you want to access. [Figure 11: on page 98](#) shows you how to set up the `its_ping` service using the ITS 6.20 administrator GUI.

Figure 11: Configuring `its_ping` with the ITS 6.20 Administrator GUI



Deploying the ITS Performance Monitor Instrumentation

- 1 In the HPO console, select and right-click the SAP ITS server (managed node) where the ITS components will be deployed, and browse to the following menu option:

All Tasks > Deploy instrumentation

- 2 From the Deploy Instrumentation window select the following components:
 - SPI Data Collector
 - SPI for SAP Instrumentation
- 3 Select **OK** to deploy the instrumentation; you can monitor the deployment in real time in the Deployment Jobs window.

Deploying the ITS Configuration-file Policies

- 1 In the HPO console, browse to the following:

Policy management > Policies management> SPI for SAP

- 2 Select and right click the following policy: `global_r3monits`
- 3 Deploy the `r3monits` configuration-file policy to the ITS server, which you want to manage with the SPI for SAP:

All Tasks > Deploy on...

- 4 Select the HPO managed node (ITS server) to which you want to deploy the policy and click **OK**
- 5 Verify that HPO deployed the ITS configuration-file policy successfully to the managed node:

- a In the HPO console, right click the managed node whose policy inventory you want to check and select the following menu option:

View > Policy Inventory

- b Ensure that the following item is present in the list that is displayed:
`global_r3monits.cfg`

Deploying ITS Policies on the ITS Node

- 1 In the HPO console, browse to the following policy group:
Policy management > Policy groups > SPI for SAP > SAP ITS 6.20
- 2 Select and right-click the following items:
 - `r3monits` (Scheduled Task)
 - `SAP R3 opcmsg` (Open Message Interface)
- 3 Browse to the following item in the menu that pops up:
All Tasks > Deploy on...
- 4 Select the SAP-ITS server to which you want to deploy the policies
- 5 Click **OK**
- 6 Verify that HPO successfully deployed the ITS policies to the managed node as follows:
 - a In the HPO console, right click the managed node whose policy inventory you want to check and select the following menu option:
View > Policy Inventory
 - b Ensure that the following items are present in the list that is displayed:
 - `r3monits`
 - `SAP R3 opcmsg`

Verifying Deployment of the ITS Configuration-file Policies

- 1 In the HPO console, select and right-click the ITS Server in the list of managed nodes displayed in the console tree and browse to the following

item in the menu that pops up:

View > Policy Inventory

- 2 The items displayed in [Table 9](#): should appear in the right-hand pane of the HPO console.

Table 9: ITS Policy-inventory Verification Files

Policy Name	Policy Type
r3monits	Scheduled task
SAP R3 opcmmsg	Open message interface
global_r3monits	Configuration-file policy

For more information about what information is copied where during the installation of the ITS Performance Monitor, see *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

Smart Plug-in for SAP Performance Monitors

This section describes how to install and configure the SPI for SAP performance-integration package. It also provides information about how to put the performance monitors to best use and supplement the information provided by the SPI for SAP performance monitors with information supplied by the Performance agent. The section includes the following topics:

- “Performance Monitors Overview” on page 104
- “Upgrading the Performance Monitor” on page 104
- “Installing/De-installing the Performance Monitor” on page 106
- “Locating the Performance Monitor Files” on page 112
- “Configuring the Performance Monitor” on page 116
- “Managing the Performance agent” on page 123

Performance Monitors Overview

The SPI for SAP performance monitors collect SAP R/3 performance data which can then be used to compare trends between SAP R/3 business transactions and other system metrics. The performance monitors can be used to monitor, manage, and correlate the collected data centrally along with any other application, database, system and network data.

The SPI for SAP accesses ABAP-function modules inside SAP R/3 via an RFC-call. The performance monitors gather a snapshot of SAP runtime performance data. Including the R/3-performance alert monitor (**rz03**) which is part of the SAP R/3 CCMS subsystem, the SPI for SAP Performance agent is able to collect over 100 additional metrics.

The new SPI for SAP Performance agent can be configured to specify which performance monitors should be run on which SAP R/3 instances and how frequently. The Performance agent or HP Software Embedded Performance Component send an alert to the HPO management server when they detect the violation of a defined performance threshold.

The SPI for SAP Performance agent runs under Windows as a service and under Unix as a daemon process that runs independently of the HPO agent processes. In order to start or stop the SPI for SAP performance-agent processes, use the appropriate HPO tools, which you can find in the HPO console.

Upgrading the Performance Monitor

You cannot always use the data sources you defined in previous versions of the SAP/Performance subagent with the latest version of the SPI for SAP SAP/Performance subagent: sometimes you have to migrate the data to the new format required by the current release of the SPI for SAP. Whether you can or cannot use existing data-sources with the current version of the SPI for SAP depends on whether you are upgrading from a recent or (much) older version of the SPI for SAP. However, HP Reporter can still use the *data* collected by the old performance agents in the generation of new service reports.

Note, too, that if you want to upgrade the SAP/Performance subagent, you cannot do it in isolation. To upgrade the SAP/Performance subagent, you will have to perform the following high-level steps:

1 Remove the existing SAP/Performance subagent

For more information about de-installing the SAP/Performance subagent, see [“Installing/De-installing the Performance Monitor” on page 106](#).

2 Remove existing SAP/Performance subagent data and data sources

- SPI for SAP 10.50

If you are upgrading from version 10.50 to the current version of the SPI for SAP, you do not need to perform this step; existing data and data sources can continue to be used.

- SPI for SAP 09.01

If you are upgrading from version 09.01 to the current version of the SPI for SAP, you do not need to perform this step; existing data and data sources can continue to be used.

- SPI for SAP 10.10, 08.70, or 08.70 Edition 2

If you are upgrading to the current version of the SPI for SAP from 10.10, 08.70, or 08.70 Edition 2, existing data and data sources can continue to be used with the new SPI for SAP performance agent, but need to be migrated, first. The configuration of the new SPI for SAP performance agent guides you through the migration process while automatically locating and updating the old data for you.

- SPI for SAP 08.11 or earlier

If you are upgrading from version 08.11 or earlier of the SPI for SAP, see the section about upgrading the performance agent in the *HP Operations for Windows Smart Plug-in for SAP Administrator’s Online Help* for more information about cleaning up old data sources.

3 Upgrade the SPI for SAP software

For more information, see the *HP Operations for Windows Smart Plug-in for SAP Configuration Guide*.

4 Install the new SAP/Performance subagent software

For more information about installing the SAP/Performance subagent, see [“Installing/De-installing the Performance Monitor” on page 106](#).

5 Configure the new SAP/Performance subagent

For more information about installing the SAP/Performance subagent, see [“Configuring the Performance Monitor”](#) on page 116.

6 Upgrade the SPI for SAP/HP Reporter Integration

For more information about upgrading the SPI for SAP Reporter integration, see the *HP Operations for Windows Smart Plug-in for SAP Administrator’s Online Help*.

Installing/De-installing the Performance Monitor

The information in this section walks you through the steps required to install and configure the SPI for SAP performance integration and covers the following topics:

- [“Selecting the Performance Data Source”](#) on page 107.
- [“Changing Default Settings for the Performance Data Source”](#) on page 108
- [“Deploying the Performance Monitor Packages”](#) on page 109
- [“Installing the SPI for SAP Performance Packages”](#) on page 110
- [“De-Installing the SPI for SAP Performance Packages”](#) on page 111



The instructions in this section assume the following are true:

- Either the Performance agent or the HP Software Embedded Performance Component is installed.
- The supported SAP R/3 version is installed, as listed in [Table 3](#) on page 27.
- The HPO Enterprise Message/Action Agent is already installed and running on the SAP R/3 servers, which you want to manage with HPO.

Selecting the Performance Data Source

The HP Software Embedded Performance Component is, as the name suggests, embedded in the HPO software and available, by default, in any HPO installation. However, you can use the HPO console to deploy the HP Performance agent to the managed nodes, too.

If you prefer to use the HP Performance agent as the agent for newly installed HP software products rather than the HP Software Embedded Performance Component (for example, to be able to use Performance Manager, which does not support the HP Software Embedded Performance Component), you can override the default use of the HP Software Embedded Performance Component by setting up a small text file, `nocoda.opt`, which changes the default data source from the HP Software Embedded Performance Component to the HP Performance agent.

After configuring the `nocoda.opt` file, you must store it in a specific location on each managed node, whose performance-data source you want to change. The location of the `nocoda.opt` file on the managed node varies according to the operating system running on the HPO management server and managed node. [Table 10](#) displays the location of the `nocoda.opt` files on nodes managed by an HPO management server.

Table 10: HPOM 7.x/8.x for Windows Management Servers

Managed-Node Operating System	Location of the <code>nocoda.opt</code> file
AIX {DCE HTTPS}	<code>/var/[lpp opt]/OV/conf/dsi2ddf/nocoda.opt</code>
HP-UX/Linux/Solaris	<code>/var/opt/OV/conf/dsi2ddf/nocoda.opt</code>
Windows	<code>%OvDataDir%\conf\dsi2ddf\nocoda.opt</code>

Changing Default Settings for the Performance Data Source

To change the default setting for the data source, use your favorite text editor to open the `nocoda.opt` file on the managed node whose data source you want to modify and follow the instructions below. You will need to enter the appropriate information manually using the format and syntax illustrated in [Table 11](#) and [Example 8](#). If a `nocoda.opt` file does not already exist, you will need to create a new one.

- 1 To designate the HP Performance agent as the agent for all data sources, enter the key word **ALL** at the top of the file.
- 2 To designate the HP Performance agent as the agent for a data source tied to a specific SAP R/3 (or SAP R/3 ITS) instance, include a reference to each instance on a separate line of the `nocoda.opt` file, using the format and syntax indicated in [Table 11](#) and illustrated in [Example 8](#):

Table 11: nocoda.opt File Syntax

For...	Use the following format...
SAP R/3	R3 <SAP_hostname>_<SAPSID>_<SAP_instance_number>_DATA
SAP R/3 ITS	R3ITS <virtual_SAPITS_instance_name>_<SAPITS_hostname>_DATA

- 3 Save the changes to the `nocoda.opt` file.
- 4 Restart the HPO agent on the managed node where the `nocoda.opt` file has been modified.

