

HP OpenView Operations Smart Plug-in for SAP

Installation Guide

Software Version: 10.20

For the HP-UX and Sun Solaris operating systems



i n v e n t

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Support

Please visit the HP OpenView web site at:

<http://www.hp.com/managementsoftware/support/>

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

HP OpenView online software support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valuable support customer, you can benefit by using the support site to:

- Search for knowledge documents of interest
- Submit enhancement requests online
- Download software patches
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- Review information about available services
- Enter discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and log in. To find more information about access levels, go to the following URL:

http://support.openview.hp.com/access_level

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<http://www.managementsoftware.hp.com/passport-registration.html>

1 Introduction

This section gives an overview of the SPI for SAP, describes how it is integrated with other HP OpenView products, and shows how easy it is to customize.

What is the Smart Plug-in for SAP?

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

NOTE

References to both the new and (occasionally) the old product names appear in this book. For example, OpenView Operations (OVO) was previously known as IT/Operations (ITO). PerfView is now known as the OpenView Performance Manager. The OpenView Performance Agent was formerly the HP OpenView MeasureWare agent.

This integration allows 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. Integration of SAP R/3 performance data into Performance Agent/MWA 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 HP OpenView Smart Plug-in for SAP offers the following key benefits:

- Centralized problem management using OVO agents on the SAP R/3 managed nodes—the use of the central OVO management server avoids the duplication of administrative effort.
- Real-time event and configuration information—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 of any performance bottlenecks
- Direct, context-sensitive access to the SAP front-end
- Complements SAP R/3 Computing Center Management System (CCMS)
- Performance data collection, monitoring, and reporting

- Central data repository stores event and action records for all SAP R/3 managed nodes.
- Utilities run routine SAP R/3 management tasks automatically
- SAP service discovery and integration of SAP R/3 environments with HP Navigator—the SPI includes an application that will automatically generate service views of the SAP R/3 systems installed on your managed nodes.

What Does the Smart Plug-in for SAP Do?

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

- “Availability Management” on page 12
- “Performance Management” on page 14
- “Remote Monitoring with the Smart Plug-in for SAP” on page 15
- “Monitoring ITS” on page 16
- “Monitoring SAP Web AS Java (J2EE)” 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 18
- “High-availability Environments” on page 18

Availability Management

This lets you know when something in your R/3 environment is going wrong. Maybe a disk is too full, or a key process has stopped prematurely or failed to start at the appropriate time. The combination of the SPI for SAP and OVO alerts SAP administrators to such conditions. When the alert is given, the following additional assistance may be provided:

- Advice about corrective action that should be taken
- A pre-defined action that the administrator can initiate.
- An automatic action, such as an e-mail message to a manager if a critical condition occurs

The SPI for SAP provides an interface with CCMS, which monitors availability issues with R/3. This means that the SPI for SAP is aware of any availability problems identified by CCMS. In addition it monitors

over 70 R/3 related conditions in the overall environment. When problems occur, the SPI for SAP can call on over 40 UNIX, MS Windows, and SAP management tools to quickly fix things.

Availability management monitoring includes:

- **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**

Either via CCMS syslog alerts or by direct monitoring of the SAP syslog via the XMI API.
- **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)
- **SAP R/3 status and events**

Monitoring SAP R/3 status and events via SPI ABAP modules. 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 OVO messages to CCMS
 - Assign alerts to Solution-manager process steps and use OVO to monitor the alerts

Managing from a Business Perspective

Using the Navigator, you can view the impact of events that trigger messages in the browser in a graphical format that makes you immediately aware of the business impact of lower level component failures or performance degradations.

Using Navigator, you can get quickly to the root cause of a service failure, by simple point-and-click navigation to faulty components for further diagnosis and problem resolution.

The SPI for SAP can perform service discovery. This automatically generates 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 OVO service views as building blocks to create Line-of-Business views that reflect the impact on your business of events, which occur in SAP R/3 and the supporting infrastructure.

Performance Management

Performance management tells you about slowdowns that may be frustrating end-user productivity within your SAP R/3 environment. The combination of the SPI for SAP, OpenView Performance Agent, and the HP OpenView Performance Manager metrics analyzer/viewer alerts SAP administrators to such conditions.

This offers a complementary and consolidated view of SAP R/3 performance information and overall system resource characteristics. These fully integrated HP OpenView 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.

This detects and eliminates bottlenecks in a distributed environment. In addition, the integration allows for system optimization as well as service level monitoring, resulting 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 (from SAP 4.6 only)
- Spool and print jobs
- Work-load statistics
- Buffer statistics
- Memory-performance indicators
- Logged-in users
- Document volume
- SAP Internet Communication Manager (ICM) status and performance

Remote Monitoring with the Smart Plug-in for SAP

The current version of 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* OVO managed nodes and where the SPI for SAP is *not* installed. You set up and perform the remote monitoring from an OVO managed node, where the SPI for SAP software is installed, correctly configured, and running.

NOTE

Although the remote host is not an OVO managed node, it must nonetheless be present in the OVO node bank. If you do not add the remote host to the OVO node bank, OVO 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 Message Browser window.

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.

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.

Monitoring ITS

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

- **Status and availability**

Check the availability of the various components of the ITS server, including; AGate, WGate, and Web Server

- **Multi-instance environments**

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 OpenView performance tools such as the OpenView Reporter to investigate problems and 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 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 OpenView Smart Plug-in for SAP Administrator's Reference*.

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 extend the CCMS alert monitor `r3monal` to monitor security events in the SAP sub-system by using the SAP security-audit feature.

Alternatively, the security monitor `r3monsec` monitors many different aspects of the SAP System's security such as: failed logins, access privileges, and SAP security parameters. You can configure `r3monsec` to send messages if it notices that security information has changed, default passwords are still in use, or unauthorized users are attempting to access SAP.

Monitoring the ABAP Dispatcher

The ABAP-dispatcher monitor `r3mondisp` checks the size, content, and status of the queues for the different types of SAP work-processes and generates an alert if a 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. 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 the performance of the monitored SAP-Systems by requiring the SPI for SAP monitors that need to login to SAP to check the status of the dispatcher queue before they request a dialog process.

Service Reporting

The SPI for SAP includes a predefined set of service reports. Service reports are web-based reports that are produced by OpenView Reporter using Crystal Reports templates. They can be viewed using a web browser.

Reports use data extracted from HP OpenView Performance Agent. They correlate and present long-term data about your IT environment and supplement the real-time reports presented by HP OpenView Performance Manager, providing a useful tool for analyzing trends.

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 OpenView Performance Manager to view the performance problem directly. This consolidated approach allows availability and performance problems to be managed in a consistent, fast, and efficient way.

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 OVO management server or the SAP servers that are configured to run in a high-availability environment or indeed 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 Cluster”](#) on page 97.

Integration with OVO

At the heart of the SPI for SAP is a set of monitors or data collectors, which regularly check different aspects of the health of SAP R/3 Systems. 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 which carry out monitoring tasks within SAP R/3, for example; checks on SAP processing modes, SAP dumps, the availability of work (and other) processes.

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

- “Configuration and Distribution Concepts”
- “Messages and Actions”

Configuration and Distribution Concepts

For the purposes of configuration and distribution, the SPI for SAP monitors have two points of integration to OpenView Operations, namely:

1. The SPI for SAP message-source template group. Distributing templates to managed nodes also distributes global configuration files for the monitors and then, from the same location, the monitors themselves.

2. The `Admin R/3 SAP` and `Admin Local R/3 SAP` application groups which include applications for the configuration and distribution of global and local configurations, respectively.

The procedure for *global* configuration distribution described below:

1. You edit the configuration file using the appropriate `Admin R/3 SAP` application. This configuration can include definitions that apply to systems on multiple SAP R/3 servers.
2. The newly defined global configuration is distributed to the managed nodes by means of the `Install Config` application.

The procedure for *local* configuration distribution described below:

1. You edit a configuration file for each node that has local configuration using the appropriate `Admin Local R/3 SAP` application. This configuration includes definitions that apply only to a selected node. Each *local* configuration file is stored in a directory on the OVO management server, which is specifically named to reflect the managed node to which the configuration applies.
2. Each local configuration is copied to its target node using the SPI for SAP application `.Distribute Local Config`.

Messages and Actions

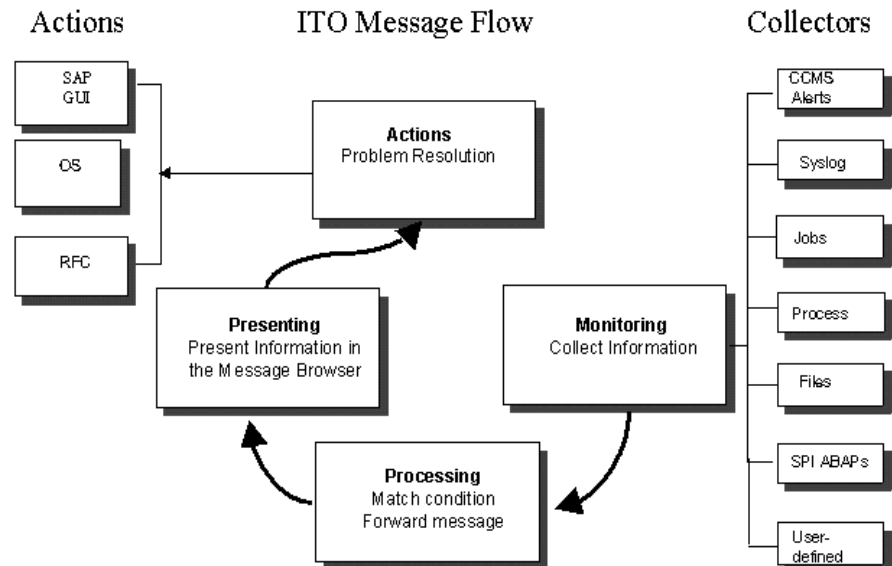
The day-to-day monitoring of the SAP R/3 systems by the SPI for SAP monitors is completely integrated with the facilities offered by OVO.

The conditions identified by the monitors are passed to the OVO agent on the managed node. Conditions are compared to conditions defined in the message-source templates, and matching conditions are forwarded to the management server. Messages from the monitors are assigned to SAP-specific OVO message groups, which are added to OVO when the SPI for SAP is installed. These groupings of messages allow you to easily assign responsibility for SAP-related messages to selected operators.

Messages that are sent to the management server are displayed in the OVO message browser. The full range of OVO message facilities are available for SPI for SAP messages, including differentiation of messages

according to severity, detailed description of the condition and advice on problem resolution, and pre-defined operator-initiated and automatic actions.

Figure 1-1 Message Flow between SAP R/3 and OVO



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

1. An event occurs on an object that is being monitored by one of the collectors, and a message is created as a result, for example, a batch job aborts.
2. The OVO agent on the managed node receives the message.
3. The message is compared to filters. Messages matching suppress conditions or duplicate messages are suppressed. Other messages are forwarded.
4. Messages matching filters are converted to the OVO message format, and forwarded to the management server.
5. The active message is stored in the database.
6. The message is displayed in the message browser window for operators who have responsibility for the appropriate message group and managed node.

7. The message can now be selected and any operator-initiated actions that are defined can be started. An operator-initiated action can be:
 - opening 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.
8. When the message is acknowledged, it is removed from the active database and put into the history database, where it is available for further analysis, if necessary.

Easy Customization

This section explains how you can customize the flow of messages from SAP R/3 to OVO in both the SAP R/3 environment and OVO, as described in the following two sections:

- [“Customization in SAP R/3” on page 24](#)
- [“Customization in OVO” on page 24](#)

Customization in SAP R/3

- 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 OpenView Smart Plug-in for SAP Administrator’s Reference*.
 - Enabled messages cause a CCMS alert to be created, which can then be identified by the SPI for SAP CCMS alert monitor and forwarded to the OVO management server.
 - If a message is disabled in the CCMS alert monitor, there will be no internal SAP R/3 CCMS alert, so there will also be no OVO message.
- Set thresholds for the inclusion of alert messages in the SAP R/3 CCMS alert monitor. This method is discussed in the *HP OpenView Smart Plug-in for SAP Administrator’s Reference*.
- Set up selected alert messages so that they are included in the SAP R/3 system log file. This method is discussed in the *HP OpenView Smart Plug-in for SAP Administrator’s Reference*.

Customization in OVO

- Use powerful monitors to tune the control of your distributed SAP R/3 environment. For details see the *HP OpenView Smart Plug-in for SAP Administrator’s Reference*.
- Apply filters to display only the relevant types of messages. This method is discussed in the *HP OpenView Smart Plug-in for SAP Administrator’s Reference*.

- Change the severity of messages in accordance with your specific requirements. This method is discussed in the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

Introduction

Easy Customization

2

Before you Begin

This chapter provides the information you need to check the suitability of your systems for the installation of the Smart Plug-in for SAP.

Introduction

This chapter provides the information you need to install and set up the Smart Plug-in for SAP (SPI for SAP). It includes the following information:

- [“Installation Pre-requisites” on page 29](#)
- [“Upgrading the SPI for SAP” on page 34](#)
- [“Changes and Modifications to the SPI for SAP” on page 39](#)

For instructions on installing the Performance Agent functionality of the SPI for SAP, see the *HP OpenView Smart Plug-in for SAP Administrator’s Reference*.

NOTE

The Smart Plug-in for SAP was previously known as the SMART Plug-In for SAP R/3. In this book, the new name Smart Plug-in for SAP is used to refer to *all* versions of the software, both current and superseded.

Installation Pre-requisites

Before starting to install (or upgrade) the SPI for SAP, you need to perform the following tasks:

- Ensure that your system meets the requirements detailed in the following sections:
 - [“Hardware, OS, and Disk Space Requirements” on page 30](#)
 - [“Compatible Software Versions” on page 30](#)
 - [“Obsolete Software Versions” on page 33](#)
- For each SAP R/3 instance, note:
 - 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 to monitor. For each client, list the following data:
 - Hostname of the SAP application server
 - SAP system ID
 - SAP Instance number
 - SAP client number
 - Operating system platform (UNIX or MS Windows)

You will use this information to set up the environment configuration file for the SPI for SAP.

IMPORTANT

If you are upgrading from a previous version of the SPI for SAP, read [“Upgrading the SPI for SAP” on page 34](#) for guidance on how to retain data and reduce or avoid the loss of existing customization, for example: to configuration files or message-source templates.

Hardware, OS, and Disk Space Requirements

Before you install (or upgrade) the SPI for SAP, use the information provided in [Table 2-1](#) to ensure that your systems (management server and managed nodes) meet hardware, operating system, and disk space requirements. For information about which managed node platforms are supported by the SPI for SAP, see [Table 2-3 on page 32](#).

Table 2-1 **Disk Space Requirements**

Product	Minimum Disk Space	
SPI for SAP on the management server	OVO 7.x	900 MB ^a
	OVO 8.10	1,100 MB ^b
SPI for SAP on managed nodes		20-170 MB ^c

- a. 300 MB for installation, 600MB for configuration
- b. 300 MB for installation, 600MB for configuration, 200MB for uncompress action after first distribution
- c. Depends on the operation system installed

Compatible Software Versions

Before you install (or upgrade) the SPI for SAP, use the information provided in this section to ensure that the installation or upgrade process proceeds without problems. For example, note the following important points:

- Use [Table 2-2 on page 31](#) to check that you are using a version of OVO that is compatible with the current version of the SPI for SAP.
- Are both the OVO server software and the OVO agent software installed on the OVO management server?
- Are the standard, OVO, management-server templates assigned and distributed to the OVO management server?
- Is OpenView Reporter available to view service reports for SAP R/3, SAP R/3 performance, and SAP ITS Performance Monitor data?

If you want to edit existing (or create new) Service Reports for the SPI for SAP, Seagate's Crystal Reports version 8.5 must be running on the machine hosting the OpenView Reporter A.03.50 (or later).

NOTE

OpenView Reporter Lite can only collect performance data from systems where the OVO Embedded Performance Component has been configured as the performance subagent. You have to install (or upgrade to) the *full* OpenView Reporter product if you want to generate service reports for systems running the OpenView Performance Agent (formerly MeasureWare).

- For Performance Agent functionality (see also the *HP OpenView Smart Plug-in for SAP Administrator's Reference*):
 - OpenView Performance Manager must be available if you want to use performance graphing
 - OpenView Performance Agent software must be installed on all the SAP application servers you wish to monitor
 - The HP OpenView SMART Plug-In's DSI-to-DDF wrapper utilities must be installed and running on the OVO management server. You can check using the command; **swlist DSI2DDF**

```
# DSI2DDF X.X.X HP OpenView Smart Plug-Ins DSI-to-DDF wrapper utilities
```

Note that the SPI for SAP currently works with DSI2DDF version A.02.02 on supported versions of HP-UX and Solaris.

[Table 2-2](#) lists which versions of the OVO management server software the SPI for SAP supports.

Table 2-2 Supported OVO Management-Server Platforms

Product	Version	OS Platform
OVO	7.00, 7.10 ^a , 7.20	HP-UX 11.11
		Sun Solaris 8, 9
	8.10, 8.20	HP-UX 11.11, 11.23
		Sun Solaris 8, 9, 10

a. OVO 7.10 is a platform release with no new functionality

Table 2-3 on page 32 shows which combinations of the SAP R/3 kernel and (in brackets) the SAP R/3 Basis version are supported by the SPI for SAP and, in addition, on which OVO managed-node platforms the combination must be running. For example, 4.6D (4.6C) indicates support for the combination of version 4.6D of the SAP R/3 *kernel* and 4.6C *basis* version. The *shaded* portion of Table 2-3 on page 32 reflects a change to the SAP R/3 version-numbering system and shows the SAP R/3 *basis* version and (in brackets) the SAP R/3 *kernel* version.

Table 2-3 Managed Node Platforms and SAP R/3 Kernel Versions

Managed Node Operating System	SAP R/3 Kernel (<i>Basis</i>) Version	SAP R/3 Basis (<i>Kernel</i>)		
	4.6D ^a (4.6C)	6.20 (6.20/6.40)	6.40 (6.40) ^b	7.0 (7.0) ^c
AIX 5.1, 5.2, 5.3 ^d	✓	✓	✓	✓
HP-UX 11.11 ^d	✓	✓	✓	✓
HP-UX 11.23 ^{de}	✓	✓	✓	✓
Linux ^f	✓	✓	✓	✓
Solaris 8, 9, 10 ^d	✓	✓	✓	✓
Windows 2000, 2003 ^g	✓	✓	✓	✓

- a. SAP 4.6D is *not* a complete SAP R/3 release; it is a downward-compatible kernel shipped with R/3 4.6C SR 1 or later.
- b. The ITS monitor `r3monits` monitors ITS 6.20 AGate servers; `r3monits` cannot be used with SAP ITS 6.40.
- c. Due to changes in SAP, the operation-mode and SAP ITS 6.20 monitors, `r3monoms` and `r3monits`, are not supported.
- d. 64-bit OS runtime only
- e. HP-UX 11.23 on both PA-RISC and Itanium servers
- f. SuSE Linux Enterprise Server (SLES) 8 and 9; Red Hat Enterprise Linux (RHEL) 3 and 4 on Intel i86/x64 platforms
- g. Intel i86 32-bit platforms only

NOTE

The SPI for SAP supports additional SAP application components, for example; BBP (Business-to-Business Procurement) and BW (Business Warehouse), *only* if the application component is compatible with one of the combinations of SAP R/3 Kernel/Basis versions specified in [Table 2-3 on page 32](#). The SPI for SAP does *not* support specific SAP technology-components. The only exception to this rule is the Internet Transaction Server (ITS), which the SPI for SAP monitors with a dedicated tool.

For information about the versions of other related software that is supported by the SPI for SAP, see the *HP OpenView Smart Plug-in for SAP Software Release Notes*.

Obsolete Software Versions

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

- SAP Shared-memory Interface
- SAP R/3 3.1- 4.6B
- SAP R/3 4.6C kernel (4.6C with 4.6D kernel will continue to be supported)
- SAP ITS 4.6/6.10
- HP-UX 11.00
- r3monsap, the CCMS 3.x alert monitor used with SAP R/3 3.1- 4.5
- r3monxmi, the SAP System-log monitor (replaced by r3monal for 4.6C and later)

For more information about supported software versions, see [“Compatible Software Versions” on page 30](#).

Upgrading the SPI for SAP

This section describes how to upgrade the SPI for SAP software from a previous version to the current version. Before you upgrade the SPI for SAP software, read through the information and recommendations in this section. This section provides important information concerning the following installation scenarios:

- [“Migrate from SPI for SAP A.09.02 to 10.20” on page 34](#)

Once you have upgraded the SPI for SAP software on the OVO management server, you will need to use the information in [“Verifying the SPI for SAP Installation” on page 61](#) to ensure that the software upgrade completed successfully.

Migrate from SPI for SAP A.09.02 to 10.20

To migrate from version A.09.02 to version 10.20 of the SPI for SAP, follow the instructions below:

1. Ensure you have read and understood the requirements in [“Hardware, OS, and Disk Space Requirements” on page 30](#) and [“Compatible Software Versions” on page 30](#).
2. Use the `opc_backup` command to save the complete, current configuration. This enables you to restore the configuration in the event that the upgrade is unsuccessful:
 - a. It is recommended but not *absolutely* necessary that you download all configuration data using the OVO GUI (and the `All` option) before you back up the OVO installation. You can also use the command `opccfgdwn (1m)`, which downloads *all* configuration data by default.

You should also consider downloading history messages and audit entries using the `opchistdwn (1m)` and `opcauddwn (1m)` commands, respectively.
 - b. Exit all running OVO GUIs.
 - c. Make a full backup of the current installation. Enter:

```
/opt/OV/bin/OpC/opc_backup
```

When prompted:

Do you want to use the full or configuration backup?
(f | c) ==>

Enter: **f** for a *full* backup that includes the OVO binaries and the configuration data.

3. Make safety copies of any configuration files that contain modifications you made to the original configurations. [Table 2-4 on page 35](#) shows the directories where configuration files can be found. Note that the configuration has changed from SPI for SAP version A.09.02 to version 10.20, for example; message conditions. In addition, although the configuration files from version A.09.02 are compatible with version 10.20, the default configuration has changed for some of the monitors.

NOTE

It is not recommended to overwrite newly installed configuration files with old ones. Rather, you should carefully incorporate into the new configurations files any changes that were made to the old configuration files.

Table 2-4 **Locating SPI for SAP Configuration Files**

Configuration Files	Directory Location
Originals ^a	/opt/OV/newconfig/var/opt/OV/share/conf/sapspi
Global ^b	/var/opt/OV/share/conf/sapspi/global
Local	/var/opt/OV/share/conf/sapspi/local

- a. Originals: placed here during installation of the SPI for SAP software. Note that older versions of the SPI for SAP installed the configuration files to: /opt/hpitosap/config/[cmds|monitors], a directory which is not removed as part of the upgrade to 10.20.
- b. Working copies of the originals, which are placed here during configuration of the SPI for SAP.

4. If you have modified any of the SPI for SAP message-source templates, create a safety copy of the SPI for SAP template group and all the templates it contains. For instructions concerning how to copy templates, refer to the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

IMPORTANT

You cannot simply overwrite the new templates delivered as part of SPI for SAP version 10.20 with the backup copy of the previous template version. You have to merge any changes you made to the old templates into the new templates. Since some of the new templates have been revised and improved, overwriting them with an older version will result in unmatched messages. For more information, see [“Changes and Modifications to the SPI for SAP” on page 39](#).

-
5. If you are using the SPI for SAP performance-monitor sub-agent version 10.20, please read the section about upgrading the performance-monitor subagent in the *HP OpenView Smart Plug-in for SAP Administrator's Reference* before continuing with the next step, which concerns the removal of the old SPI for SAP software.

NOTE

You need to remove the old SPI for SAP performance monitor subagent before you remove and upgrade the SPI for SAP.

-
6. Remove the old SPI for SAP R/3 software from the management server and the managed nodes:
 - a. Remove the SPI for SAP components and the agent software from the managed nodes using the OVO GUI.
 - b. Remove the SPI for SAP/Performance Agent sub-agent components from the managed nodes using the OVO GUI.
 7. Remove the old SPI for SAP R/3 software from the management server and the managed nodes:
 - a. Do *not*, even if prompted, delete any OVO UI-integration elements: most elements remain unchanged between the previous and current versions of the SPI for SAP.

- b. Before removing the existing SPI for SAP A.09.02 software from the OVO management server, remember to run the command **r3itoin**s -u, which removes the SPI for SAP A.09.02 binaries from the OVO database. The following message is displayed:

```
Removing SPI for SAP instrumentation from OVO  
instrumentation directory tree.
```

- c. Use the `swremove(1M)` command to remove the SPI for SAP software from the management server. On the management server, as user `root`, enter:

```
swremove SPI-SAP-ITO
```

8. Install and configure the new SPI for SAP software according to the instructions provided in [“Installing the Smart Plug-in for SAP” on page 53](#).

Answer “No” when SPI for SAP’s `r3itoin`s script asks whether to overwrite the existing A.09.02 configuration-file with the new 10.20 factory defaults, as follows:

```
A set of SPI for SAP configuration files is already in  
use. Uploading the factory defaults now will overwrite  
the configuration files already in use. Overwrite the  
existing configuration files with the factory defaults?  
<y,n> No
```

9. OVO provides a number of tools to help you cross check duplications and changes, which result from the upgrade. For example the `opcdbidx` command checks for any duplication of applications. For information about what tools are available with OVO to help you merge old and new configurations *after* the upgrade, see the upgrade section in the *HP OpenView Operations for UNIX Installation Guide for the Management Server*.
10. Upgrade the SPI for SAP performance monitor Subagent
Please read carefully the instructions in the section about upgrading the SPI for SAP performance monitor Subagent in the *HP OpenView Smart Plug-in for SAP Administrator’s Reference* before converting any data.
11. Starting with version A.09.00, the SPI for SAP uses a new directory structure. If you are upgrading from a version of the SPI for SAP that is older than version A.09.00, you can safely remove the directory structure used by the old version of the SPI for SAP, but

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Upgrading the SPI for SAP

only after successfully completing the upgrade procedure and ensuring that everything works as expected. To remove the old directory structure, enter:

```
rm -r /opt/hpitosap
```

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 39](#)
- [“Node Groups” on page 40](#)
- [“Applications and Application Groups” on page 40](#)
- [“Message Groups” on page 41](#)
- [“Operator Profiles” on page 41](#)
- [“Templates and Template Groups” on page 41](#)
- [“Message-source Templates” on page 42](#)
- [“Alert Monitors and Alert Collectors” on page 47](#)
- [“Performance Monitors” on page 51](#)
- [“Reports and Graphs” on page 51](#)
- [“SAP Transports and User Roles” on page 52](#)

For more detailed information about the topics covered in this section, see [“Using the Smart Plug-in for SAP” on page 125](#) and, in addition, the section about customizing the SPI for SAP in the *HP OpenView Smart Plug-in for SAP Administrator’s Reference*.

General Changes

The current release of the SPI for SAP has Japanese localized templates. Japanese user documentation will be made available on the HP ftp servers. For more information, contact your HP representative.

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 30](#).

The configuration files for the SAP status monitor, `r3status`, and the `r3moncol` alert-collector monitors have a new section, which allows you to configure the monitors to check the ABAP dispatcher queue before they start. For more information about the ABAP dispatcher monitor and the dispatcher-queue check, refer to the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

Node Groups

This release of the product makes no changes to node groups. However, note that when uploading the node group `sap`, the SPI for SAP no longer replaces an existing node group of the same name; it uploads node groups with the `-add` option instead of `-replace` option.

Applications and Application Groups

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

- **All Applications**

All SPI for SAP applications now no longer run by default as user “root”; they run as `$AGENT_USER` to support the configuration of non-root OVO agents.

- **Version Verify**

A new application in the SAP R/3 UNIX and SAP R/3 NT application groups; `Version Verify` 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 Self-Healing-Services (SHS) suite. For more information, refer to [“Setting up Self-Healing Services” on page 151](#).

- **R/3 Admin Database**

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

Message Groups

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

- **R3_DISPATCH**

A new message group for messages sent by the new SPI for SAP monitor for the ABAP dispatcher queue.

For information about message groups in general, see [“The OVO Message Groups Window” on page 128](#).

Operator Profiles

No changes have been made to operator profiles in this version of the SPI for SAP. For information about operator profiles in general, see [“Assigning SAP Responsibilities” on page 87](#).

Templates and Template Groups

The current release of the SPI for SAP provides the following changes and additions to template groups:

- **Modified Templates**

Template type: all *monitor* templates have been changed to *scheduled action*.

- **New Templates**

The following templates have been added for the current release:

— r3mondisp

Scheduled monitor for the ABAP Dispatch monitor; the new template is in both the Application-Server and Central-Instance template groups

— r3monsec

Scheduled monitor for the SAP-security monitor; the new template is only in Central-Instance template group.

- **Obsolete Template Groups**

The following template groups no longer exist; they refer to features, which are no longer supported by the SPI for SAP:

- SAP R/3 3.1I AppServer
- SAP R/3 3.1I CentralInstance
- SAP R/3 4.0/4.5 AppServer
- SAP R/3 4.0/4.5 CentralInstance

- **Modified Template Groups**

The following template groups have been modified for the current release to include support for SAP WebAS 7:

- SAP R/3 4.6/6.x AppServer is now called SAP R/3 4.6/6.x/7.0 AppServer

- **New Template Groups**

The following template groups are new; they refer to features, which are new for the SPI for SAP:

- SAP R/3 7.0 CentralInstance

Contains all the templates previously available in the old template group SAP R/3 4.6/6.x CentralInstance *except* r3monoms, which does not support WebAS 7. The new template group contains the new templates r3monsec and r3mondisp.