Example 8: Excerpt from the nocoda.opt File

```
#####
# Add to (or modify) the contents of this file to change the
# data-source from the default Coda to MeasureWare
#####
# All hosts:
# ALL
# SAP R/3 hosts/instances:
R3_ovsdsap_DEV_00_DATA
```

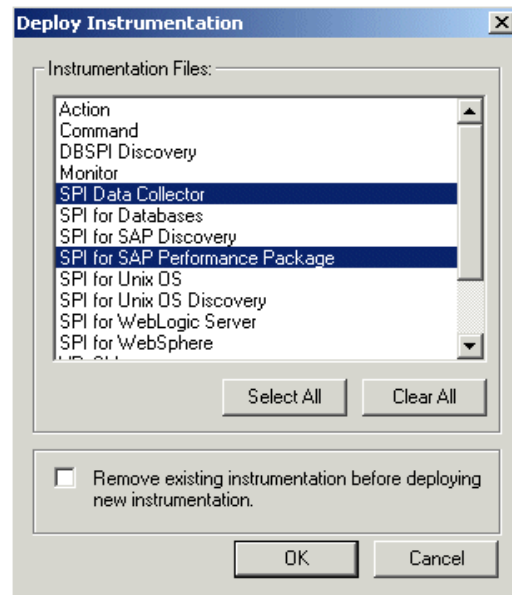
```
# SAP R/3 ITS hosts/instances:
R3ITS_SP6_00_ovspi_DATA
```

Deploying the Performance Monitor Packages

The instructions in this section describe how to deploy the SPI for SAP performance-monitor instrumentation from the HPO management server to the HPO managed node systems.

- 1 From the HPO console, select and right-click the SAP managed (s) where you want to deploy the instrumentation.
- 2 Browse to the following menu option:
All tasks > Deploy instrumentation
- 3 Select the following files as illustrated in [Figure 12](#):
 - SPI Data Collector
 - SPI for SAP Performance Package
- 4 Select **OK**.

Figure 12: Deployment Package Selection

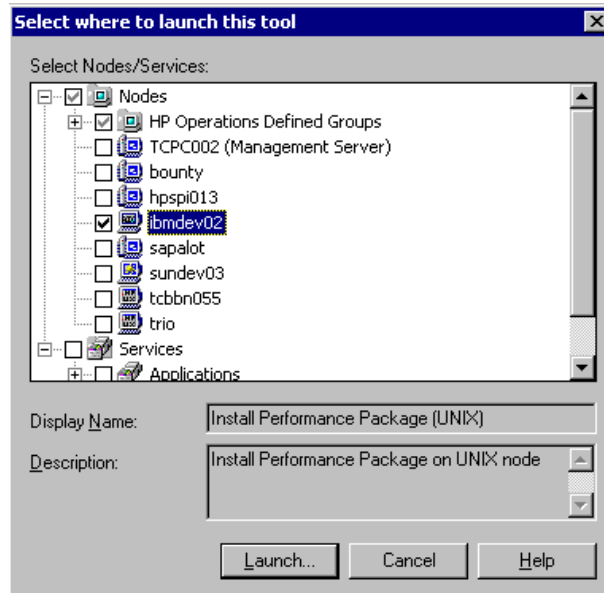


Installing the SPI for SAP Performance Packages

After you successfully complete the deployment of the SPI for SAP performance packages as described in the previous step, follow the instructions in this section to *install* the SPI for SAP performance packages on the HPO managed nodes:

- 1 From the HPO console, browse to the following tools folder:
Tools > SPI for SAP > SAP R/3 Admin
- 2 Select and right click the tool corresponding to your operating system (Unix or Windows), for example; Install Performance Package (UNIX), and select the following option from the menu that pops up:
All Tasks > Launch Tool...
- 3 Select the SAP managed node(s) where you want to start the SPI for SAP performance package installation, as illustrated in [Figure 13](#) below. Remember to ensure that the nodes you select correspond to the operating system associated with the chosen tool (UNIX or Microsoft Windows).
- 4 Click **Launch...** to start the installation.

Figure 13: Installing the Performance Package



De-Installing the SPI for SAP Performance Packages

The procedure for removing the SPI for SAP performance package from a managed node is very similar to the procedure described in “[Installing the SPI for SAP Performance Packages](#)” on page 110 except that, at the appropriate moment, you select and launch the *removal* tool rather than the installation tool.



Note that you must stop the performance agent before removing the SPI for SAP performance package and, after the removal is complete, you need to remove the SPI for SAP performance monitor from the managed nodes, too. For more information about stopping and starting the performance agent, see “[SPI for SAP Tools](#)” on page 125 and “[Command-Line Options](#)” on page 124.

To remove SPI for SAP performance packages from SAP managed nodes:

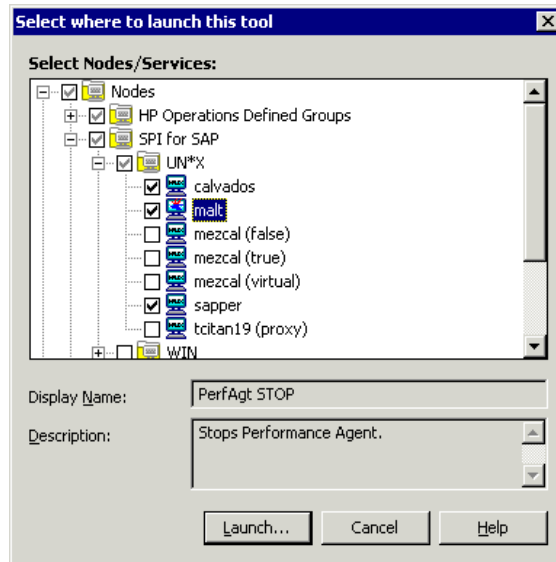
- 1 Stop the SPI for SAP performance agent. You can do this either with a SPI for SAP tool, or on the command line:
 - Use the SPI for SAP application, PerfAgt Stop, which you can find in the SAP R/3 UN*X or SAP R/3 NT tools group.
 - Login to the SAP server (managed node) and run the following command on the command line: **r3perfagent stop**
- 2 From the HPO console, browse to the following tools folder:


```
Tools > SPI for SAP > SAP R/3 Admin
```
- 3 Select and right click the tool corresponding to your operating system (Unix/Linux or MS Windows), for example:
 - **Remove Performance Package (UN*X)**
 - **Remove Performance Package (Windows)**
- 4 Start the Remove Performance Package tool you have selected using the following menu option:


```
All tasks > Launch Tool...
```

- 5 Select the SAP managed node(s) from which you want to remove the performance package. Remember to ensure that the nodes you select correspond to the operating system for the chosen tool (UNIX/Linux or MS Windows).
- 6 Click **Launch...** to start the removal process.

Figure 14: Stopping the Performance Agent



Locating the Performance Monitor Files

The information in this section describes the files installed as part of the SPI for SAP performance package for the following platforms, for example:

- “Performance Monitor Files on AIX” on page 113
- “Performance Monitor Files on HP-UX, Solaris, and Linux” on page 114
- “Performance Monitor Files on Windows” on page 115

The performance-related files listed in this section belong to the following categories: binaries and executable files, configuration files, the `dsilog` files required by the HP Performance agent, and templates.



The `dsilog` files are only required by the HP Performance agent; the HP Software Embedded Performance Component does not require or make use of the `dsi-log` files.

Performance Monitor Files on AIX

This section lists the files installed as part of the SPI for SAP performance package for AIX. The paths distinguish between [DCE | HTTPS] managed nodes:

- **Binaries:** `/var/[lpp | opt]/OV/bin/R3PerfAgent/bin`
 - `r3perfconfig`
SPI for SAP performance-monitor configuration tool.
 - `r3perfagent`
SPI for SAP performance-monitor agent.
- **Configuration files:**
`/var/[lpp | opt]/OV/conf/sapspi/[local | global]`
 - `r3perfagent.cfg`
Global and local configuration file for the various performance monitors.
- **Dsilog files:** `/var/[lpp | opt]/OV/bin/R3PerfAgent/data`
 - `R3_<HOSTNAME>_<SID>_...:`
Immediately after installation, this directory is empty; the SPI for SAP uses the directory to store the `dsilog` files, which `r3perfconfig` and `compdsifile.sh` compile for the HP Performance agent.
- **Templates:** `/var/[lpp | opt]/OV/bin/R3PerfAgent/template`
 - `R3statistics.<PERF-MONITOR>`
Files the SPI for SAP uses to compile the `dsi` log files.

— Parm.UX:

Template for the performance-agent parameter file.

Performance Monitor Files on HP-UX, Solaris, and Linux

This section lists the files installed as part of the SPI for SAP performance package for HP-UX, Solaris, and Linux operating systems:

- **Binaries:** `/var/opt/OV/bin/R3PerfAgent/bin`
 - `r3perfconfig`
SPI for SAP performance-monitor configuration tool.
 - `r3perfagent`
SPI for SAP performance-monitor agent.
- **Configuration files:** `/var/opt/OV/conf/sapspi/[local | global]`
 - `r3perfagent.cfg`
Configuration file for the various performance monitors. Note that the SPI for SAP creates this directory after you deploy the SPI for SAP performance-agent policies for the first time.
- **Dsilog files:** `/var/opt/OV/bin/R3PerfAgent/data`
 - `R3_<HOSTNAME>_<SID>_...:`
Immediately after installation, this directory is empty; the SPI for SAP uses the directory to store the `dsilog` files, which `r3perfconfig` and `compdsifile.sh` compile for the HP Performance agent.
- **Templates:** `/var/opt/OV/bin/R3PerfAgent/template`
 - `R3statistics.<PERF-MONITOR>:`
Files which the SPI for SAP uses to compile the dsi log files.
 - Parm.UX
Template for the performance-agent parameter file.

Performance Monitor Files on Windows

This section lists the files installed as part of the SPI for SAP performance package for Windows:

- **Binaries:** %OvDataDir%\bin\R3PerfAgent\bin
 - r3perfconfig
SPI for SAP performance-monitor configuration tool.
 - r3perfagent
SPI for SAP performance-monitor agent.
 - r3perfagent_service
Starts the SPI for SAP performance-monitor agent as a service in MS Windows.
- **Configuration files:** %OvAgentDir%\conf\sapspi\global
 - r3perfagent.cfg
Configuration file for the various SPI for SAP performance monitors. Note that the SPI for SAP creates this directory after you deploy the SPI for SAP performance-agent policies for the first time.
- **Dsilog files:** %OvDataDir%\bin\R3PerfAgent\data
 - R3_<HOSTNAME>_<SID>_...
Immediately after installation, this directory is empty; the SPI for SAP uses the directory to store the dsilog files, which r3perfconfig.bat and compdsifile.bat compile for the HP Performance agent.
- **Templates:** %OVDATADIR%\bin\R3PerfAgent\template
 - R3statistics.<**PERF-MONITOR**>
Files which the SPI for SAP uses to compile the dsi log files.
 - Parm.NT
Template for the performance-agent parameter file.

Configuring the Performance Monitor

Before starting to configure the performance monitor note that if the Performance agent is used instead of HP Software Embedded Performance Component, then you need to stop the Performance agent on the managed node using the commands listed in [Table 12](#) appropriate to your system environment:

Table 12: Stopping the Performance agent

Platform	Command
AIX	<code>/usr/lpp/perf/bin/mwa stop</code>
HP-UX/Solaris/Linux	<code>/opt/perf/bin/mwa stop</code>
MS Windows	<code>mwacmd stop</code>

After you stop the HP Performance agent, you can proceed with the configuration of the performance monitor. Note that if you are using the HP Software Embedded Performance Component, you do not need to perform any special action before you start configuring the performance monitor.

This section also includes information about using the SPI for SAP to monitor performance thresholds on remote machines, where the SPI for SAP is not installed. The information in this section also explains the concepts underlying the Performance-monitor scheduler, which ensures that the performance monitors run according to the defined schedule:

- [“Monitoring System-Performance Remotely”](#) on page 122
- [“The Performance-Monitor Scheduler”](#) on page 123

To Configure the Performance Monitor

- 1 On the node where you installed the SPI for SAP performance monitor, locate and enter the following command to run the configuration script:
 - MS Windows operating systems: **r3perfconfig**
 - UNIX and Linux operating systems: **./r3perfconfig**

Follow the instructions which appear on screen. [Example 9](#) shows how the script lists the SIDs it finds together with a number (SapNr), and prompts you to select the SAP R/3 instance to be configured.

Example 9: Installed SAP Instances

	SID	SapNr	HostName
(0)	AST	45	sapper
(1)	DEV	50	sapper
(2)	SP1	80	sapper

Choose:

(x) to configure shown system
 888 to manually configure a SAP system
 999 to quit

Enter the appropriate identification number, for example; **0** for AST, or **1** for DEV, **2** for SP1, or **888** to configure a new SAP System.

- a** If a valid data source already exists for the given SAP System ID, `r3perfconfig` lists the data source and prompts you to select an option, as follows:

Choose:

(x) to configure shown system
 888 to manually configure a SAP system
 999 to quit

0

Valid datasource already exists: R3_sapper_AST_45_DATA

- b** If `r3perfconfig` finds an existing data source, which it can migrate to the required *new* format, it lists the old data source and asks you what to do:

Choose:

(x) to configure shown system
 888 to manually configure a SAP system
 999 to quit

1

Found an old datasource: R3_sapper_DEV_50_DATA

Should the existing datasource be migrated <yes/no>?

Note the following before you respond to the prompt:

- | | |
|------------|--|
| yes | automatically migrates the old data source to the format required by the new version of the SPI for SAP performance agent |
| no | leaves the existing data source unchanged: the old data source <i>cannot</i> be used with the new version of the SPI for SAP performance agent |

- c** If `r3perfconfig` finds an existing data source which *cannot* be migrated to the new format, for example; because it belongs to a version of the SPI for SAP that is older than 08.70, it lists the old, *invalid* data source and prompts you to select an option, as follows:

Choose:

```
(x) to configure shown system
888 to manually configure a SAP system
999 to quit
2
```

```
Found an invalid datasource: R3_sapper_SPI_80_DATA
Existing datasource cannot be migrated
```

- d** If you choose **888** to configure an SAP R/3 SID manually, you have to answer a series of questions concerning the SAP SID you want to configure. To answer these questions, you might need to talk to an SAP administrator.

After you finish migrating the performance data, the `dsilog` files are compiled and the data sources added to the HP Performance agent configuration file, namely:


- `perflbd.rc` for UNIX and Linux operating systems
- `perflbd.mwc` for MS Windows operating systems

- ▶ If you are using the HP Software Embedded Performance Component, the names of the configuration files are `ddf1bd.rc` for UNIX and Linux operating systems and `ddf1bd.mwc` for MS Windows operating systems.

After completing the data migration, the `r3perfconfig` script prompts you to restart the Performance agent. However, it makes sense to update

the `parm.mwc` file as described in the next step *before* you start the Performance agent.

2 Update the Performance-agent parameter file

-  This step does *not* apply to the HP Software Embedded Performance Component.

If you are using the Performance agent, append the template file `parm.NT` (or `parm.UX`, depending on the installed operating system on the managed node) to the `parm` file of the Performance agent, as follows:

- UNIX and Linux operating systems: **cat `parm.UX` >> `parm`**

The `parm` file is located in: `/var/opt/perf/parm`

- MS Windows operating systems: **type `parm.NT` >> `parm.mwc`**

The `parm` file is located in the following directory:


`<drive_letter>\rpmtools\data\parm.mwc`

-  You can represent several SAP R/3 instances in the `parm` file by using the asterisk (*) wild card.

3 On the HPO management server, you configure the SPI for SAP performance monitors in the `r3perfagent.cfg` file. If you do not complete this task, all monitors run with the default settings illustrated in [Figure 15: on page 121](#), which could lead to a large number of unwanted messages appearing in the HPO console.

There are two possible configurations:

- **Global:** `global_r3perfagent.cfg`
SPI for SAP performance-monitor settings for all SAP R/3 servers
- **Local:** `local_r3perfagent.cfg`
SPI for SAP local performance-monitor settings for individual SAP R/3 servers

-  The settings in the *global* configuration files are used for all nodes which do not have local configuration settings. Where both files are present, *local* settings override global settings.

You should use the configuration-file policy editor to create a new (or modify an existing) `r3perfagent.cfg` file.

- 4 To modify an existing configuration file:
 - a Select the policy view and, in the details pane, select and right-click the appropriate `r3perfagent.cfg` file, and click the following menu option:
All Tasks > Edit...
 - b The `r3perfagent.cfg` file is displayed as illustrated in [Figure 15: on page 121](#).
- 5 To create a new configuration-file
 - a In the HPO console tree, expand the Policy Management policy group, select and right-click the SPI for SAP policy group, and add a new configuration file by selecting the following option from the pop-up menu that appears:
New > ConfigFile
 - b Load the default `global_r3perfagent.cfg` file, change any values as required, and save the file. If you want to create a *local* configuration file, we recommend you include the name of the machine for which the local configuration is intended in the local-configuration file name as outlined below:

```
<machine_name>_r3perfagent.cfg
```

You have to deploy the modified policy to the managed node (`<machine_name>`) and restart both the Performance agent and the SPI for SAP performance monitor in order to upload and apply the modified configuration. Note that, by default:

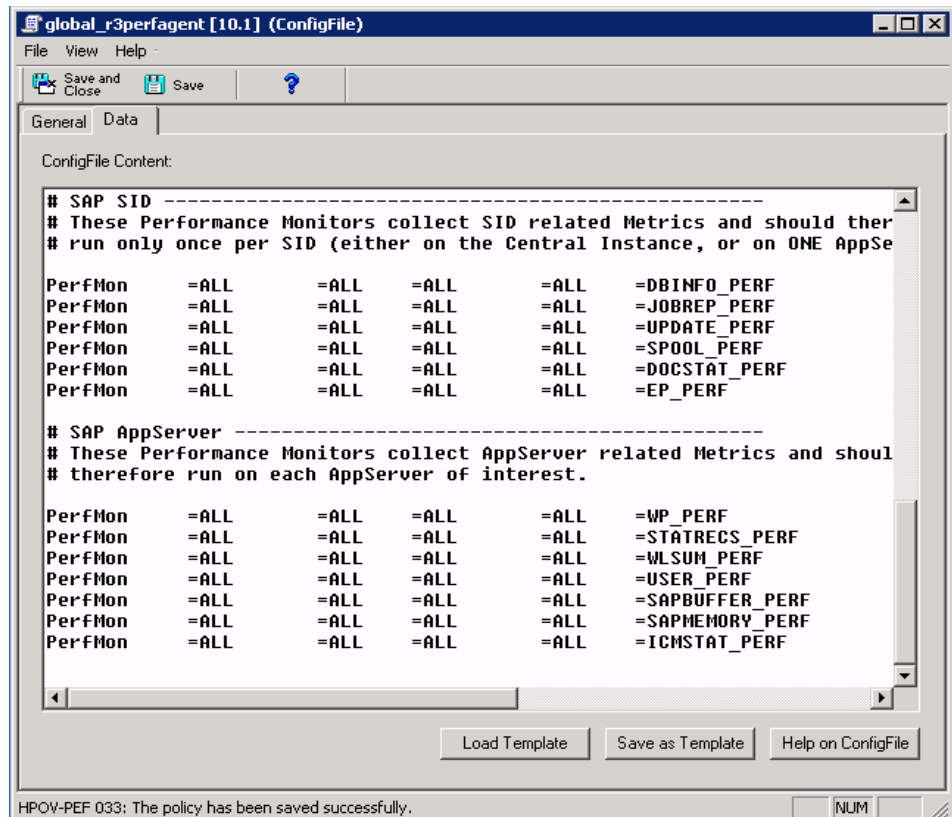
- all SPI for SAP performance monitors are enabled for all SAP hostnames, systems, numbers, and clients
- the polling intervals are set for each monitor in minutes
- the Hold-Connections option is disabled
- the Performance-monitor Scheduler sends a message if it is 10 minutes behind schedule
- the Performance-monitor Scheduler is set to restart if it is 13 minutes behind schedule

- 6 Deploy the modified policies:
 - a Select and right click the policies you want to deploy
 - b Select the Deploy option from the menu which pops up
- 7 Start (or stop and restart) the Performance agent on the managed node by entering the following command in a shell or by using the menu options in the appropriate SPI for SAP tools group.
 - UNIX and Linux operating systems:


```
mwa [stop | start]
```
 - MS Windows operating systems:


```
mwacmd [stop | start]
```

Figure 15: The Default Global r3perfagent.cfg File



- 8 On the managed node, locate the `r3perfagent` command and start (or stop and restart) the SPI for SAP performance monitor. For information about locating the SPI for SAP performance monitor files, see [“Locating the Performance Monitor Files” on page 112](#)). You can control the SPI for SAP performance monitor by using the SPI for SAP tools or entering the following commands in a shell on the managed node:

- UNIX and Linux operating systems:

```
./r3perfagent [stop | start]
```

- MS Windows operating systems:

```
r3perfagent_service [-e | -s]
```

Monitoring System-Performance Remotely

The SPI for SAP includes a feature which allows you to extend the scope of the SPI for SAP performance monitor to monitor the health of additional, remote SAP servers (which are *not* managed nodes) from an SAP server, which *is* already configured as an HPO managed node.