For details about changes to existing templates in the current version of the SPI for SAP, see [“Message-source Templates” on page 42](#).

Message-source Templates

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

- [Table 2-5 on page 43](#)
shows you which new conditions are now available
- [Table 2-6 on page 45](#)
shows you which conditions have been modified and, where appropriate, indicates what the changes are

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 template may be changed at any time by the OVO administrator or template administrator, the numbers are provided here only to ease the task of finding one specific condition name in the list of many conditions displayed in the OVO GUI. 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 2-5 New SPI for SAP Template Conditions

Condition Number	Condition Name	Description
ALL	ALL	Policies contain operator-initiated actions where required.
114	DISPATCH_PROFILE	New message condition for the new ABAB dispatcher monitor r3mondisp - Unable to locate SAP profile
115	DISPATCH_DPMON	New message condition for the new ABAB dispatcher monitor r3mondisp - Unable to locate dpmon executable
116	DISPATCH_DPMON_VERSION	New message condition for the new ABAB dispatcher monitor r3mondisp - Found incompatible dpmon version
117	DISPATCH_IDLE	New message condition for the new ABAB dispatcher monitor r3mondisp - Not enough free DIA processes available
118	DISPATCH_QUEUE	New message condition for the new ABAB dispatcher monitor r3mondisp - Number of queued DIA processes is critically high

Table 2-5 New SPI for SAP Template Conditions (Continued)

Condition Number	Condition Name	Description
119	DISPATCH_R3MONDISP_IDLE	New message condition for the new ABAB dispatcher monitor <code>r3mondisp</code> - Threshold for idle processes exceeded
120	DISPATCH_R3MONDISP_QUEUED	New message condition for the new ABAB dispatcher monitor <code>r3mondisp</code> - Threshold for queued processes exceeded
121	USER_PRIVILEGES	New message condition for the new security monitor <code>r3monsec</code> - SAP user in SAP client has a new system privilege(s)...
122	SAP_PARAMETERS_DEFAULT	New message condition for the new security monitor <code>r3monsec</code> - Profile parameter still has the SAP default value...
123	SAP_PARAMETERS	New message condition for the new security monitor <code>r3monsec</code> - Profile parameter has value "X" but should have value "Y".
124	DEFAULT_ORACLE_USERS	New message condition for the new security monitor <code>r3monsec</code> - Oracle user has a well known default password.
125	CONFIG_PARSER	New message condition for the new configuration parser- Error(s) exist in a <code>r3moncol</code> alert-collector configuration file
126	DEFAULT_SAP_USERS	New message condition for the new security monitor <code>r3monsec</code> - SAP user has a well known default password.

Table 2-5 New SPI for SAP Template Conditions (Continued)

Condition Number	Condition Name	Description
127	UNSUPPORTED_SAP_VER	New message condition for SPI for SAP monitors connecting to SAP via SAP RFC - Trying to connect to unsupported SAP version

For more information about the new templates and template conditions as well as their default configuration, see the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

Table 2-6 Modified SPI for SAP Template Conditions

Condition Number	Condition Name	Changes and Additions
ALL	ALL	<ul style="list-style-type: none"> • Cleaned up instruction text • Many conditions use message keys to automatically acknowledge correlated messages. • Updated features relating to old versions of SAP, which the SPI for SAP no longer supports; e.g. function modules now reference new name spaces in SAP (/HPOV/...)
1	ABAP_ERROR_EXISTS_001	Removed from conditions for incoming message a parameter that is no longer available with SAP kernel version 7; the operator-initiated action is less specific due to the missing parameter "mode number".

Table 2-6 Modified SPI for SAP Template Conditions (Continued)

Condition Number	Condition Name	Changes and Additions
8	JOB_MAX_RUNTIME_001	New keyword "user" reports the name of the user for which the job: <ul style="list-style-type: none"> exceeds its MAXimum or MINimum runtime misses its START time ABORTS
9	JOB_MIN_RUNTIME_001	
10	JOB_START_PASSED_001	
11	JOB_ABORTED_001	
29	USER_LOGGEDIN_MAX_001	Fixed condition for duplicate suppression from "blocking the condition" to "suppressing incoming identical messages"
44	R3MONAL_PROBLEM_001	Extended pattern for matching for incoming messages to match non-numerical values for the parameter <nr>: Old: nr=<#.nr> New: nr=<*.nr>
45	CCMS_PROBLEM_001	
46-61	CCMS_ALERT_* (001-016)	
62	GENERAL_001	
63	GENERAL_ATR_001	
73	SAPSYSUP_002	Removed duplicate suppression condition, which is not required any longer - r3status takes care of this now. Added message-key correlation for the two conditions.
74	SAPSYSDOWN_002	

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:

- ABAP_001 and ABAP_SQL_001
- BUFFERS_001
- ITS_HIGH_LOAD, ITS_AGATE_DOWN, ITS_SAP_DOWN, and ITS_WEBS_DOWN

- OS_LOAD_001, OS_PAGE_001, OS_SWAP_001, and OS_FILE_001
- PERF_DIALOG_001, PERF_UPDATE_001, PERF_BATCH_001, and PERF_SPOOL_001
- R3_DB_INDICES_001, R3_DB_FREESPACE_001, R3_DB_ARCHIVE_001, and R3_DB_BACKUP_001
- R3MONSAP_PROBLEM_001
- R3MONXMI_PROBLEM_001
- ROLL_PAGING_001
- SAPSYSUP_001 and SAPSYSDOWN_001
- SYSLOGID_001 and SYSLOGID_VAR_001
- SYSLOGFREQ_001

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.):

- **r3monal: the CCMS Alert Monitor**

Improvements to the SPI for SAP CCMS alert monitor, `r3monal`, allow you to monitor the SAP J2EE engine (part of SAP Web Application Server) and, in addition, SAP security events in a SAP ABAP environment.

The current version of the SPI for SAP contains the following changes and additions to `r3monal`'s configuration-file policy, `r3monal.cfg`:

- removed the `SAPSHMCheck` section which configures the shared-memory check; the shared-memory interface is no longer supported.
- removed the `CCMSInterface` section which configured the use of the shared-memory interface
- reduced from `CRITICAL` to `MAJOR` the default mapping for critical CCMS alerts (`SeverityCritical`) for OVO messages
- added example sections which show how to configure `r3monal` to monitor J2EE, Security, and XI

- added a new section which shows how to configure `r3mona1` to monitor syslog messages in XMI compatibility mode
- changed default behavior for all syslog messages to "off"
- increased the number of default configuration lines and enhanced the descriptions for various sections
- **r3monchg: the Change-Option monitor**

The Change-Option monitor no longer supports older versions of SAP. For more information about the versions of SAP which the SPI for SAP supports, see [“Compatible Software Versions” on page 30](#).

The current version of the SPI for SAP contains the following changes and additions to `r3monchg`'s configuration-file policy, `r3monchg.cfg`:

 - removed the example sections for the versions of SAP which the SPI for SAP no longer supports, for example: SAP 3.1 - 4.5
- **r3mondev: the Trace-File monitor**

The current version of the SPI for SAP contains the following changes and additions to `r3mondev`'s configuration-file policy, `r3mondev.cfg`:

 - reduced from CRITICAL to MAJOR the default severity for messages related to "std*" log files, and "stderr1" tracing
 - removed the SAPSHMCheck section which configures the shared-memory check; the shared-memory interface is no longer supported.
- **r3mondisp: the ABAP-Dispatcher monitor**

The new ABAP-dispatcher monitor, `r3mondisp`, checks the size, content, and status of the dispatcher queues for the different types of SAP work processes.

NOTE

You cannot use the new dispatcher-queue check in old monitor-configuration files. For more information about the ABAP-dispatcher monitor, refer to the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

- **r3monjob: the ABAP Dump monitor**

Improvements to the monitor mean that messages generated by the conditions JOB_MAX_RUNTIME_001, JOB_MIN_RUNTIME_001, JOB_START_PASSED_001, JOB_ABORTED_001 now report the name of the SAP server where the job error occurred.

Previously, these conditions reported the name of the server to which the JOBREPORT monitor r3monjob connected in order to log on to SAP to retrieve the information about JOBREPORT errors.

- **r3mondmp: the ABAP-Dump monitor**

Improvements to the monitor include a fix for a typographic error in the message condition ABAP4_ERROR_EXISTS_002. The error concerned a superfluous new-line character in the definition of an operator-initiated action.

- **r3monjob: the Job monitor**

Improvements to the monitor mean that messages generated by the conditions JOB_MAX_RUNTIME_001, JOB_MIN_RUNTIME_001, JOB_START_PASSED_001, JOB_ABORTED_001 now report the name of the SAP server where the job error occurred. Previously, these conditions reported the name of the server to which the JOBREPORT monitor r3monjob connected in order to log on to SAP to retrieve the information about JOBREPORT errors:

The current version of the SPI for SAP contains the following changes and additions to r3monjob's configuration-file policy, r3monjob.cfg:

- clarified and improved the wording for example configurations
- changed to "off" the default behavior for "SAP*" example lines
- completed the list of SAP default maintenance jobs; the jobs are now also switched off by default

- **r3monits: the SAP ITS 6.20 monitor**

The SAP ITS 6.20 monitor allows you to check the status and availability of the SAP Internet Transaction Server on systems running version ITS 6.20 and, in addition, pinpoint communication problems. Note that the ITS monitor r3monits can only be used to monitor ITS 6.20 AGate servers; you cannot use r3monits with SAP ITS 6.40.

- **r3monpro: the SAP Process monitor**

The current version of the SPI for SAP contains the following changes and additions to `r3monpro`'s configuration-file policy, `r3monpro.cfg`:

- removed the `SAPSHMCheck` section which configures the shared-memory check

- **r3monsap: the CCMS 3.x alert monitor**

`r3monsap`, the CCMS monitor for older versions of SAP is obsolete; the SPI for SAP no longer supports those versions of SAP which `r3monsap` was designed to monitor.

- **r3monspl: the Spool monitor**

The current version of the SPI for SAP contains the following changes and additions to `r3monspl`'s configuration-file policy, `r3monspl.cfg`:

- reduced from `MAJOR` to `MINOR` the default severity for spool error messages (>10)
- changed to "switched off" the default setting for spool-entry range message (1-50)
- reduced from `MAJOR` to `WARNING` the default severity for spool entry range messages (>50)

- **r3monsec: the SAP Security monitor**

The new security monitor allows you to monitor many different aspects of the SAP System's security such as: failed logins, access privileges, and SAP security parameters.

- **r3monupd: the Update monitor**

The current version of the SPI for SAP contains the following changes and additions to `r3monupd`'s configuration-file policy, `r3monupd.cfg`:

- reduced from `CRITICAL` to `MAJOR` the severity for update errors

- **r3monwpa: the Work-Process monitor**

The current version of the SPI for SAP contains the following changes and additions to `r3monwpa`'s configuration-file policy, `r3monwpa.cfg`:

- reduced from 50 to 6 the default threshold for available dialog work process
- added a default configuration for idle dialog work processes and assigned a threshold of 4
- changed from 50 to 3 the default threshold for available batch work processes
- changed from 20 to 1 the default threshold for idle batch work processes and changed to the default setting to "switched off"
- **r3monxmi: the SAP Security monitor**

The `r3monxmi` monitor is now obsolete and is no longer included in the product; the SPI for SAP now uses `r3mona1`, the CCMS 4.x monitor, to monitor the system logs.

Performance Monitors

The current version of the SPI for SAP makes *changes* to the following performance monitors:

- **DSI2DDF**

Due to the addition of new reports, the SPI for SAP performance monitor requires a new version of the DSI2DDF wrapper. For more information, see [“Compatible Software Versions” on page 30](#). Note that the order in which you remove and re-install components is critical when performing an upgrade of the SPI for SAP.

Reports and Graphs

The replacement of the old SAP R/3 ITS monitor with the new SPI for SAP monitor for SAP ITS 6.20 means that you can no longer use the SPI for SAP to generate reports for SAP ITS 4.6/6.10 or any older versions of SAP ITS; reports and report groups for the older versions of SAP ITS are no longer available. With the current version of the SPI for SAP, you can only generate reports about the status and availability of SAP ITS 6.20. The following new reports and report groups are now available after installation of the SPI for SAP service-reports integration:

- Reports:
 - SAP ITS Availability 620

- Report Groups:
 - SAP_ITS_620 Full Range
 - SAP_ITS_620 Last Full Month
 - SAP_ITS_620 Last Full Week
 - SAP_ITS_620 Yesterday

SAP Transports and User Roles

The current version of the SPI for SAP provides new transports and, in addition, a new user role, which is intended for use in combination with the new SPI for SAP security monitor, `r3monsec`:

- 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
```

NOTE

The `readme` file for the SPI for SAP transports provides information about additional transport files for the new CCMS-based trees for the SAP Web AS Java (J2EE) monitor and the security monitor.

- The current version of the SPI for SAP introduces a new user role for use in combination with the new SPI for SAP security monitor. The new user role, `/HPOV/SAPSPI_SECURITY_MON`, contains SAP authorizations required by the user account, under which the security monitor runs.

For more information about when, why, and how SAP user roles are used, see [“Setting Up an SAP User for OVO” on page 72](#).

3

Installing the Smart Plug-in for SAP

This chapter provides the information and instructions you need to install and set up the Smart Plug-in for SAP.

Installation and Configuration Overview

The installation and configuration of the SPI for SAP is completed in three phases, performed in the following sequence:

- Phase 1:** [“Installing the SPI for SAP Software” on page 54](#)
You install the SPI for SAP software bundle on the OVO management server and upload the configuration to OVO.
- Phase 2:** [“Configuring SAP R/3” on page 67.](#)
You set up an SAP user and the SAP transport for the SPI for SAP so that it can log in to and communicate with SAP R/3, and configure the SPI monitors to suit the monitoring requirements of your environment.
- Phase 3:** [“Configuring OVO” on page 79.](#)
You integrate the SPI for SAP with OVO and bring all SAP application servers under OVO management.

Installing the SPI for SAP Software

The first phase of the installation and configuration of the SPI for SAP includes the following sequence of task, each of which is described in detail in the individual sections that follow:

1. [“Installing the SPI for SAP Software on the OVO Management Server” on page 55](#)
2. [“Uploading SPI for SAP Components to OVO” on page 58](#)
3. [“Verifying the SPI for SAP Installation” on page 61](#)
4. [“Selecting the Performance Data Source” on page 63](#)
5. [“Installing the SAP GUI on the OVO Management Server” on page 65](#)

Installing the SPI for SAP Software on the OVO Management Server

This section describes how to install the SPI for SAP software bundle from the DVD. To install the software:

1. Insert the DVD containing the SPI for SAP software in the DVD drive
2. As user root, test the connection to the DVD drive to ensure that the Smart Plug-in for SAP product is accessible by using the following commands:

```
mkdir /CDROM
mount /dev/dsk/c1t2d0 /CDROM
swlist -d @ /CDROM/OV_DEPOT/<platform>.sdtape
```

where *<platform>* is one of the following; 11.11HPUX, or SOLARIS. Note that */dev/dsk/c1t2d0* is used here only as an example. You should replace */dev/dsk/c1t2d0* with the path to and the name of the appropriate device file on your machine.

Ensure that the product *SPI-SAP-ITO* is present in the list of software products that is displayed. If it is not, check to make sure that the path to the drive is correct, and that the correct media is in the drive.

3. Install the software product using the *swinstall* command. For example, to install the SPI for SAP software product on an OVO management server on HP-UX 11, enter:

```
swinstall -s /CDROM/OV_DEPOT/11.11HPUX.sdtape SPI-SAP-ITO
```

To install the SPI for SAP software product on an OVO management server on SOLARIS, enter:

```
swinstall -s /CDROM/OV_DEPOT/SOLARIS.sdtape SPI-SAP-ITO
```

The *SPI-SAP-ITO* product contains the file sets listed in [Table 3-1](#).

4. If you are installing the SPI for SAP on an OVO management server running in a high-availability cluster, no special customization is required. However, you need to bear in mind the following points:

Installing the SPI for SAP Software on the OVO Management Server

- a. Use the `swinstall` command to install the SPI for SAP bits on *all* nodes in the high-availability cluster, where the OVO management server is configured.
- b. On the node in the high-availability cluster where the OVO management-server package is up and running, use the `r3itoin`s command to configure the SPI for SAP. You only need to configure the SPI for SAP *once* in the high-availability cluster: you do not need to configure the SPI for SAP on the nodes in the high-availability cluster where the OVO management server package is not running.
- c. On each *back-up* node in the high-availability cluster (where the OVO management-server package is not running), use the `r3itoin`s command to specify the ports which SAP will use to access the OVO management server on the back-up node in the event of a fail over:

r3itoins -services

You can accept the port range proposed by default or specify the ports manually. In either case, note that you must specify the same ports for all nodes in the high-availability cluster.

For more information about specifying ports, the `r3itoin`s command, and the initial configuration of the SPI for SAP in general, see [“Uploading SPI for SAP Components to OVO” on page 58](#).

Table 3-1 File Sets for the SPI for SAP

File Set Name	Description
SPI-SAP-ITO.SAPSPI-AIX	Package for IBM AIX managed nodes
SPI-SAP-ITO.SAPSPI-BINMGR	Management-server binaries and scripts
SPI-SAP-ITO.SAPSPI-CONF	Configuration files
SPI-SAP-ITO.SAPSPI-DOC	Documentation and Release Notes
SPI-SAP-ITO.SAPSPI-ITS	Package for ITS 6.20 monitoring
SPI-SAP-ITO.SAPSPI-LIN	Package for Linux managed nodes

Table 3-1 **File Sets for the SPI for SAP (Continued)**

File Set Name	Description
SPI-SAP-ITO.SAPSPI-HP-UX	Package for HP-UX managed nodes
SPI-SAP-ITO.SAPSPI-R3PERF	Performance-subagent package
SPI-SAP-ITO.SAPSPI-R3PERF-LIN	Performance-subagent package for Linux
SPI-SAP-ITO.SAPSPI-SOL	Package for SUN Solaris managed nodes
SPI-SAP-ITO.SAPSPI-TRA	SPI for SAP transport files
SPI-SAP-ITO.SAPSPI-WINNT	Package for MS Windows managed nodes

Uploading SPI for SAP Components to OVO

This section describes how you use the `r3itoin`s script to upload the basic components of the SPI for SAP to the OVO database. Note that the `r3itoin`s script uses the `opccfgupld` command. See the `opccfgupld` man pages for more information.

NOTE

This step writes the new configuration details to the OVO database. If you are upgrading software and want to keep your existing configuration, make sure you have already downloaded the configuration for later use. For more information, see [“Upgrading the SPI for SAP” on page 34](#).

1. Log in as user `root`.
2. Shut down the OVO management server processes using the following command. Enter:

```
/opt/OV/bin/OpC/opcsv -stop
```

3. Run the SPI for SAP installation script, which you can find in the `/opt/OV/lbin/sapspi/` directory. Enter:

```
./r3itoin
```

The `r3itoin`s script performs the following actions, some of which require interaction and confirmation from you:

- a. Uploads the SAP SPI user-interface components for the OVO GUI, for example; message groups, user profiles, applications, and so on. You are asked to confirm the upload action:

```
Do you want to upload the SAPSPI UI integration? <y,n>
```

```
y(es)           Use this option, if you want to overwrite any  
existing configuration in the OVO database
```

```
n(o)           This is a temporary option, which you use only  
if you do not want to overwrite the existing  
configuration in the database at this point, for
```

example; if you have *not* already backed up important configuration files which you want to use after the upgrade.

NOTE

Answering **no** means that the SPI for SAP configuration is *not* uploaded to the OVO database at this point. Once you have backed up any important configuration files as described in “Upgrading the SPI for SAP” on page 34, you will have to run the `./r3itoin` script again, answer **yes**, and then complete a manual merge of old and new configurations.

-
- b. Uploads the SPI for SAP executables (actions, commands, and monitors) to the OVO management server.
 - c. Modifies (or asks you to modify) the `/etc/services` file to allow the SAP GUI to make use of the services on the OVO management server to connect to the SAP server, for example; so that operator-initiated actions can open a SAP GUI on a remote SAP server. Check the `/etc/services` file to make sure that the proposed port ranges are *not* already in use.

Do you want to modify the `/etc/services` files with the following entry ranges:

A) From `sapdp01 3200/tcp` to `sapdp99 3299/tcp`

B) From `sapgw01 3300/tcp` to `sapgw99 3399/tcp` `<y,n>`

y(es) automatically assigns the specified port ranges to the `/etc/services` file

n(o) you will have to assign port numbers to SAP processes manually

- d. Uploads the default monitor-configuration files to OVO. The script checks the target system for the presence of any installed SPI for SAP monitor-configuration files. If a set of configuration files already exists, you will see the following prompt:

A set of SPI for SAP configuration files is already in use. Uploading the factory defaults now will overwrite the configuration files already in use. Overwrite the existing configuration files with the factory defaults? <y,n>

y(es) uploads the SPI for SAP factory default monitor configuration files to OVO, overwriting any existing monitor-configuration files that are present in the default location

n(o) does not upload the factory defaults and leaves your existing configuration unchanged.

Note that if you want to use the new and improved monitor-configuration files, you will have to rename the existing configuration files, start the upload again, and then merge any changes in the existing configuration files into the factory default configuration files.

4. Restart the OVO management server processes using the following command. Enter:

```
/opt/OV/bin/OpC/opcsv -start
```

5. Verify that the OVO management server processes are up and running using the following command. Enter:

```
/opt/OV/bin/OpC/opcsv -status
```

Verifying the SPI for SAP Installation

This section guides you through the steps you need to perform to verify that the installation process successfully uploaded all the necessary SPI for SAP components to the OVO database and, in addition, displays all the SPI for SAP elements such as message groups, applications, message-source templates, and so on in the appropriate place in the OVO GUI.

To verify that the installation of the SPI for SAP software and the upload of the SPI for SAP components to OVO completed successfully, carry out the following steps:

1. Start the OVO GUI as the OVO administrator. On the command line, enter; **opc**

You will need the following information to login to OVO, if you have not changed the default settings:

User name: **opc_adm**

Password: **OpC_adm**

2. Open the Node Group Bank window, using the following menu option:

Window > Node Group Bank

Check that the SPI for SAP node group `sap` is present. Note that it should be empty at this point in time.

3. Open the Application Bank window, using the following menu option:

Window > Application Bank

Check that the SPI for SAP application groups, `SAP R/3 Admin`, `SAP R/3 Local Admin`, `SAP R/3 NT`, and `SAP R/3 UN*X` are present. You should also make sure that each of the SPI for SAP application groups contains applications.

4. Open the Message Group Bank window, using the following menu option:

Window > Message Group Bank

Check that the SPI for SAP message groups are present. SPI for SAP message groups start with “R3_”, for example; R3_CCMS. For more information about the new message groups, which are installed by the SPI for SAP, see [“The OVO Message Groups Window” on page 128](#).

5. Open the User Profile Bank window, using the following menu option:

Window > User Profile Bank

Check that the SPI for SAP User Profiles, SAP Administrator, SAP R/3 Backup, SAP Database, and SAP Operator are all present.

6. Last of all, open the Message Source Templates window, using the following menu option:

Window > Message Source Templates

Check that the top-level SPI for SAP template group SAP R/3 SPI is present in the list of template groups in the left pane and, by clicking it, contains the main SPI for SAP template groups, for example; SAP R/3 4.6/6.x AppServer, SAP R/3 4.6/6.x CentralInstance, SAP R/3 7.0 CentralInstance, and so on.

Selecting the Performance Data Source

By default, OVO for UNIX deploys the OpenView Performance Agent (previously MeasureWare) with all OVO A.08.x agents. OVO Smart Plug-ins use the OpenView Performance Agent as the default source for the performance data required for graphing in OpenView Performance Manager and for reporting with the OpenView Reporter. Previously installed OpenView products that use the OpenView Performance Agent will continue to use Performance Agent as the data source.

The information in this section explains what to do if you are using the OVO Embedded Performance Component as the data source on the managed node and wish to switch to the Performance Agent. You can override the use of the OVO Embedded Performance Component by setting up a small text file, `nocoda.opt`, which changes the data source from CODA to the Performance Agent.

Once configured, the `nocoda.opt` file must be stored in a specific location on each managed node, whose performance-data source you want to change from the OVO Embedded Performance Component to Performance Agent. The location of the `nocoda.opt` file on the managed node varies according to the operating system running on the OVO management server and managed node. [Table 3-2](#) shows the location of the `nocoda.opt` file on nodes managed by an OVO for UNIX management server.

Table 3-2 OVO 8.x for UNIX Management Servers

Managed Node Operating System	Location of the <code>nocoda.opt</code> File
AIX	DCE: <code>/var/lpp/OV/conf/dsi2ddf/nocoda.opt</code> https: <code>/var/opt/OV/conf/dsi2ddf/nocoda.opt</code>
HP-UX, Linux, and Solaris	DCE: <code>/var/opt/OV/conf/dsi2ddf/nocoda.opt</code> https: <code>/var/opt/OV/conf/dsi2ddf/nocoda.opt</code>
MS Windows	DCE: <code>\usr\OV\conf\dsi2ddf\nocoda.opt</code> https: <code>\Program Files\HP OpenView\data\conf\dsi2ddf\nocoda.opt</code>

To change the default setting for the data source from the OVO Embedded Performance Component to Performance Agent, open the `nocoda.opt` file in a text editor and manually enter the appropriate information using the format and syntax illustrated in [Example 3-1](#).

1. To designate Performance Agent as the agent for all data sources, enter the key word ALL at the top of the file.
2. To designate 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, as shown in [Example 3-1](#) and using the following format:

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 OVO agent on the managed node where the `nocoda.opt` file has been modified

Example 3-1 An Example of the `nocoda.opt` File

```
#####  
# Add to (or modify) the contents of this file to change the  
# data-source from the default CODA to the Performance Agent  
#####  
# All hosts:  
# ALL  
# SAP R/3 hosts/instances:  
R3_ovsdsap_DEV_00_DATA  
# SAP R/3 ITS hosts/instances:  
R3ITS_SP6_00_ovspi_DATA  
-----
```


Installing the SAP GUI on the OVO Management Server

In this step, you install the SAP GUI on the OVO management server using your SAP R/3 installation DVD; the SAP R/3 installation media contains all the instructions and information about pre-requisites that you need to perform the installation process. You should use the most recent version of the SAP GUI available for your environment. Note that most of the operator-initiated actions and applications included in the SPI for SAP have to start the SAP GUI. For this reason, a SAP GUI binary *must* be installed on the OVO management server.

NOTE

SAP does not support the SAP GUI on HP-UX/Itanium. The SPI for SAP functionality that depends on an SAP GUI being installed on the OVO management server is not available when installing the OVO management server on Itanium. Instructions and pre-requisites for installing the Java GUI for SAP may be found on the SAP installation DVD.

After installing the SAP GUI from your SAP R/3 installation media, you need to make the location of the SAP GUI binaries known to the SPI for SAP by running the following commands as user root on the OVO management server:

1. Set the umask. Enter: `umask 22`

2. Set up a link to the SAP GUI. Enter:

```
ln -s <your_install_path_to_the_SAPGUI>/sapgui \  
/opt/OV/lbin/sapspi/sapgui/sapgui
```

```
ln -s <your_install_path_to_the_SAPGUI>/guilogon \  
/opt/OV/lbin/sapspi/sapgui/javaguilogon
```

3. Start the SAP GUI using the following command:

```
/opt/OV/lbin/sapspi/sapgui/sapgui \  
/H/<hostname>/S/<port_nr>
```

where *<hostname>* is the name of the server on which the SAP R/3 instance you want to connect to is running, and *<port_nr>* is the port number allocated to the SAP process as defined in */etc/services*.

4. Configure your SAP GUI to use the SPI for SAP application Java R/3 Frontend. For example, you need to create a *platin.ini* file in the home directory of the user calling the application. The *platin.ini* file lists the SAP hosts and instances which are available for login. Please refer to the SAP GUI installation instructions on the SAP R/3 installation media for more details.

4 **Configuring SAP R/3**

This chapter provides the information you need to configure SAP R/3 to recognize and work with the Smart Plug-in for SAP.

In this Section

The tasks in this phase require knowledge of SAP transactions and specific monitoring requirements. You will be working with the OVO GUI as well as on the SAP system application servers. You will need to log in to OVO as an operator and to the SAP clients as a user with sufficient authority to perform the SAP tasks included in this phase. These tasks are summarized as follows:

1. [“Applying the SAP Transport” on page 69.](#)

In this step, you copy the SPI for SAP transport files to the SAP transport directories on each SAP R/3 central instance and apply them. These files are placed temporarily in the OVO directory to facilitate the OVO administrator task of distribution of SPI for SAP components to SAP nodes.

2. [“Setting Up an SAP User for OVO” on page 72.](#)

This is necessary so that the SPI for SAP can log on to SAP whenever SPI for SAP applications, monitors, or actions need access to SAP.

3. [“Configuration Values for SPI for SAP Monitors” on page 75.](#) For more information, see the *HP OpenView Smart Plug-in for SAP Administrator’s Reference*.

IMPORTANT

After you have set up and distributed the configuration values, the SPI templates must be distributed to the SAP nodes. See [“Distributing SPI for SAP Components to the SAP nodes” on page 94.](#)

4. [“Modifying Configuration-File Templates” on page 77.](#)

The SPI for SAP validates the contents of `r3moncol`-based configuration files when you attempt to save them and will not allow you to save a file that contains a configuration error.

Applying the SAP Transport

In this step, you copy the transport files that are delivered with the SPI for SAP to the SAP transport directories on each SAP R/3 central instance. The transport that you import in this step contains SAP roles and authorization profiles, which are required to complete the configuration of the SAP user later in this section.

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.

NOTE

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 already exist.

The naming conventions used for the transport objects are as follows:

```
Objects in SPI for SAP
Development Class: /HPOV/SAPSPI

Function Groups:    /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*
Roles:             /HPOV/SAPSPI_SECURITY_MON
```

NOTE

The following procedure requires the `CAR/SAPCAR` command, which you can find on the SAP Kernel CD. The `SAPCAR` command appears with SAP 4.6 or later.

To copy the SPI for SAP transport files to the managed nodes:

1. Open the `OVO Node Bank` window on the `OVO` management server.
2. In the `OVO Application Bank` window, open the `SAP R/3 Admin` application group.
3. Select one (or several) SAP node(s).
4. In the `SAP R/3 Admin` application group, double-click the `Move SAP Transport` icon. A message appears in the message browser indicating that the transport has been moved to the specified directory.

NOTE

The copy operation fails if the operating-system user executing the `Move SAP Transport` application does not have write permission in the transport directory (`/usr/sap/trans`) on the managed node (SAP server). Either enable write access to the transport directory or copy the files manually.

5. As SAP administrator (`<SID>adm`) on the `OVO` managed node, use the `CAR` (or `SAPCAR`) command to unpack the transport files to `/usr/sap/trans`. Enter:

`CAR -xvf R3Trans.car`

The SPI for SAP transport package contains a number of different transport files, for example: the main SPI for SAP transport, test programs, user-roles, and special localized text symbols. Some transports are mandatory; some are optional. Which transports you need to import depends on the version of SAP running in the System you want to monitor with the SPI for SAP. For more information about the SPI for SAP transports, their contents, and whether they are mandatory, see the transport read-me file on the management server: `/usr/sap/trans/readme`.

6. Import the SPI for SAP-related transport to your SAP application servers. Enter the following commands as SAP administrator (<SID>adm) on the managed node:

```
cd /usr/sap/trans/bin
tp addtobuffer <transport_file_name> <SID>
tp import <transport_file_name> <SID> client=<client_
number>
```

Where the <SID> is the SAP System ID on the OVO managed node and <transport_file_name> is the name of the transport file, which corresponds to the version of SAP R/3 running on the OVO 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 OVO management server after installation of the SPI for SAP bits:

```
/opt/OV/lbin/sapspi/trans/readme.
```

If, when running the `tp addtobuffer` or `tp import` commands with versions of SAP R/3 up to and including SAP 4.5, the `tp` command indicates that it cannot find files or required information, you can use the `pf=<path>/TPPARAM` option to show the location of the `tp`-parameters file:

```
pf=/usr/sap/trans/bin/TPPARAM
```

The `TPPARAM` file contains the configuration parameters, which the `tp` command uses. The configuration parameters include such things as the `SAPSID`, the database hostname, and the database configuration paths. Note that, from SAP R/3 4.6 onwards, the name and format of the `TPPARAM` file has been changed as follows:

```
pf=/usr/sap/trans/bin/TP_DOMAIN_<SID>.PFL
```

If you encounter errors when using the `tp addtobuffer` command, you can clean the `tp` buffer using the following command:

```
tp cleanbuffer <SID>
```

7. Repeat this procedure for each SAP System you want to manage with OVO.

Setting Up an SAP User for OVO

For every SAP SID where you want to allow the automated log on of OVO operators:

1. Log on to SAP R/3
2. Call the following transaction: **/nsu01**
3. Create a new user named ITOUSER using the parameters specified in the following list:

NOTE

Since user-role transports are client dependent, the SAP user "ITOUSER" must be created in the same SAP client as the import client of the SPI for SAP user-role transport. Otherwise it is not possible to assign user role "/hpov/sapspi_monitoring*" to the new "ITOUSER".

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 OVO will be unavailable. 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, monitor-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.

User Roles: SAP User Roles need to be defined from SAP version 4.6C onwards. Use transaction **/nsu01**, as shown in [Figure 4-1 on page 74](#). Note that

ITouser requires authorizations to be able to execute SPI for SAP ABAP functions. Select the following user role:

- /HPOV/SAPSPI_MONITORING_TCODE

This user role enables the use of certain SAP transactions and does not place any restrictions on the SPI for SAP functionality.

- /HPOV/SAPSPI_MONITORING_NO_TCD

This user 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

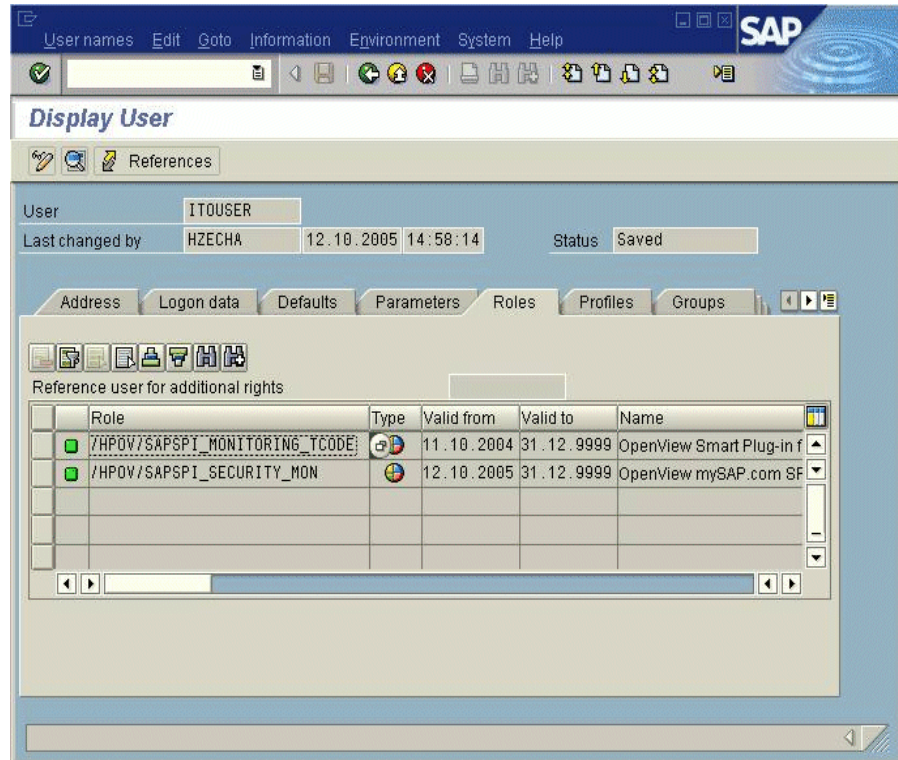
If you plan to use the `r3monsec` monitor to monitor SAP System security, you must also assign to ITouser (or the user under which `r3monsec` runs) the authorizations defined in /HPOV/SAPSPI_SECURITY_MON, the SPI for SAP-security user role.

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 completed successfully. SAP uses the color green to indicate that user-authorization objects are active or that user comparisons completed successfully; the color red indicates that you need to activate user-authorization objects or complete a user comparison. Transaction SU01 displays details of SAP user roles.

5. Log on to SAP R/3 as user ITouser.
6. SAP R/3 prompts you to change the password initially specified for ITouser. If you have not specified 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 4-1 SAP R/3 4.6C User Roles for ITOUSER



Configuration Values for SPI for SAP Monitors

To conclude the SAP-specific tasks, you have to set up initial configuration values for the SPI for SAP monitors *before* you distribute the configuration files to the managed nodes. Note that this step requires detailed and expert knowledge of SAP and the SAP Systems, which you intend to monitor with the SPI for SAP. For example, when setting up the `r3monale` monitor to check the status of incoming and outgoing iDOCs, you need to understand the iDOC system to be able to decide what information is important and how you want the SPI for SAP to monitor it. The SPI for SAP includes the monitors listed in [Table 4-1](#).

Table 4-1 **SPI for SAP Monitors**

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

Table 4-1 **SPI for SAP Monitors (Continued)**

Monitor Name	Description
r3monsec	SAP-security monitor
r3monspl	Spool monitor
r3status	SAP R/3 status monitor
r3montra	Transport monitor
r3monupd	Update monitor
r3monusr	User monitor
r3monwpa	Work-process availability monitor

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

The SPI for SAP provides two sets of applications to help you configure and distribute monitors:

- **Global Applications**

For the configuration of monitors which apply to *all* managed nodes. For more information about which applications open which monitor-configuration files, see [“The SAP R/3 Admin Application Group” on page 135](#).

- **Local Applications**

For the configuration of monitors which apply only to a *specified* managed node. For more information about which applications open which monitor-configuration files, see [“The SAP R/3 Admin Local Application Group” on page 138](#).

For more detailed information about (and instructions for) configuring the SPI for SAP monitors, refer to the *HP OpenView Smart Plug-in for SAP Administrator's Reference*. For more information about installing Performance Agent agent-related functionality, refer to the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

Modifying Configuration-File Templates

If you use OVO tools to edit a SPI for SAP monitor-configuration file that 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, refer to the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

Figure 4-2 on page 77 shows the information the SPI for SAP displays if the configuration parser discovers that an error exists in the monitor-configuration file when you try to save it.

Figure 4-2

Parsing Monitor-Configuration Files

```

-----
# Max. time in sec. before an remote function call is canceled.
# If the RFC call takes longer than expected the system is probably down
# or has a major performance problem.
#
#RFCTimeOut =120
-----
# Performs a check of the ABAP dispatcher before a connection to
# SAP is opened. If the dialog queue is too full or not enough
# free work processes are available, monitoring is disabled.
#
# This feature should only be enabled in special cases. For
# regular dispatcher monitoring, use the r3mondisp.
#
# EnableDPQueueCheck  hostname  SAP  SAP  Enable =1
#                      System  Number  Disable=0
#
nableDPQueueCheck    =ALL      =ALL   =ALL   =0
-----
# Remote      Server      Remotely
# Monitoring  Node        monitored Node
#RemoteMonitoring =ovdsap5    =ovdsap1
#RemoteMonitoring =ovdsap5    =sapwolf2
#RemoteMonitoring =ovdsap3    =trio
"/var/opt/OV/share/conf/sapspi/global/r3monale.cfg" 62 lines, 2421 characters
*** parsing configuration file ***
Error starting in line 31: 'nableDPQueueCheck' is an unknown keyword

**** parsing completed ****
The configuration file contains error(s); you cannot save it.
Please resolve the error(s) listed above and try again.

For more information about monitor configuration files, see
SPI for SAP Administrator's Reference guide.

Press <return> to locate first error.
    
```

After the parsing is complete, the configuration parser indicates that it has found errors and explains that you cannot save the file until the errors have been fixed. The message displayed at the bottom of the configuration file you are modifying invites you to press Enter to display the first error (if more than one error exists) that needs to be fixed.

If the monitor-configuration file you want to save does not contain any errors, the SPI for SAP displays a message similar to the one illustrated in [Example 4-1 on page 78](#), which indicates that the modified configuration file for the SAP iDOC-status monitor r3monale is valid and reminds you to activate the new configuration and distribute it to the managed nodes.

Example 4-1 Saving Valid Monitor-Configuration Files

```
"/var/opt/OV/share/conf/sapspi/global/r3monale.cfg" 62 lines,  
2422 characters  
*** parsing configuration file ***  
**** parsing completed ****  
Use the 'Install Config' application to activate and distribute  
the configuration to the managed node(s).  
Press <return> to continue
```

5

Configuring OVO

This chapter provides the information you need to configure OVO to recognize and work with the Smart Plug-in for SAP.

In this Section

In this phase of the installation, you use the OVO administrator GUI to integrate the SPI for SAP with OVO and bring all SAP application servers under OVO management. In this section, you complete the following tasks:

1. [“Specifying SAP Clients to Monitor” on page 81](#)

In this step, you use the OVO GUI to specify which SAP Systems you want the SPI for SAP to monitor.

2. [“Assigning the SAP Servers to the SAP Node Group” on page 86](#)

In this step you assign the SAP servers you want to manage with OVO to the newly created `sap` node group.

3. [“Assigning SAP Responsibilities” on page 87](#)

The SPI for SAP creates four new operator profiles, which you can then use as a basis for creating your own SAP operators.

4. [“Assigning SPI for SAP Templates to SAP Nodes” on page 91](#)

The SPI for SAP’s default template groups contain templates for *all* the SAP R/3 monitors supplied with the SPI for SAP. Assigning and distributing a template group automatically activates the monitors, which the group contains.

5. [“Distributing SPI for SAP Components to the SAP nodes” on page 94](#)

In this step, you distribute the SPI for SAP actions, commands, monitors, and templates to the SAP managed nodes.

Specifying SAP Clients to Monitor

This section describes how to provide OVO users and applications with automatic access to the SAP GUI and, in addition, tell the OVO monitors which SAP Systems to monitor. The SPI for SAP application SAP R/3 GUI allows you to enter all the information that is required to complete this task.

1. In the OVO GUI, open the application-groups window and locate the SAP R/3 GUI application, which you can find in the application group, SAP R/3 Admin. The SAP R/3 GUI application opens the `r3itosap.cfg` configuration file in a text editor so that you can enter the required information concerning the SAP Systems you want to monitor with the SPI for SAP. Examples entries in the `r3itosap.cfg` file (commented out by default) illustrate the required content and syntax of a configuration line.

IMPORTANT

SAP users must be set up for each SAP client and have permission to display and maintain CCMS. The list of SAP clients you made in [“Installation Pre-requisites” on page 29](#) includes the information you need for each configuration line. For more information on how to set up SAP users for OVO, see [“Setting Up an SAP User for OVO” on page 72](#).

2. Using the pattern of the examples in the `r3itosap.cfg` configuration file, add a `HostSapAssign` entry for each SAP instance, which you want to monitor with the SPI for SAP. When adding entries to `r3itosap.cfg`, bear in mind the following important points:
 - Make sure you use fully qualified host names for all the host names you specify in the `r3itosap.cfg` file.
 - 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 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 SPI for SAP application R/3 SAP GUI to edit the `r3itosap.cfg` file, the password is encrypted automatically when you save the file.

Non-ASCII characters are not allowed in SAP-login names or passwords that you specify in the `r3itosap.cfg` file; the SPI for SAP is currently able to resolve only ASCII characters in configuration files.

- 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`.
 - You must add an entry to the `r3itosap.cfg` file for each SAP instance running on a node that you want to monitor remotely from a managed node. For more information about remote monitoring with the SPI for SAP, refer to the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.
3. 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. If the hosts you add to the `r3itosap.cfg` file are *not* configured in a high-availability cluster, you can skip this step and proceed to the next step in the configuration process.

The information in the host-mapping section of the `r3itosap.cfg` file 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 OVO message browser or the OpenView Navigator.

The “physical” nodes are the hosts in the high-availability cluster on which you install and configure the SPI for SAP. The host names specified in the `r3itosap.cfg` file must be known to OVO 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.

NOTE

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 for your high-availability cluster in the host-mapping section of the `r3itosap.cfg` file.

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 =<OVO_Msg_Node>
```

In Example 5-1, CTO and 11 are the SID and number of the SAP instance running in the high-availability cluster. Example 5-1 also shows the entry you add to the HostMapping 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 5-1 Mapping physical and relocatable host names

```
# cluster host mapping  
HostMapping =CTO =11 =true.hp,false.hp,maybe.hp =mezcal.hp
```

In a high-availability cluster, the name of the host with which you associate OVO messages (<OVO_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 <OVO_Msg_Node> has an impact on what you need to include in the host-mapping section, as follows:

- If SAPLOCALHOST and <OVO_Msg_Node> are the same host, no entry for SAPLOCALHOST is required in the list of cluster nodes, for example:

```
=ClusterHostA,ClusterHostB =<OVO_Msg_Node>
```

- If SAPLOCALHOST and <OVO_Msg_Node> are *not* the same host, an entry for SAPLOCALHOST *is* required in the list of physical cluster nodes, for example:

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

NOTE

All physical nodes in the high-availability cluster must appear in the OVO node bank. You also need to add to the OVO node bank as node type "Other" (Message only) the host which you define in <OVO_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 High-availability Environment” on page 109](#).