Although the remote host is *not* an HPO managed node, it must still be present in the HPO node list. If you do not add the remote host to the HPO node list, HPO cannot resolve the host name associated with the remote host and, as a consequence, messages from the remote host do not appear in the HPO console.

To make use of the remote-monitoring feature provided by the SPI for SAP, for example; to collect SAP performance metrics from an SAP System running an operating system that is not supported by the SPI for SAP, you need to use the `r3perfconfig` command to manually add an additional datasource for each SAP System you plan to monitor remotely and then activate the `RemoteMonitoring` keyword (by removing the leading hash symbol “#”) in the `r3perfagent.cfg` file on the local managed node, where the performance monitor runs. [Example 10](#) shows an excerpt from the *global* `r3perfagent.cfg` file with the remote-monitoring feature enabled; the *local* `r3perfagent.cfg` file, if present, would only contain references to the managed node on which the local configuration file is located.

Example 10: Activating Remote Performance Monitoring

```
#-----
# Remote          LocalHost      RemoteHost
# Monitoring

RemoteMonitoring =sapwolf2      =sapprod1
RemoteMonitoring =sapwolf3      =sapprod2
RemoteMonitoring =sapper        =sapprod3
#-----
```

For more information about remote performance monitoring, see the section about performance monitors in the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

The Performance-Monitor Scheduler

The performance agent uses an internal scheduler to ensure that the performance monitors run according to the desired schedule. The scheduler keeps track of time and the number of runs that have been completed and uses this information to ensure that the performance monitors run at the correct time and collect the appropriate performance-related data.

For more information about the Performance-monitor scheduler, see the section about performance monitors in the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

Managing the Performance agent

The SPI for SAP performance monitor can be controlled either by using command-line options which differ according to the platform and operating system, or the tools that are installed by the SPI for SAP. For more information on either of these topics, see the following sections:

- “Command-Line Options” on page 124.
- “SPI for SAP Tools” on page 125.

Command-Line Options

On UNIX and Linux operating systems, you can use the `r3perfagent` command to manage the SPI for SAP performance monitor. The `r3perfagent` command accepts the following command-line options:

```
r3perfagent [start | status | stop]
```

- **start** - to *start* the SPI for SAP performance monitor
- **stop** - to *stop* the SPI for SAP performance monitor
- **status** - to determine the current *status* of the SPI for SAP performance monitor

On MS Windows operating systems, you can manage the SPI for SAP performance monitor with the `r3perfagent_service` command, which accepts the following command-line options:

```
r3perfagent_service -e -i -s -u
```

- e** stops the service
- i** registers the service
- s** starts the service
- u** de-registers the service



Note that on MS Windows operating systems, you can control the `r3perfagent` services from the services dialog, which you can access in the MS Windows control panel.

SPI for SAP Tools

Table 13: lists the tools that are available for the SPI for SAP performance monitor and shows which tools appear in which SPI for SAP tool group, for example: SAP R/3 NT or SAP R/3 UN*X.

Table 13: Performance Monitor Tools

Application Name	SAP R/3 NT	SAP R/3 UN*X
PerfAgt Start	•	•
PerfAgt Stop	•	•
PerfAgt Status		•

Using the Smart Plug-in for SAP

After you install and configure the Smart Plug-in for SAP you can begin to use it to monitor your SAP R/3 environment. As soon as you deploy the Smart Plug-in for SAP policies and instrumentation, you begin to see SAP R/3 related messages in the HPO console.

This chapter provides an overview of the components which the Smart Plug-in for SAP integrates into HPO and describes the steps and procedures that you need to perform if you want to run a typical Smart Plug-in for SAP session. In this chapter, you can find information about the following topics:

- “SAP R/3 Administration Tools” on page 128
- “SPI for SAP Tools for SAP Managed Nodes” on page 129
- “Using the Smart Plug-in for SAP Tools” on page 131
- “Accessing Data on SAP R/3 Managed Nodes” on page 133
- “Working with SAP R/3 Messages” on page 136
- “Setting up Troubleshooting Services” on page 139

SAP R/3 Administration Tools

The SAP R/3 Admin group includes tools for administrative functions such as writing SAP R/3 statistical records and activating alerts. The following table lists the tools which appear in the SAP R/3 Admin tool group and describes briefly what each of the tools does.

Table 14: SAP R/3 Admin Tools

Tool	Description
Write STAT Rec Config	Write statistical records in SAP R/3
Deploy... Install... Remove...	Tools for deploying, installing and removing the SPI for SAP performance monitor packages

For more information about editing and distributing monitor configurations, see the *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

SPI for SAP Tools for SAP Managed Nodes

The SPI for SAP provides a wide range of tools for administrators of HPO managed nodes which host SAP Systems running on either UNIX or Microsoft Windows operating systems. Some of the tools included in the SAP R/3 UN*X and SAP R/3 NT tools groups allow direct, context-sensitive access to SAP R/3 via SAP's native graphical user interface. For example, if you want to investigate a performance alert, you can run the Performance tool, which starts the SAP GUI and displays an SAP performance-analysis window.

Table 15 on page 129 lists the tools that are available for managed nodes, indicates in which group (UNIX/Linux or MS Windows) they reside and, in addition, shows which SAP R/3 transaction (Tcode) the tools call after the SAP R/3 GUI session starts.



First select the SAP R/3 managed node(s) on which you want the tool to run. Make sure you select the tool from the tools group that corresponds to the managed node's operating system, for example; UNIX. Note that SPI for SAP tools cannot start a SAP GUI on an SAP System, which is monitored remotely from an HPO managed node.

Table 15: The SAP R/3 UN*X and SAP R/3 NT Tools

Tool Name	UX	NT	Description	SAP Tcode
Check R/3 Database	•		Connect to the R/3 database to check availability *	n/a
Control Panel	•	•	Starts the SAP R/3 GUI and displays the CCMS control panel	RZ03
DB Performance	•	•	Shows database performance through tables and indexes	DB02
Gateway	•	•	SAP R/3 gateway monitor	SMGW
Job Maintain	•	•	Defines background jobs	SM36

Table 15: The SAP R/3 UN*X and SAP R/3 NT Tools (Continued)

Tool Name	UX	NT	Description	SAP Tcode
Job Overview	•	•	Status of background jobs	SMX
Job Performance	•	•	Displays Job performance by Job/User name, time, or status	SM39
Maintain Thresholds	•	•	Maintenance of alert thresholds	RZ06
Operation Modes	•	•	CCMS: Maintain operation modes	RZ04
Operation Sets	•	•	Displays/Maintains operation-mode sets	SM63
PerfAgt START	•	•	Starts the Performance agent	n/a
PerfAgt STATUS	•		Displays the status of the Performance agent	n/a
PerfAgt STOP	•	•	Stop the Performance agent	n/a
Performance	•	•	Workload analysis	ST03
Process	•	•	Process overview	SM50
Profile Maintain	•	•	Profile maintain	RZ10
R/3 Info	•	•	Displays the installed R/3 version, instance, hostname. *	n/a
Servers	•	•	R/3 Server overview	SM51
Self-Healing Info	•	•	Collect data for troubleshooting services	n/a
Start R/3 Frontend	•	•	Starts the SAP R/3 GUI *	n/a
Status R/3 Config	•		Displays status details for any installed SAP R/3 instances *	n/a

Table 15: The SAP R/3 UN*X and SAP R/3 NT Tools (Continued)

Tool Name	UX	NT	Description	SAP Tcode
Syslog	•	•	Shows analysis of local SAP System log	SM21
Users	•	•	Displays general information about logged-on SAP R/3 users	AL08

* For more information about the tools that access data on the managed nodes, see [“Accessing Data on SAP R/3 Managed Nodes”](#) on page 133.

Using the Smart Plug-in for SAP Tools

Expand the **Tools > SPI for SAP** item in the HPO console to display in the details pane the tools and tools groups installed by the Smart Plug-in for SAP. During installation and setup, the Smart Plug-in for SAP adds the following tool groups to the HPO console:

- SAP R/3 Admin
- SAP R/3 NT
- SAP R/3 UN*X



Since most SPI for SAP tools make use of the SAP R/3 GUI, make sure that the SAP R/3 GUI is available on the HPO management server and, in addition, on any machine where an HPO console runs. For more information, see [“Installing the SAP R/3 GUI”](#) on page 42. SPI for SAP tools cannot start an SAP GUI on an SAP System, which the SPI for SAP is monitoring remotely from an HPO managed node.