To ensure that automatic or operator-initiated actions are always able to open a 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 `OVO_Msg_Node`.

To avoid problems with OVO 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 be displayed in messages coming from the cluster, see also [“Host Mapping on Cluster Nodes” on page 111](#).

4. Save your changes and exit.

To ensure that any new passwords you enter in the monitor configuration files are encrypted, use the SPI for SAP application R/3 SAP GUI to edit the `r3itosap.cfg` configuration file. If you use a text editor such as `vi` or `emacs` to enter passwords in the monitor configuration file, any new passwords you enter are *not* automatically encrypted when you save the file and exit.

5. Check that the SAP systems have been correctly added by watching the bottom of the screen for output similar to Example 5-2:

Figure 5-1 Example r3itosap.cfg File

```

-----
#-----
#          hostname          SAP   SAP   SAP   SAP   SAP   SAP   Hardware
#                               System Number   Client User   Password Lang   [UX,NT]
# Examples:
#HostSapAssign   =hpbccpo5.hp.com =LPO   =00   =099   =default =default =default =UX
#HostSapAssign   =hpbbsap2.hp.com =BNT   =00   =001   =default =default =default =NT
#HostSapAssign   =isoit342.hp.com =CTO   =11   =001   =default =default =default =NT
#HostSapAssign   =isoit270.hp.com =CTO   =11   =001   =default =default =default =NT
#HostSapAssign   =sapclust.hp.com =CTO   =11   =001   =default =default =default =NT
# Example for SAP R/3 3.x
#HostSapAssign   =hpbccpo5.hp.com =LPO   =00   =001   =user1   =pass1   =E   =UX
# Example for SAP R/3 4.
#HostSapAssign   =hpbccpo5.hp.com =LPO   =00   =001   =user1   =pass1   =EN  =UX
#-----
# host mapping for SAP Systems in high availability environments
#          SAP   SAP   SAP
#          System Number physical hostnames,SAPLOCALHOST parameter      OVO
#                                     message hostname
#-----
#HostMapping =CTO   =11   =isoit270.hp.com,isoit342.hp.com,sapclust.hp.com =sapclust.hp.com
    
```

Example 5-2 Adding SAP SIDs to the r3itosap.cfg File

```

"/var/opt/OV/share/conf/sapspi/r3itosap.cfg" 15 lines,1175 char
>>> Encoding passwords in file
>>> /var/opt/OV/share/conf/sapspi/r3itosap.cfg started
>>> Encoding of passwords done
>>> Scanning SAP systems for existing front-end done
>>> Symbolic link /usr/sap/SP6/SYS/exe/run -> /opt/OV/lbin/sapspi/sapgui created
>>> Directory /usr/sap/SP6/D0/work created
    
```

In order to activate this configuration, execute "Install Config" and distribute the Monitors and Commands to the SAP R/3 managed node

Press return to continue

The information in the r3itosap.cfg file is used by the service-discovery application, R/3 Service Discovery, to generate a service view of your SAP Landscape. If you intend to use the Service-Views feature, make sure that you assign and distribute the r3itosap.cfg file to the managed node(s) for which you want to generate service views before you run the service-discovery. For more information about running service-discovery and setting up service views, see the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

Assigning the SAP Servers to the SAP Node Group

Installing SPI for SAP automatically creates a new node group called `sap`, to which you assign your SAP servers. Note that this step is mandatory; if you do not perform this step, you will not see any messages from the SAP servers in the OVO message browser.

1. In the Node Group Bank window, select the `sap` node group.
2. Assign all the SAP servers you wish to monitor to the `sap` node group, following the instructions given in [Table 5-1](#).

Table 5-1

Assigning Managed Nodes to Node Groups

IF...	THEN...
the node <i>already</i> exists in OVO node bank	<ol style="list-style-type: none"> 1. Open the Node Bank window 2. Select the SAP node 3. Drag it to the <code>sap</code> node group icon, and drop it.
the node does <i>not</i> already exist in the OVO node bank	<ol style="list-style-type: none"> 1. Open the Node Bank window and from the menu bar select: Actions:Node-> Add 2. Specify the <code>sap</code> node group as the group for the new node. 3. Install the OVO agent software on the new managed node before continuing.

Assigning SAP Responsibilities

In OVO, you can assign operator responsibilities by means of user profiles. The SPI for SAP creates four new operator profiles, which may be used as a basis for creating your own SAP operators. The four SAP-specific user profiles appear in the User Profile Bank window, as follows:

- SAP Administrator
- SAP Backup
- SAP Database
- SAP Operator

The easiest way to add a new OVO user is to copy an existing user, change the new user's name, and modify the responsibilities of the new user appropriately.

1. Open the User Bank and the User Profile Bank windows
2. In the User Bank window, select and right-click an existing user, for example `opc_op`, and click the Copy . . . menu item. The Copy User window appears.

Change the Name and Label fields, for example, to: **SAP_op** and **SAP_op**

3. Assign default responsibilities and applications to the new user by clicking Profiles . . . The Profiles of New User window appears.
4. Open the User Profile Bank window to see the available profiles. Select the appropriate user profile, for example SAP Operator, drag it over and drop it into the Profiles of New User window.
5. Return to the Copy User window and click OK. The user `SAP_op` appears in the User Bank window with the combined (default) responsibilities of the `opc_op` operator you used as a base *and* the SAP Operator user profile.

NOTE

The responsibilities assigned in a user profile are *global* and, as a result, *not* immediately visible in the responsibilities matrix of the individual user you create. Similarly, the responsibilities of the new user you create

are *local* and only visible in the new user’s own responsibilities matrix. However, if you assign the SAP Operator user profile to the SAP_op user, *all* the message and node groups included by default in the SAP Operator user profile are indeed assigned to the SAP_op user even if it does not initially appear so.

You can check which responsibilities are associated with a given user by selecting the user you want to check in the User Bank window and generating a report:

Actions: Utilities > Reports... > Operator Report

To change or modify the responsibilities and applications for any given operator:

1. In the User Bank window, select and right-click an existing user, for example SAP_op, and click the Modify... menu item. The Modify User window appears.
2. Click the Responsibilities... button if you want to modify default responsibilities for an existing user. The Responsibilities for Operator window appears. [Table 5-2](#) lists the standard user profiles included with the SPI for SAP and indicates which message groups are assigned by default to which SAP operator profiles.

Table 5-2 Message-Group Assignments for SPI for SAP User Profiles

Message Group	Default SPI for SAP User Profiles			
	SAP Admin.	SAP Backup	SAP Database	SAP Operator
R3 ABAP-4	✓			✓
R3 ALE	✓			✓
R3_Buffers	✓			✓
R3_Backup	✓			✓
R3 CCMS	✓			✓
R3_CTS	✓			
R3_DB	✓	✓	✓	✓

Table 5-2 Message-Group Assignments for SPI for SAP User Profiles

Message Group	Default SPI for SAP User Profiles			
	SAP Admin.	SAP Backup	SAP Database	SAP Operator
R3_Dispatch	✓			✓
R3_Enqueue	✓		✓	✓
R3_General	✓			✓
R3_ITS	✓			✓
R3_Jobs	✓			✓
R3_MON_ERROR	✓			✓
R3_Performance	✓			✓
R3_Roll-Paging	✓			✓
R3_RFC	✓			✓
R3_Security	✓			✓
R3_Spooler	✓			✓
R3_State	✓			✓
R3_Syslog	✓	✓	✓	✓
R3_Trace	✓			✓
R3_Transport	✓			
R3_Update	✓		✓	✓
R3_User	✓			✓
R3_WP	✓			✓
R3_XMI	✓	✓	✓	✓

- Click the Applications... button if you want to modify default application assignments for an existing user. The Applications of Operator window appears. Table 5-3 lists the standard user profiles included with the SPI for SAP and indicates which application groups are assigned by default to which SAP operator profiles.

Table 5-3 **Application-Group Assignments for SPI for SAP User Profiles**

Application Group	Default SPI for SAP User Profiles			
	SAP Admin.	SAP Backup	SAP Database	SAP Operator
SAP R/3 Admin	✓			
SAP R/3 Admin Local	✓			
SAP R/3 NT	✓			✓
SAP R/3 UN*X	✓			✓

- When you have finished making your modifications, save the changes by returning to the Modify User window and clicking OK.

Assigning SPI for SAP Templates to SAP Nodes

Message-source templates for the SPI for SAP are organized into default groups, all of which are part of the template group `SAP R/3 SPI`. The SPI for SAP template 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`

Only one template group should be assigned to any one managed node. Which template group you assign is determined by the SAP version running on the node and whether the node is a central instance or an application server.

IMPORTANT

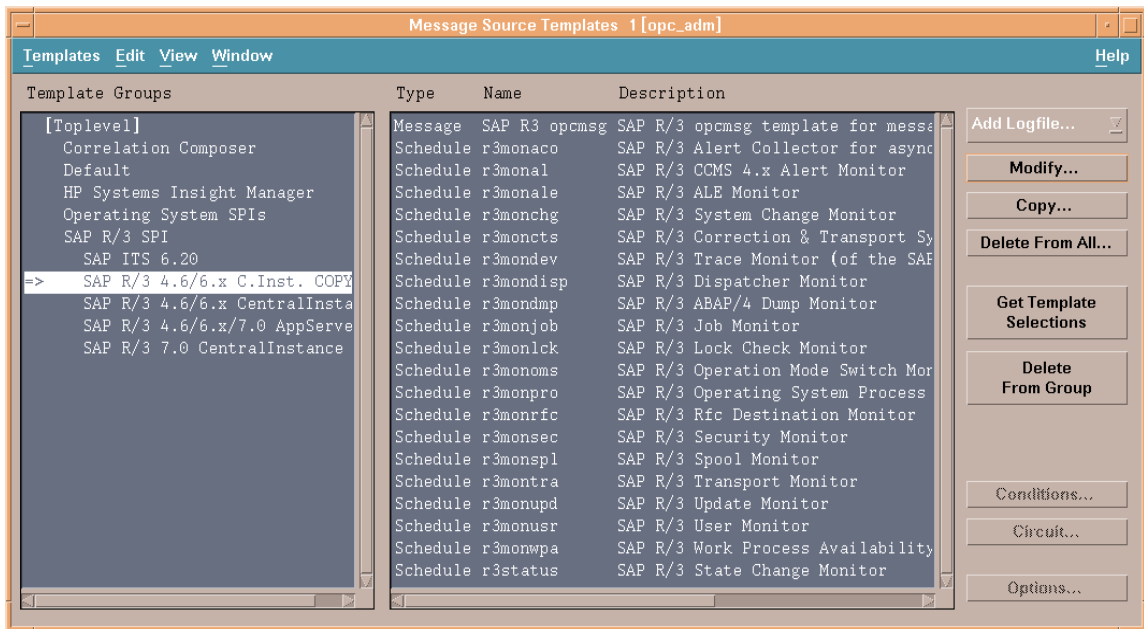
The SPI for SAP's default template groups contain templates for *all* the SAP R/3 monitors supplied with the SPI for SAP. Assigning and distributing a template group automatically activates the monitors, which the group contains. To avoid receiving messages from unnecessary monitors, we recommend you use the default template groups as a basis to create your own template groups, which contain only those monitors and templates you need. We also recommend that you tune the monitors and templates to suit the requirements of your environment *before* assigning and distributing them to the nodes you want to manage with the SPI for SAP. This will prevent additional unwanted messages.

To create your own template group, copy an existing template group and modify the contents of the new group as follows:

1. Use the Message Source Templates window illustrated in [Figure 5-2 on page 92](#) to make your own template group from which you should remove those templates and monitors you do not need, as follows:
 - a. Open the Message Source Templates window, select the template group you want to copy, and click the `Copy...` button

- b. Enter a name and description for the new template group in the fields provided and click OK
- c. In the left pane, select the new template group: In the right pane select the templates and monitors you do *not* need and remove them using the Delete From Group button.
- d. Configure the monitors and templates you *do* need. For more information, see the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

Figure 5-2 Removing Templates from Template Groups



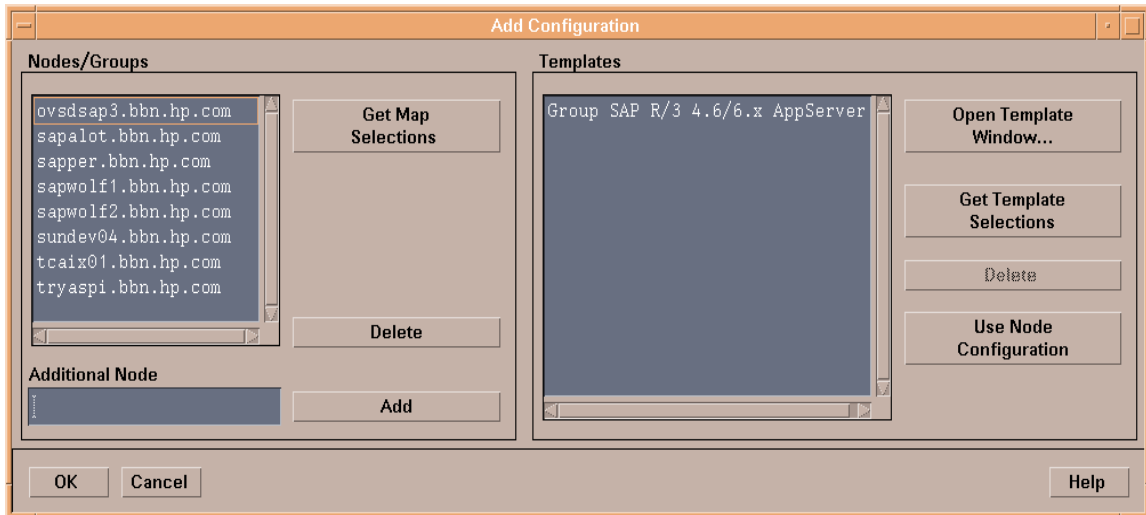
2. In the Node Bank window, select the SAP nodes to which you want to assign templates. Nodes selected together must:
 - all run the same SAP version, for example: 4.6/6.x
 - all have the same usage—application server or central instance
3. From the menu bar, select the following menu option:

Actions:Agents-> Assign Templates....