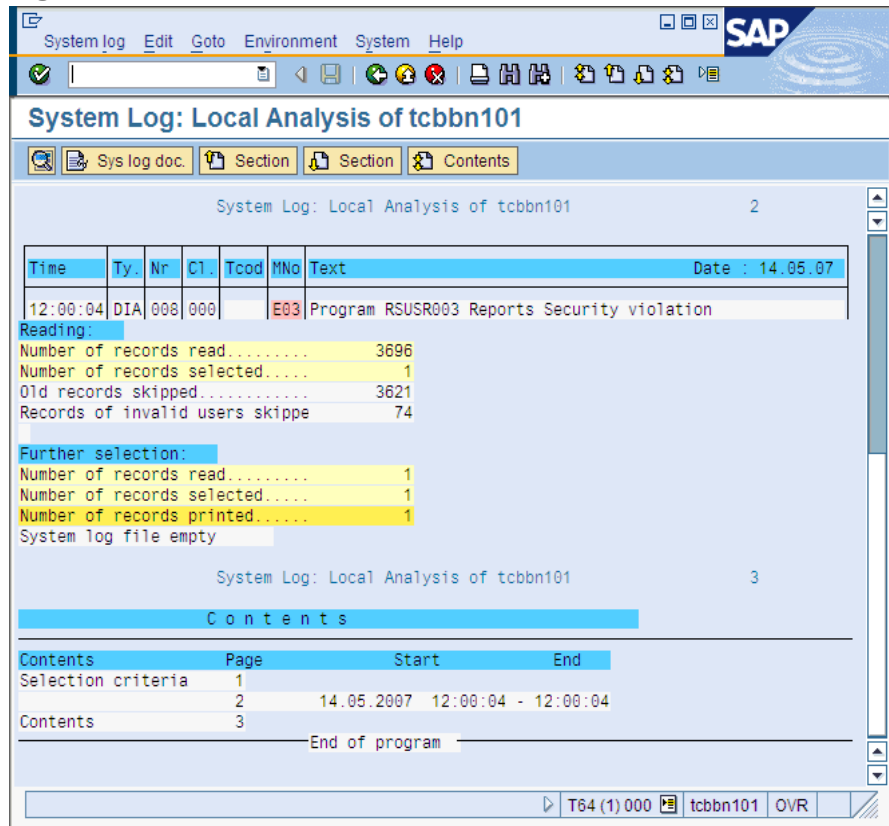
To launch a Smart Plug-in for SAP tool

- 1 Expand the tool group containing the tool you want to launch

- 2 Right click the tool you want to launch and select the following option from the menu which pops up:
All Tasks > Launch Tool...
- 3 In the window which appears, select the SAP R/3 nodes on which you want to run the Smart Plug-in for SAP tool and click the **Launch...** button.

R/3 Info is one of a number of tools which display information in the Tool Output pane of the Tool Status dialog illustrated in [Figure 17](#). For more information about the R/3 Info tool, see [“Accessing Data on SAP R/3 Managed Nodes”](#) on page 133.

Figure 16: Context-Sensitive Access to SAP R/3



The majority of Smart Plug-in for SAP tools provide context-sensitive access to SAP R/3 by starting the SAP R/3 GUI and calling the appropriate SAP R/3 transaction. For example, [Figure 16: on page 132](#) shows the window that appears when you launch the Syslog tool, which you can find in the SAP R/3 UN*X and SAP R/3 NT tool groups.

Accessing Data on SAP R/3 Managed Nodes

The following Smart Plug-in for SAP tools provide quick access to SAP R/3-related information from the selected managed node. The R/3 Info and Start R/3 Front-end tools are available on both UNIX and Linux operating systems and MS Windows operating systems, too; some other tools are available on UNIX and Linux operating systems only.

Each of the tools in the following list is explained in greater detail in the sections which follow. Where appropriate, real-life examples demonstrate the more important aspects

- Check R/3 Database

Establishes a connection to the SAP R/3 database server and provides a quick way of checking the database connection. If multiple instances are installed, the tool prompts you to enter the System ID in which the database you want to check resides.

- R/3 Info

Returns the following information for SAP R/3 instances on a selected node.

- host name
- SAP R/3 System name
- SAP R/3 instance name and number
- list of processes for the selected instance

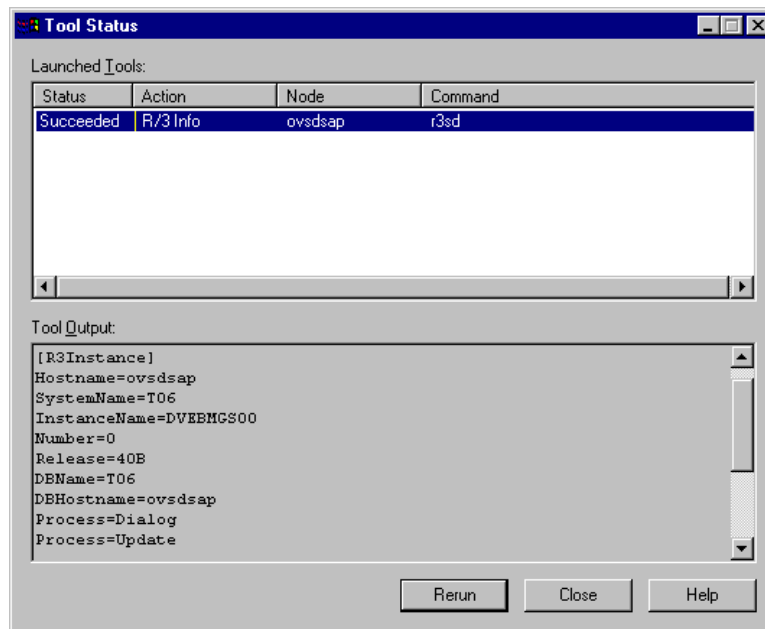
The R/3 Info tool collects and uses the same information as `r3disc`, the SPI for SAP's service- discovery policy. However, note that the R/3 Info tool displays the information it collects; it does not use the information to generate a service tree. For more information about the `r3disc` policy and

Service Views in general, see *HP Operations for Windows Smart Plug-in for SAP Administrator's Online Help*.

- Start R/3 Front-end
Uses the local SAP GUI utility (running on the HPO management server) and profile to connect to the desired SAP R/3 system
- Status R/3 Config
Displays a list of all SAP R/3 Systems (and the functional modules per System) present on the selected managed node. In addition, it lists all established SAP R/3 processes and indicates their current status.

For example, launching the R/3 Info tool displays a dialog similar to the one illustrated in [Figure 17](#). The Tool Status dialog indicates which command is being executed, on which node, and the command's current status.

Figure 17: Output from the R/3 Info Tool



The Status R/3 Config tool runs on the selected managed node and displays the current local R/3 configuration. It lists all SAP R/3 systems installed on the selected node and the functional modules installed per SAP R/3 System. In addition, the R/3 process status provides a list of all established R/3 processes and their current status.

Figure 18: R/3 Configuration Status Window



Working with SAP R/3 Messages

The message browser in the HPO console is an important source of information about the status of the SAP servers, for which you are responsible. If you log in to HPO as a user with SAP responsibilities, the message browser displays, among others, messages from SAP R/3 servers, which you are monitoring with the SPI for SAP.



You can use the SPI for SAP to monitor SAP instances running on a remote host, where the SPI for SAP is not available. Although the remote host is not an HPO managed node, it must still be present in the HPO console. If you do not add the remote host to the HPO console, HPO cannot resolve the host name associated with the remote host and, as a consequence, will not be able to display any messages from the remote host in the console.

Selecting and double-clicking a message in the message browser displays the selected message's properties and allows you to perform the following tasks:

- View a detailed description of a problem
- View instructions designed to help you solve the problem to which the message relates
- Initiate a pre-defined action, attached to a message
- Add an annotation to a message in order to document the actions you took to solve a problem
- Acknowledge a message so that it is moved to the acknowledged-messages database

The example that follows shows a typical sequence of events which occur when a critical message appears in the HPO console.

- 1 In the active-messages browser, locate and double-click the critical message sent by the Smart Plug-in for SAP.



HPO displays the message's text property sheet by default.

- 2 Click the Instructions tab to see if any instructions have been provided to help you sort out the problem that has been reported.
- 3 After you have read and understood the information provided in the Instructions tab, click the Commands tab to see if an *automatic* or an *operator-initiated* action is available to help solve the problem reported by the incoming message. In many cases, the SPI for SAP R/3 uses these actions to provide context-sensitive access to SAP R/3 and automatically displays the appropriate SAP R/3 transaction window.

Figure 19: Message Details

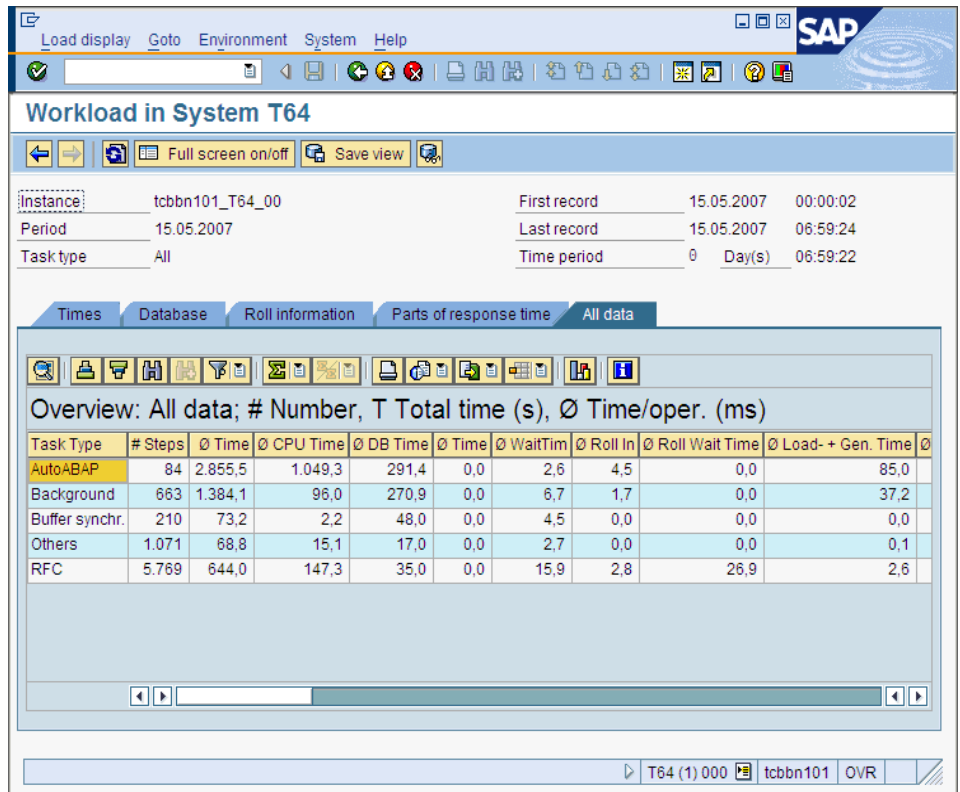
The screenshot shows the 'Message Properties' dialog box with the following details:

- General Tab:**
 - Created: 2/7/01 4:12:36 PM
 - Received: 2/7/01 4:11:34 PM
 - ID: a5b2dce6-fd0b-71d4-0056-0f88794300
 - Primary Node Name: ovsdsap
 - Service Id: SAP_SPI:T06:ovsdsap:T06:DB
 - Message Group: R3_DB
 - Type: (empty)
 - Message Key: (empty)
 - Acknowledge message with message key: (empty)
 - Policy: SAP R3 opcmsg(1.0)
 - PolicyType: Open Message Interface
 - Application: R/3 T06 00
 - Object: FreeSpace
 - Unmatched
- State:** Critical
- Icons:** A red 'X' icon is present in the top right corner.
- Buttons:** OK, Cancel, Help

- 4 If an operator-initiated action is available, click the **Start** button in the Operator-initiated field of the Commands property sheet to launch it. You can watch the progress of the action in the Status field. In the message field, the action starts the SAP R/3 GUI and displays the Workload-analysis transaction illustrated in [Figure 20](#).

- 5 Click the [*server_name*>] button indicated in the This Application Server field and use the tools available with SAP R/3 to solve the problem.
- 6 When you have finished, log out of SAP R/3 and return to the Message Details window.
- 7 Click **Acknowledge** to confirm that you are aware of the message to which you just responded. As soon as you acknowledge the message, the message moves from the active-messages browser to the acknowledged-messages browser.

Figure 20: SAP R/3 Performance: Workload Analysis



Setting up Troubleshooting Services

The troubleshooting services feature provides tools that enables you to collect quickly and easily all the system and application data that you need to begin investigating problems that occur when using an HP software application.

To use the troubleshooting services with the Smart Plug-in for SAP, you need to trigger the collection of the data required for troubleshooting manually and save the collected data to a file. You can then review the contents of the file containing the collected data and, if necessary, send a copy of the file by e-mail to the support engineers.

The SPI for SAP provides the following troubleshooting tools:

- Self-Healing Info

Use the Self-Healing Info tool to manually trigger the collection of the data required for troubleshooting. For more information about the data-collection process, see [“To trigger data collection for troubleshooting services” on page 139](#).

- Version Verify

The Version-Verify tool compares the base version of the SPI for SAP installed with the version of any SPI for SAP components installed on the system. For more information about verifying installed software versions, see [“To check the version of the installed product components” on page 140](#)

To trigger data collection for troubleshooting services

- 1 In the HPO console, expand the SPI for SAP tool group containing the tool you want to launch, for example for UNIX and Linux managed nodes:

Tools > SPI for SAP > SAP R/3 UN*X

- 2 Locate and right click the Self-Healing Info tool and select the following option from the menu which pops up:

All Tasks > Launch Tool...

- 3 In the window which appears, select the SAP R/3 nodes (or groups of nodes) on which you want to run the troubleshooting services data-collection tool and click **Launch...**

- 4 The collected data is stored in the following file, which you will need to forward to the support engineers for evaluation:

- UNIX and Linux operating systems:

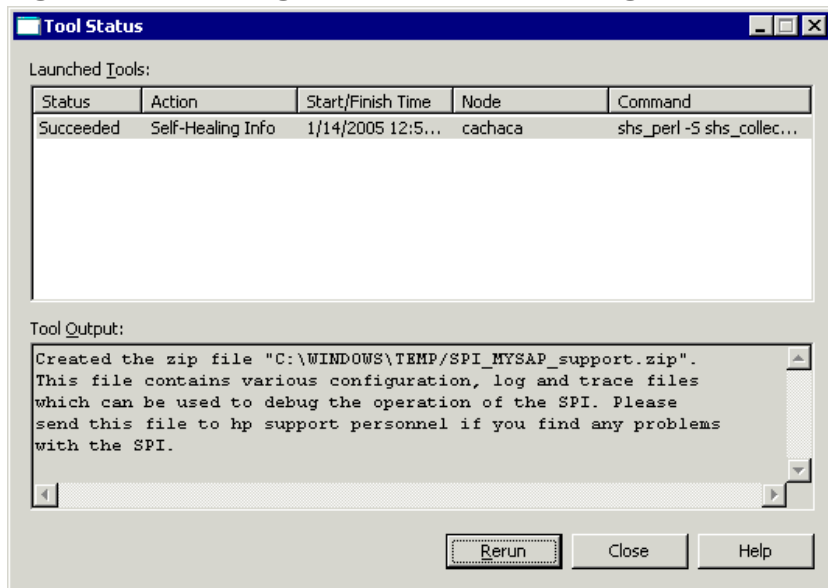
/tmp/SPI_MYSAP_support.tar

- MS Windows operating systems:

C:\WINDOWS\TEMP\SPI_MYSAP_support.zip

You can follow the status of the data-collection progress by monitoring the output, which is displayed in the Tool-Output pane at the bottom of the Tool Status dialog, as illustrated in [Figure 21: on page 140](#).

Figure 21: Collecting data for troubleshooting services



To check the version of the installed product components

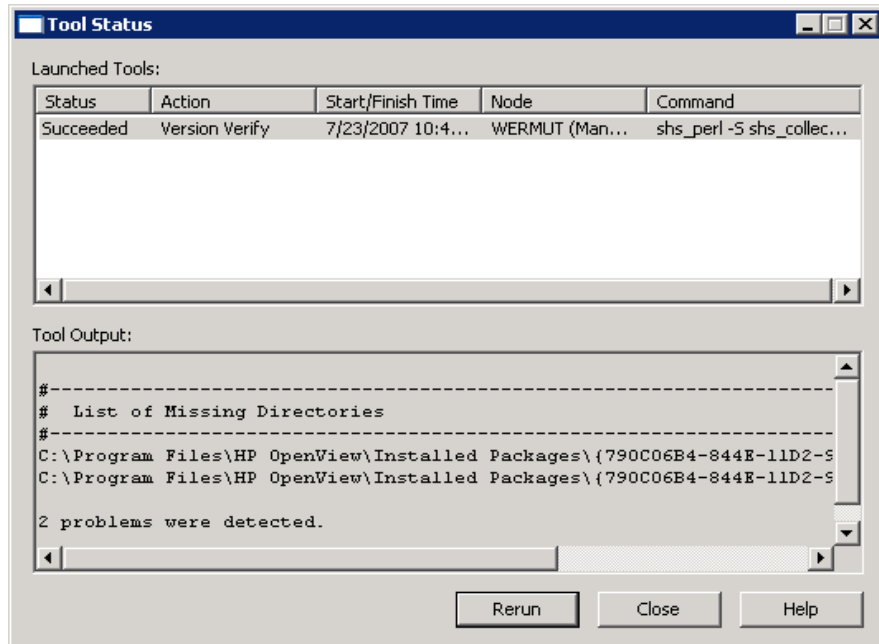
- 1 In the HPO console tree, expand the tool group containing the tool you want to use verify product version information:

Tools > Self Healing

- 2 Locate and right click the Version Verify tool and select the following option from the menu which pops up:

All Tasks > Launch Tool...

- 3 In the dialog which appears, select the SAP R/3 nodes (or groups of nodes) on which you want to run the troubleshooting services, Version-Verify tool and click **Launch...** You can follow the status of the verification progress by monitoring the output, which is displayed in the tool-output pane, as illustrated in [Figure 22: on page 141](#).

Figure 22: Checking the Installed Software Versions

Service Reports

This section introduces the concept of service reports and explains how to use them in conjunction with the SPI for SAP and HPO. The information in this section is designed specifically to help you use the service reports to manage the SAP R/3 environment in an efficient and convenient manner. In this section, you can find detailed information about the following specific topic areas:

- “What Are Service Reports?” on page 143
- “Upgrading the SPI for SAP Reports” on page 145
- “Installing the SPI for SAP Reports” on page 145
- “Removing the SPI for SAP Reports” on page 151

What Are Service Reports?

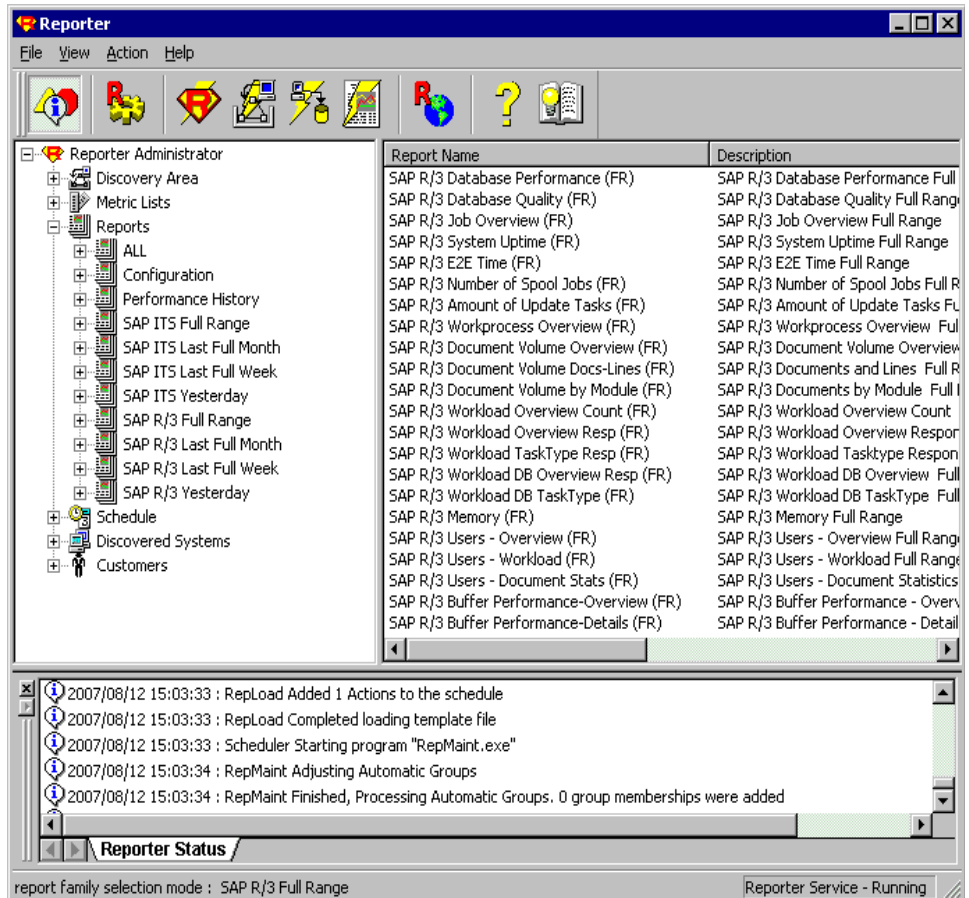
Service reports are web-based reports that are produced by HP Reporter (Reporter) using default templates and viewed using a web browser. Reporter allows you to request both scheduled and on-demand versions of reports.