The Define Configuration window opens.

4. Click Add...; the Add Configuration window opens.
 5. Click Open Template Window; the Message Source Templates window appears.
 6. In the left pane, expand the SAP R/3 SPI template group and select the template group or groups you have created (containing the monitors you need) depending on which SAP version is installed on the managed nodes and whether the nodes are central instances or application servers. For example: SAP R/3 4.6/6.x C. Inst. COPY.
 7. Return to the Add Configuration window (see [Figure 5-3](#)) and click Get Template Selections.
- The newly assigned template is displayed in the Templates list.
8. Click OK to finish assigning templates.

Figure 5-3 Add Configuration Window



Distributing SPI for SAP Components to the SAP nodes

In this step, you distribute and install the configuration files to the SAP managed nodes and, once this has been successfully completed, distribute the SPI for SAP actions, commands, monitors, and templates to the SAP managed nodes, too, as follows:

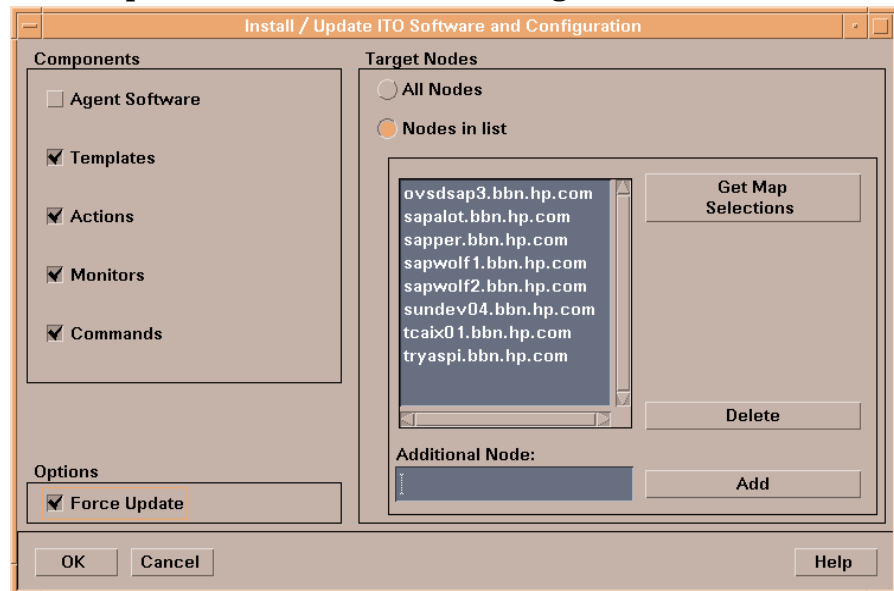
1. Distribute and install the SPI for SAP configuration files for the alert monitors and the alert-collector monitors to the SAP managed nodes:
 - a. In the `Node Bank` window, select the SAP servers to which you wish to distribute SPI for SAP configuration files. Note that for the first distribution, this selection should include *all* SAP nodes.
 - b. Drag the selected nodes over to the `SAP R/3 Admin` application group window and drop them onto the `.Install Config` application.

The SPI for SAP monitor configuration files are distributed to and installed on the selected SAP Servers. For more information about the `.Install Config` application, see [Table 7-3 on page 136](#).

2. Distribute the SPI for SAP actions, commands, monitors, and templates to the SAP managed nodes:
 - a. Select the SAP servers to which you wish to distribute SPI for SAP components. Note that for the first distribution, this selection should include *all* SAP nodes.
 - b. From the menu bar of the `Node Group` window, select the following menu option:
`Actions:Agents-> Install/Update SW & Config`
The `Install/Update ITO Software and Configuration` window appears as shown in [Figure 5-4 on page 95](#).
 - c. Select the components you wish to distribute. Note that you must perform this step twice, each time selecting different components, as follows:
 - If this is the first distribution, *before* you complete the monitor configurations, select:

- ✓ Actions
- ✓ Monitors
- ✓ Commands
- If this is the second distribution, *after* you complete the monitor configurations, select:
 - ✓ Templates
- d. Select Force Update.
- e. Click OK to finish the distribution.

Figure 5-4 Install/Update OVO Software and Configuration



NOTE

For more information about the options for installing and updating software, see the on-line help for OVO administrators.

Configuring OVO

Distributing SPI for SAP Components to the SAP nodes

6 The SPI for SAP in a high-availability Cluster

This chapter explains how to install the SPI for SAP in a high-availability environment such as an MC/ServiceGuard cluster.

In this Section

The information in this section helps you to understand the process of installing and configuring the SPI for SAP on SAP servers running in a high-availability environment such as an MC/ServiceGuard cluster. For information about installing the SPI for SAP on an OVO management server running in a high-availability cluster, see [“Installing the SPI for SAP Software on the OVO Management Server” on page 55](#).

Although the information provided in this section uses MC/ServiceGuard to explain cluster configurations, the basic concepts are the same for any high-availability environment as far as the SPI for SAP is concerned. This section covers the following topics:

- [“Cluster Configurations” on page 100](#)

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

- [“Before you Begin” on page 104](#)

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

- [“Installing the SPI for SAP in a High-availability Environment” on page 106](#)

Instructions which walk you through the process of installing the SPI for SAP in a high-availability cluster

- [“Configuring the SPI for SAP in a High-availability Environment” on page 109](#)

Helpful tips and tricks to consider when configuring the SPI for SAP in a high-availability cluster

- [“Performance Tools in a High-availability Environment” on page 120](#)

How to set up and use the OpenView performance tools to best effect with the SPI for SAP in a high-availability cluster

- [“Service Reports and Performance Graphs in a High-availability Environment” on page 121](#)

How to generate SPI for SAP Service Reports and Performance Graphs for managed nodes in a high-availability cluster

- [“Service Views in a High-Availability Environment”](#) on page 122

Using tools provided by the SPI for SAP, you can generate Service Views of the SAP environment automatically.

- [“Removing the SPI for SAP in a High-availability Environment”](#) on page 123

Instructions which take you through the process of removing the SPI for SAP from the managed nodes in a high-availability cluster

Cluster Configurations

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

- **single package**

The SAP database and central instance are located on the *same* server and included in the same MC/ServiceGuard package. The combined package can be switched temporarily to the adoptive node in the event of problems.

- **twin package**

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

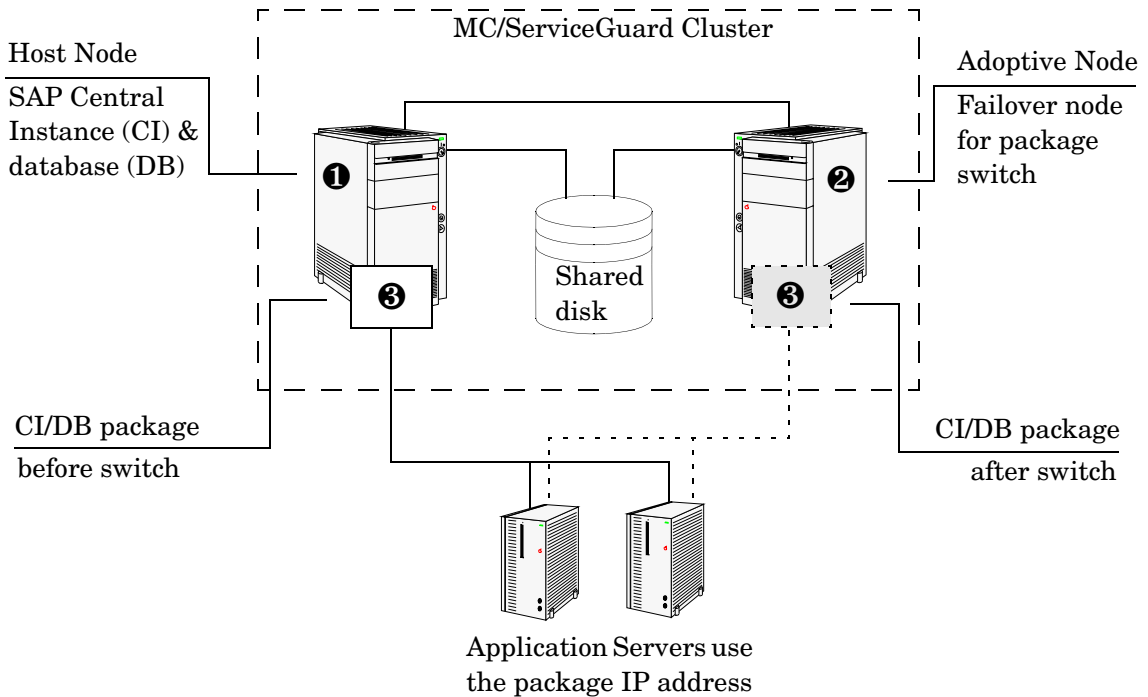
In the single package concept, the server where the database and central instance normally run is included in a cluster with another server, which will act as the adoptive node in the event of a package switch. The adoptive node can perform any one of the following roles:

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

The application servers, which are not included in the cluster, reference the MC/ServiceGuard package (Ⓢ) by means of its relocatable IP address, not by reference to the fixed IP address of the node on which the MC/ServiceGuard 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 volume groups are deactivated on the host node and reactivated on the adoptive node.

Figure 6-1 **The Single-Package Configuration**



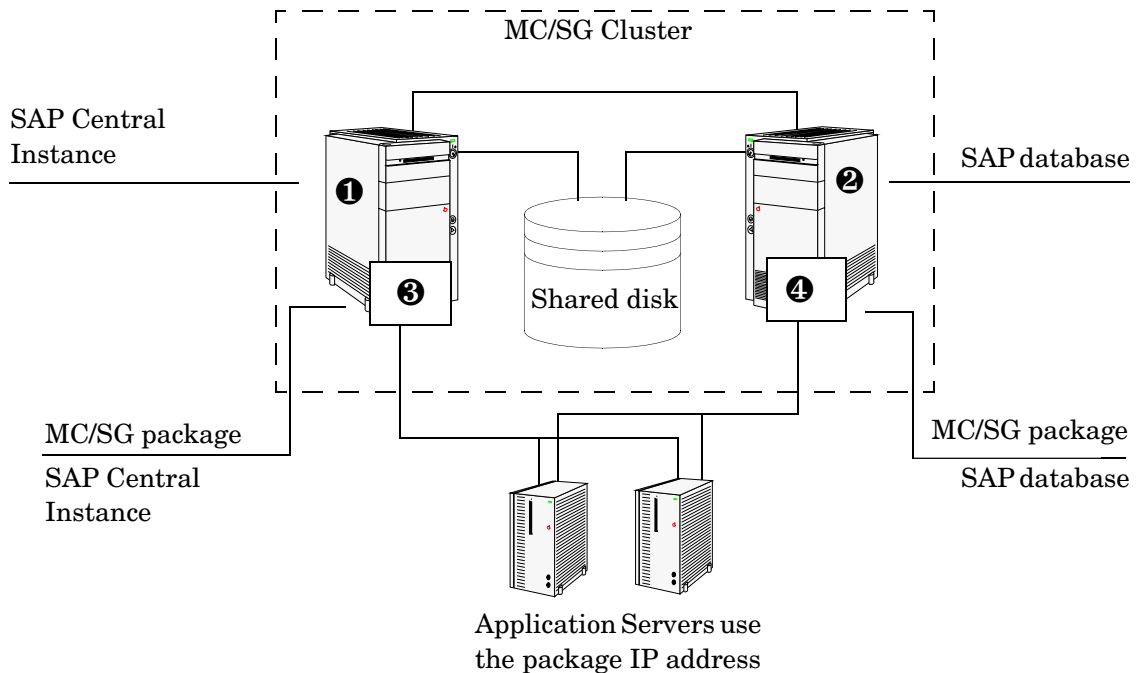
Once these actions have been completed by MC/ServiceGuard, the application servers can reconnect to the central instance and database (③ in [Figure 6-1 on page 101](#)) using the same relocatable IP address, which, as the name suggests, moves with the package.

The Twin-Package Configuration

In the two-package concept, 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 6-2](#). 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 6-2 The Twin-Package Configuration before a Package Switch



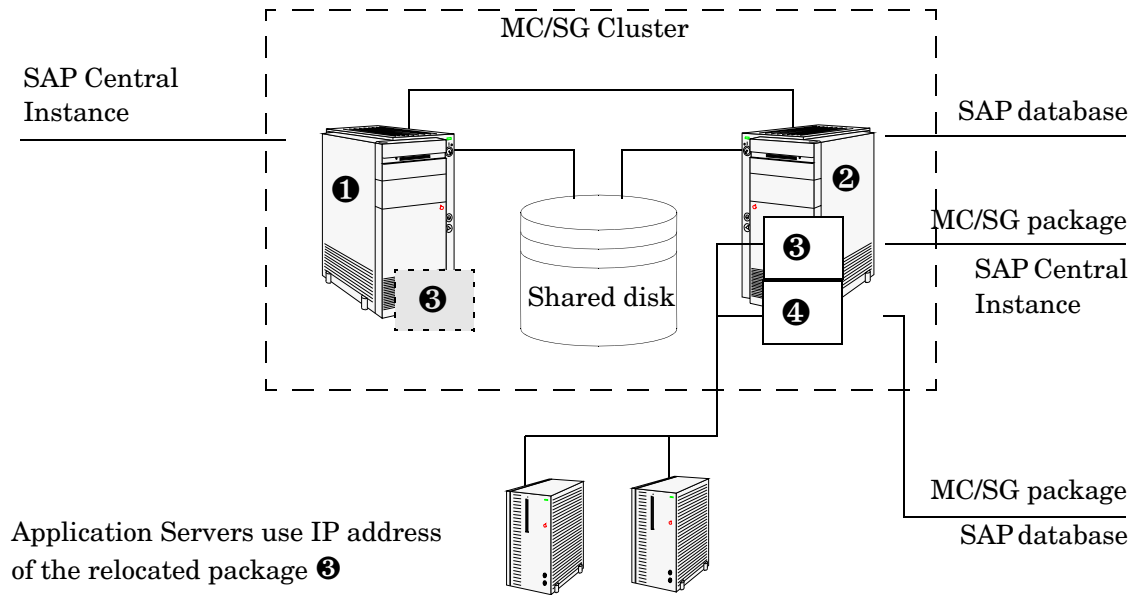
The application servers are not included in the cluster and, as illustrated in [Figure 6-2 on page 102](#), reference each package by means of each package's own relocatable IP address—not the fixed IP addresses of cluster-nodes 1 and 2.

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 volume group is deactivated on the host node and reactivated on the adoptive node.

[Figure 6-3](#) shows the situation *after* the switch of the SAP central-instance package (3). Once 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 fail over, namely; the central-instance package's relocatable IP address, which moves along with the package at the time the fail over occurs.