SPI for SAP service reports correlate the data extracted from either the HP Software Embedded Performance Component (CODA) or the HP Performance agent. You can use the correlated data to generate reports which display short-, medium-, or long-term views of your IT environment

and supplement the detailed, real-time graphs that the Performance Manager provides. The combination of reports and graphs is a powerful tool for trend analysis. For example, you can:

- Identify potential bottlenecks in your IT system, so that you can take action before problems become acute.
- Use the information to help you to make accurate predictions for future upgrades.
- Collect accurate information to be used in measuring service levels.

Figure 23: SPI for SAP Service Reports



Upgrading the SPI for SAP Reports

If you are upgrading to version 10.70 from version B.09.01 or 09.01, you can continue to use existing data and monitors. However, versions 10.10, 08.11, and 08.71 of the SPI for SAP have different versions of the SAP/Performance monitor which require a version of the HP Reporter that is incompatible with the current version of the SPI for SAP. This means that you cannot use the current SPI for SAP reporter integration to view old reports prepared with versions 10.10, 08.11, and 08.71 of the SPI for SAP. In addition, 08.11 and 08.71 data must be removed from the Reporter database before you install the reporter integration package supplied with the version 10.10 of the SPI for SAP or later.



Upgrading the SPI for SAP reports in the manner described in this section removes from the Reporter system *all* old report data collected by the SPI for SAP. However, you can use database tools to preserve the tables containing information that you want to use after completing the upgrade process. For more information, see the documentation provided with the database product.

- 1 Remove the old SPI for SAP reporter-integration package using the standard Microsoft Windows software-removal method:

Start: Settings > Control Panel > Add/Remove Software

- 2 Install the new SPI for SAP reporter integration as described in “Installing the SPI for SAP Reports” on page 145.

Installing the SPI for SAP Reports

This section explains how to install the SAP R/3 and the SAP ITS service reports which come with the SPI for SAP and, in addition, provides information designed to help you prepare for the installation. This section covers the following topics:

- “Before You Begin” on page 146
- “Installing SAP R/3 Service Reports” on page 146

- “Configuring Report Packages” on page 149

Before You Begin

Before you install and set-up the SPI for SAP service reports, you must complete the following tasks:

- 1 Make sure either the HP Software Embedded Performance Component or the HP Performance agent is running on all SAP managed nodes for which you want to generate service reports.
- 2 Make sure HP Reporter is available on an MS Windows host.



HP Reporter lite is no longer bundled with HP Operations; you must install and use the *full* version of the HP Reporter to view SPI for SAP reports.

You can install HP Reporter either on the HPO management server or, to improve overall performance, on a separate system dedicated to the generation and display of service reports.

- 3 Make sure the SPI for SAP performance agent and the ITS monitor are available and configured on the machines for which you want to generate reports.
- 4 If you want to edit existing (or create new) service reports for the SPI for SAP, make sure that Crystal Reports is available on the machine hosting the HP Reporter. For more information about which software versions the SPI for SAP supports, see “Compatible Software Versions” on page 25.

Installing SAP R/3 Service Reports

The SPI for SAP inserts the SAP R/3 and SAP ITS service reports into the HP Reporter product as a snap-in package using InstallShield. This means that the HP Reporter must already be installed before you install the SPI for SAP service reports. During set-up of the SPI for SAP service reports you will be

asked to confirm or specify the common application path for HP Reporter.



The common application path is the folder where HP Reporter is installed. The set-up attempts to discover this path automatically, and in most circumstances you should avoid changing it.

The set-up copies components to the directories listed in [Table 16 on page 147](#). All directory paths are relative to the Reporter common-installation path.

Table 16: Locations of SPI for SAP Service-Reports Components

Component	Directory
Installation script	%OvInstallDir%\newconfig\
Configuration files	
SAP report template files	%OvReporter%\data\reports\SAP
SAP ITS report template files	%OvReporter%\data\reports\SAPITS

To Install HP Reporter on the HPO Management Server

To be able to generate and view service reports for the SAP Systems you are monitoring with the SPI for SAP, you first need to install the full version of the HP Reporter. You can install the HP Reporter either on the HPO management server or, alternatively, on a separate machine, which is *not* the HPO management server. For more information about installing the HP Reporter, see the HP Reporter product documentation. After you install and configure the HP Reporter, you need to install and configure the SPI for SAP reports package on the same machine.



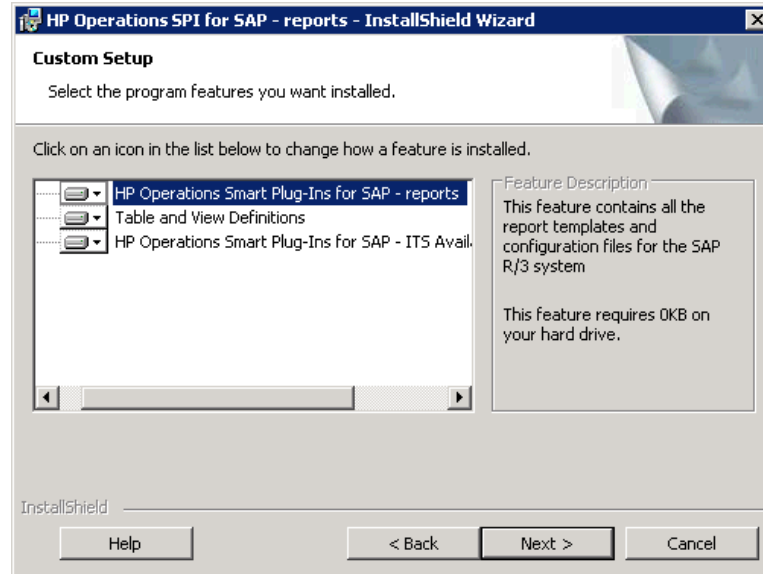
If you install the HP Reporter on a machine which is *not* the HPO management server, make sure the machine on which you install the HP Reporter can see the HPO managed nodes, for which you want to generate service reports.

To Install the SPI for SAP Reports

The information in this section describes the steps required to add the SPI for SAP service-reports to an existing HP Reporter installation. When you have completed this task, the SPI for SAP service reports will be available in the HP Reporter GUI, and you will be able to use them to generate SAP-specific service reports, which you can view in a web browser.

- 1 Make sure that the HP Reporter is installed and configured on the machine where you want to install the SPI for SAP service reports.
- 2 Insert the HP Operations Smart Plug-ins media into the DVD drive of the machine where you installed and configured the HP Reporter.
- 3 Browse to the following folder:
SPIs\SAP SPI Reporter Package
- 4 Locate, select, and run the following file:
sapspi_reporter.msi
- 5 Follow the instructions to complete the installation

Figure 24: SPI for SAP Reports InstallShield Wizard.



Configuring Report Packages

The set-up process of the SPI for SAP's service-report integration automatically performs the following tasks:

- Creates two new report groups: SAP_R3 and SAP_ITS_6.20
- Assigns new *metric lists* to the new SAP_R3 and SAP_ITS_6.20 groups
- Assigns new *group reports* to the SAP_R3 and SAP_ITS_6.20 groups
- Assigns new *system reports* to the SAP_R3 and SAP_ITS_6.20 groups

To Configure Report Packages

- 1 Verify that the installation of the SPI for SAP service reports completed successfully by confirming that the set-up process created the report and metrics groups listed in “[Configuring Report Packages](#)” on page 149.
- 2 In the Reporter console, browse to the Configure Report Packages window using the following menu option:

File > Configure > Report Packages

Check that the following packages are present in the list of installed packages.

- SPI for SAP
- SPI for SAP - ITS 6.20 Reports

- 3 If you choose to add SAP Systems manually to the HP Reporter, note that you can use the following values in the Add System window:

System	host.name.com
Network	SAP
Domain	either " SAP " or " ITS " as appropriate

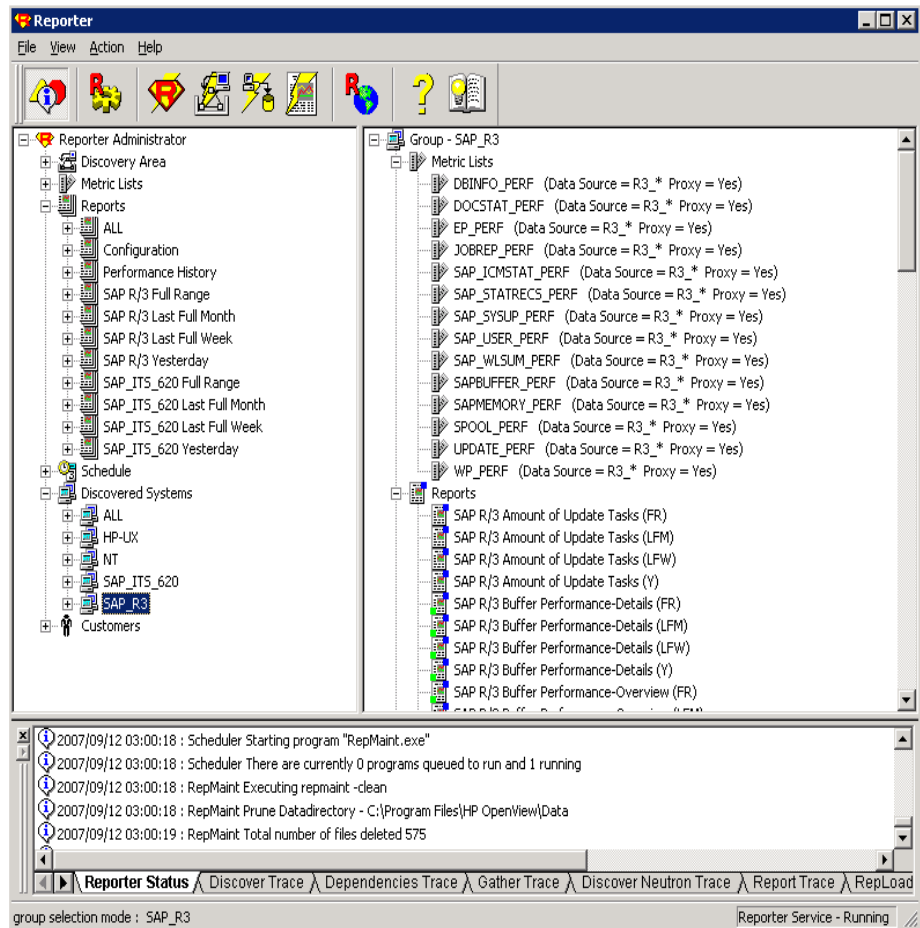
Check that the set-up process added your SAP R/3 and SAP ITS hosts to the appropriate Reporter group, namely; SAP_R3, SAP_ITS_620. The set-up process automatically assigns hosts to a report group according to the kind of data source (SAP R/3, SAP ITS 6.20), which it discovers on the monitored host.

- 4 Click **OK**; the systems appear in the Reporter's details pane.

- 5 Use the Reporter GUI to schedule the generation of the SPI for SAP reports or generate them now using the option indicated below and illustrated in [Figure 25: on page 150](#):

Actions > Run > Generate Reports

Figure 25: SPI for SAP Reports and Metrics



Removing the SPI for SAP Reports

In order to completely remove the SPI for SAP reports, you need to perform the following steps in the order specified:

- “To Remove Reporter Snap-in Packages” on page 151.
- “Removing Binaries from the HP Reporter System” on page 151.

To Remove Reporter Snap-in Packages

- 1 In Reporter, browse to:
File > Configure > Reporter Packages
- 2 Select the following files from the Installed Packages window located in the right pane of the Configure Report Packages window:
 - SPI for SAP
 - SPI for SAP - ITS 6.20 Reports
- 3 Double-click the left arrow button to remove the selected packages from the Available Packages window: the selected packages appear in the list of Available Packages in the left pane of the Configure Report Packages window.
- 4 Click **OK** to finish.

Removing Binaries from the HP Reporter System

- 1 Open the Windows Start menu, and browse to the following item:
Start:Settings > Control Panel > Add/Remove Programs
- 2 Select: HP Performance for Windows
- 3 Highlight: Reports for HP Operations Manager Smart Plug-in for SAP
- 4 Select: Remove
- 5 Follow the on-screen instructions to complete the deinstallation process.

Removing the SPI for SAP

This section describes how to remove the SPI for SAP software quickly and cleanly. You need to perform the following tasks, as appropriate, on either the SAP R/3 managed node(s) or the HPO management server(s) on which you installed the SPI for SAP software.

To remove the SPI for SAP software, carry out the following high-level steps, which are described in greater detail in the corresponding sections that follow:

- “Removing SAP-management Functionality from Managed Nodes” on page 153
- “Removing the SPI for SAP Software from the Management Server” on page 155

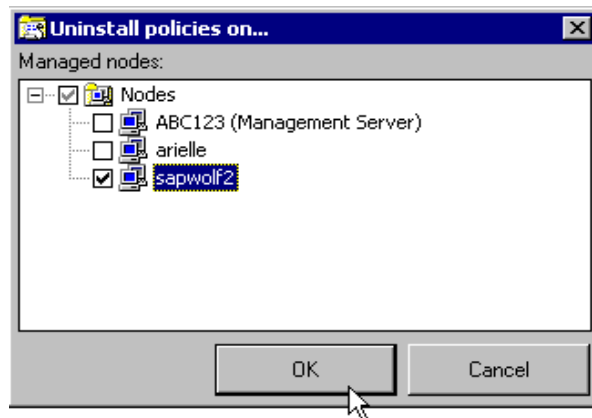
Removing SAP-management Functionality from Managed Nodes

To de-assign SAP management functionality from HPO managed nodes:

- 1 On each managed node where you installed the SPI for SAP performance monitor, follow the corresponding deinstallation instructions in “De-Installing the SPI for SAP Performance Packages” on page 111.

- 2 Remove the SPI for SAP policies from the SAP R/3 and ITS managed nodes.
 - a In the HPO console, locate and expand the following policy group:
Policy Management > Policy Group > SPI for SAP
 - b Select and right click the SPI for SAP policy group and remove the policies by using the following option in the pull-down menu:
All tasks > Uninstall from...
 - c In the Uninstall Policies on... window which appears, select the managed nodes from which you want to remove the SPI for SAP policies as illustrated in [Figure 26](#) and click **OK**.

Figure 26: Uninstalling SPI for SAP Policies



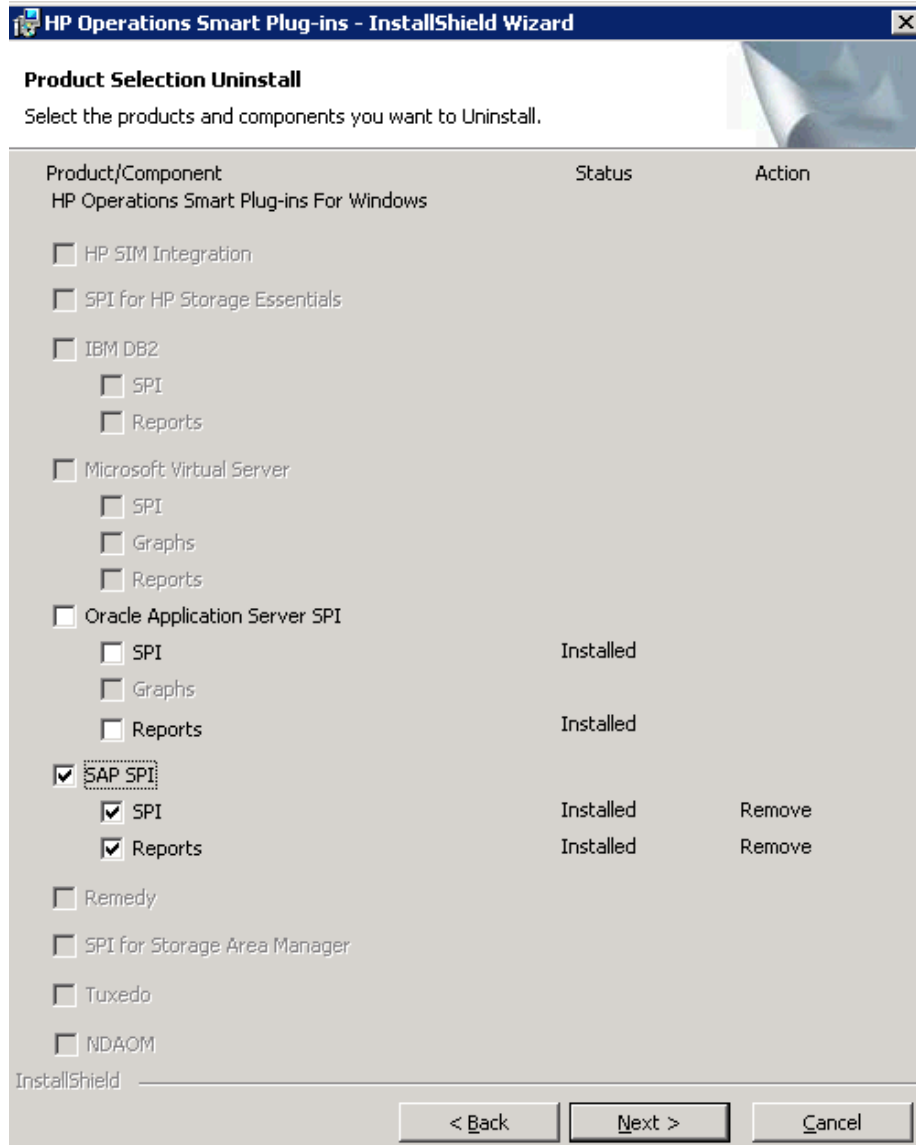
- d Verify that the polices have indeed been removed from the SAP R/3 managed nodes by selecting and right-clicking the managed node in the console tree and using the following option in the pop-up menu, which appears:
View > Policy Inventory

Removing the SPI for SAP Software from the Management Server

To remove the SPI for SAP software from an HPO management server:

- 1 On the HPO management server, remove the SPI for SAP software as follows:
 - a In the Windows control panel, use the Add or Remove Programs tool to start the removal process; select HP Operations Smart Plug-ins from the list of installed programs and click **Change**.
 - b In the HP Operations Smart Plug-ins InstallShield Wizard which opens, click **Next** and read the instructions displayed.
 - c Click **Next** again to open the Program Maintenance dialog, which you can use to install and remove HP Operations programs.
 - d Check the Remove Products option and click **Next** to open a dialog which asks you to select the product you want to remove.
 - ▶ The SPI for SAP does not appear on the first page of installed product components; click Next to scroll through the list of components to remove, as shown in [Figure 27: on page 156](#).
- 2 Select SPI for SAP from the list of products in the Product Selection Uninstall screen, click **Next**, and follow the instructions displayed on screen.
- 3 Click **Finish** when the product-removal operation completes.
- 4 In the HPO console, remove manually any remaining SPI for SAP GUI components, for example:
 - Remove any configuration-file policies you have added.
 - Remove any policy groups you have created.
- 5 If you want to free the space occupied by the SPI for SAP monitor binaries on the HPO managed nodes, you can redeploy the instrumentation to the managed nodes.

Figure 27: InstallShield Wizard Removal Dialog



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