Figure 6-3 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 OpenView Operations. Before you start the process of installing the SPI for SAP in a high-availability environment, please read though and consider the information included in the following sections:

- [“Software Requirements” on page 104](#)
- [“Configuration Requirements” on page 104](#)
- [“Service Reports and Performance Graphs” on page 105](#)
- [“Service Views” on page 105](#)

Software Requirements

High-availability 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 MC/ServiceGuard cluster must already be configured as OVO managed nodes with the appropriate OVO agent software and functionality installed and running.

NOTE

All physical nodes in the high-availability cluster must be added to the OVO Managed Nodes window. You also need to add to the OVO Managed Nodes window (as node type "Other"- Message only) the host you define as the OVO-message host name in the host-mapping section of the `r3itosap.cfg` file. For more information about defining OVO-message host name, see [“Specifying SAP Clients to Monitor” on page 81](#).

Service Reports and Performance Graphs

If you want to generate SPI for SAP service reports and performance graphs for all the nodes in the MC/ServiceGuard cluster, make sure that:

- the appropriate performance-agent functionality (OVO Embedded Performance Component or the OpenView Performance Agent) is installed, configured, and available on all the nodes in the MC/ServiceGuard cluster
- the appropriate SPI for SAP performance sub-agent integration functionality is installed, configured, and available on all the nodes in the MC/ServiceGuard cluster. For more information about installing and configuring the SPI for SAP performance sub-agent, see the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.
- both OpenView Performance Manager and OpenView Reporter, are installed, correctly configured, and available on a machine, which can see the cluster nodes. 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 install the HP OpenView Service Navigator and set it up to see the services you want the SPI for SAP monitor in the SAP environment. You will also have to ensure that the SPI for SAP performance integration is installed and configured to collect the appropriate performance-related data.

NOTE

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 High-availability Environment” on page 109](#).

Installing the SPI for SAP in a High-availability Environment

To use the SPI for SAP in an MC/ServiceGuard environment, you have to install the OVO agent and SAP SPI actions, commands, monitors, and templates on *all* nodes in the cluster where the SAP package can run—both the host node and adoptive (or backup) node.

NOTE

It is always a good idea to ensure 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 templates.

Before you distribute the SPI for SAP to the cluster nodes, you need to assign the appropriate SPI for SAP message-source templates. For example, you have to assign a central-instance message-source template group such as `SAP R/3 4.6/6.x CentralInstance` to all managed nodes where a package that includes a SAP R/3 4.6/6.x central instance can run, or `SAP R/3 7.0 CentralInstance` to all managed nodes where a package that includes a SAP R/3 7.0 central instance can run.

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 applications 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 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 115](#).

To Install the SPI for SAP Monitors

You install the SPI for SAP monitors in an MC/ServiceGuard environment in the same way as in a normal environment, that is; using the standard OVO template-assignment and template-distribution mechanisms. The only difference is that you have to perform the operation 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 [“Configuring SAP R/3” on page 67](#), which walks you through the process of setting up the appropriate accounts, logins, paths, and permissions required to ensure that SAP and OVO can communicate efficiently.

NOTE

If you do not ensure that the appropriate user accounts and permissions have been set up in both SAP and OVO *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 Clients to Monitor” on page 81](#).

3. 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 MC/ServiceGuard cluster in order to avoid the generation of confusing messages and potentially misleading performance data after a package switch. For more information, see [“Configuration Values for SPI for SAP Monitors” on page 75](#).

NOTE

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 115](#).

4. Assign and distribute components

Use the OVO GUI to assign and distribute the appropriate SPI for SAP components to *each* physical node in the cluster. The templates you assign must match the version of SAP, which is running on the managed node. In addition, you must make sure that you assign exactly the same components (actions, commands, monitors, and templates) 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 in the high-availability cluster the SAP instance is running.

For more information about assigning and distributing SPI for SAP components to OVO managed nodes, see [“Configuring OVO” on page 79](#). You will need to complete all the instructions for *each* node in the high-availability cluster.

5. Special considerations

On each node in the MC/ServiceGuard cluster, ensure that each monitor can see its history file, `r3<monitor_name>.his`, both before and after a fail-over 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 configuration files and the options you need to set and change, see [“Monitor History Files in a High-availability Cluster” on page 112](#).

Configuring the SPI for SAP in a High-availability Environment

In a “normal” high-availability cluster where the host and adoptive nodes are intended to have identical roles, you approach the process of installing the SPI for SAP in the same way as if you had to install the SPI for SAP twice, with the following caveats:

1. SAP logins and 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 Cluster” on page 114](#).

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 OVO message browser.

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. 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 Clients to Monitor” on page 81](#).

Lastly, in order to ensure that automatic or operator-initiated actions are always able to open a SAP GUI on the virtual node in the high-availability cluster, you need to add a HostSapAssign entry to the `r3itosap.cfg` file, which specifies the host name defined in the variable `SAPLOCALHOST`.

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 *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

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 115](#) describes one or two exceptions to this rule.

4. Assign and distribute 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 assigning and distributing components to the managed nodes, see “[Assigning SPI for SAP Templates to SAP Nodes](#)” on [page 91](#) and “[Distributing SPI for SAP Components to the SAP nodes](#)” on [page 94](#).

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 fail-over package switch. For more information, see “[Monitor History Files in a High-availability Cluster](#)” on [page 112](#).

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 115](#).

NOTE

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 115](#) before you start the configuration process.

Host Mapping on Cluster Nodes

If the OVO HTTPS 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 OVO 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 OVO HTTPS 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 message browser. To ensure that the host-mapping feature works as intended and the correct hostname is displayed in SPI for SAP messages coming from the high-availability cluster, you must disable the OVO HTTPS agent feature on the managed node, as follows:

1. Log on as a user with administrative privileges to each physical node in the high-availability cluster where an OVO HTTPS agent is running and open a command shell.
2. On HTTPS agents managed by OVO for UNIX:

```
ovconfchg -ns eaagt -set  
OPC_SET_PROXY_FLAG_FOR_IP_ADDRESSES  
'<IP_Address, IP_Address, ...>'
```

Use the `ovconfchg` command 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 OVO management server, when a message from one of the cluster nodes appears in the message browser. If multiple packages are running in the cluster (for example, for OVO and for Oracle), use commas "," to separate multiple IP addresses in the list.

WARNING

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.

3. Restart the agent with the new configuration using the following commands:

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

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 its history file if, and only if, the SAP System it is monitoring is available and the SPI for SAP monitors can connect. If the SAP System being monitored is *not* available, `r3monal` only updates 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 the SAP System they are monitoring is available or not.

Example 6-1 History File `r3monal.his` for the `r3monal` Monitor

```
#-----  
# Keyword          SAP      SAP      SAP      Last Scan  
#                  System   Number   Instance Time  
LastScannedSystem =SP6      =33      =DVEEMGS33 =1073908785  
-----
```

The history files for the SPI for SAP monitors are usually stored 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 `/var/opt/OV/conf/sapspi` for all UNIX managed nodes except AIX, which uses the directory `/var/lpp/OV/conf/sapspi`, and `%OVAGENTDIR%\conf\sapspi` for MS Windows managed nodes. However, 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 OVO.

NOTE

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. In this case, the monitors assume they are 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, parse the SAP trace and log files for the 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.

To keep the history files for the SPI for SAP monitors available after the package switches, you have to define the history path for each monitor in the appropriate monitor-specific configuration file on each node in the cluster where the package runs. [Example 6-2 on page 113](#) shows an example of 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 6-2 **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.

NOTE

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 OpenView Smart Plug-in for SAP Administrator's Reference*. 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 OVO message browser
2. Define a CCMS monitor set, for example; "OpenView", and a CCMS monitor, for example; "SPI Monitoring", for the messages you want to forward from CCMS to the OVO message browser. Note that the monitor-set feature can be only used with the XMI/XAL interface.

Defining SAP Logins in a High-Availability Cluster

When setting up the SPI for SAP in a high-availability environment, remember to include references to SAP instances on all *physical* nodes in the cluster in the `r3itosap.cfg` file, the file which the SPI for SAP uses to define all SAP logins. If you make any changes or additions to 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.

NOTE

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 High-availability Environment” on page 109](#).

If the adoptive node in the high-availability cluster is already configured as an SAP application server, then the logins for both the SAP 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 115.

Special-Case Scenarios

For reasons of efficiency or cost, the adoptive (or backup) 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 fail-over package switch as before, you have the option of shutting down the application server on the adoptive node after the fail-over 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 fail-over 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 tied to the application-server instance. Note that the *HP OpenView Smart Plug-in for SAP Administrator’s Reference* 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.

NOTE 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 fail-over package switch.

Table 6-1 shows which monitors apply to which SAP instance.

Table 6-1 SPI for SAP Monitors

SPI for SAP Monitor Name	Central Instance	Application Server
r3monaco	✓	
r3monale	✓	
r3monal ^a	✓	
r3monchg	✓	
r3moncts	✓	
r3mondev	✓	✓
r3mondisp	✓	✓
r3mondmp	✓	
r3monjob	✓	
r3monlck	✓	
r3monoms ^b	✓	
r3monpro	✓	✓
r3monrfc	✓	
r3monspl	✓	
r3monsec	✓	
r3status	✓	✓
r3montra	✓	

Table 6-1 **SPI for SAP Monitors (Continued)**

SPI for SAP Monitor Name	Central Instance	Application Server
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 monitors such as, for example; 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 fail-over 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 fail over, 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 6-1 on page 116](#) 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 6-3 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. The configuration file illustrated in **Example 6-4** is incomplete (...).

Example 6-3 Tying the `r3monale` Monitor to an SAP Instance Number

```
#AlertMonFun  SAP          SAP      SAP      SAP      Alert   Enable=1  (...)
#             Host          System  Number  Client   Monitor  Disable=0 (...)
#-----
AlertMonFun   =ClusterNodeB =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 fail-over 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 Number=`) is linked to the appropriate process name, as illustrated in **Example 6-4**.

Example 6-4 **Tying the r3monpro Monitor to an SAP Instance Number**

```
#AlertInstMonPro  SAP    SAP    Process  Enable  Mode    Process (...)  
#                System Number name     =1      =1      number (...)  
#-----  
AlertInstMonPro  =T11   =00    =saposcol =1      =Exact  =1      (...)  
AlertInstMonPro  =T11   =01    =saposcol =1      =Exact  =1      (...)
```

Performance Tools in a High-availability Environment

If you are using the Performance Agent (or OVO Embedded Performance Component) to monitor SAP R/3 in an MC/ServiceGuard 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 and Instance on both nodes.

In the event of a fail over 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.

NOTE

The SAP SPI service reports correlate the values collected by the Performance Agent 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 High-availability 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 OpenView Performance Manager and OpenView Reporter, are installed, correctly configured, and available on a machine that is visible to the cluster nodes. You will also have to ensure that the appropriate performance-agent functionality (OVO Embedded Performance Component or the OpenView Performance Agent) is installed, configured, and available on all the nodes in the high-availability cluster and the appropriate SPI for SAP performance sub-agent integration functionality is installed and correctly configured.

NOTE

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 High-Availability 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 install the HP OpenView Service Navigator and set it up to see the services you want the SPI for SAP to monitor in the SAP landscape. You will also have to ensure that the SPI for SAP performance integration is installed and configured to collect the appropriate performance-related data.

The service-discovery template 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 High-availability Environment” on page 109](#) and [“Specifying SAP Clients to Monitor” on page 81](#).

NOTE

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 in a High-availability Environment

The SPI for SAP software and functionality has to be removed from each individual physical node in the MC/ServiceGuard 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 MC/ServiceGuard cluster before you proceed to step two. For more information, see [“Removing SAP/Performance Subagents from SAP Managed Nodes” on page 157](#).
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 MC/ServiceGuard cluster. For more information, see [“Removing the SPI for SAP from OVO Managed Nodes” on page 158](#).

The SPI for SAP in a high-availability Cluster

Removing the SPI for SAP in a High-availability Environment

7 Using the Smart Plug-in for SAP

This section introduces the SPI for SAP integration with OVO and describes a typical SPI for SAP session.

Introduction

After you have installed and configured the SPI for SAP you can begin to use it to monitor your SAP R/3 system environment.

When you log on to OVO using the user name and password of an operator with SAP responsibilities, you will see additional SAP-specific components in the OVO Node Bank, Message Group, and Application Bank windows. You will also see SAP related messages in the OVO message browser.

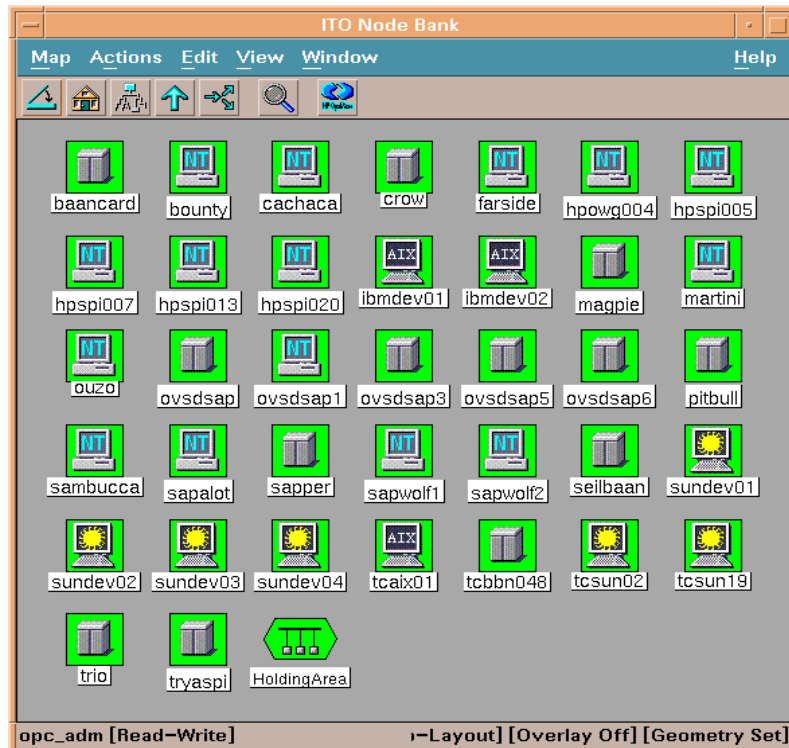
This chapter provides an overview of the SAP components that are integrated into OVO and describes the following steps and procedures with which you will need to become familiar in order to run a typical SPI for SAP session:

- [“The OVO Managed Nodes Window” on page 127](#)
- [“The OVO Message Groups Window” on page 128](#)
- [“The OVO Message Browser Window” on page 132](#)
- [“The OVO Application Bank Window” on page 134](#)
- [“Working with SAP Messages in OVO” on page 148](#)
- [“Setting up Self-Healing Services” on page 151](#)

The OVO Managed Nodes Window

The Managed Nodes window contains a symbol for each node for which the operator is responsible. Node symbols are displayed in colors which correspond to the highest severity of any message received from that node. For example, if the status propagation option is set to “most critical”, a node symbol will turn red when that node has at least one unacknowledged critical message. After all critical messages have been acknowledged, the node symbol changes color to indicate the highest severity level of the remaining active (or unacknowledged) messages.

Figure 7-1 OVO Managed Nodes Window

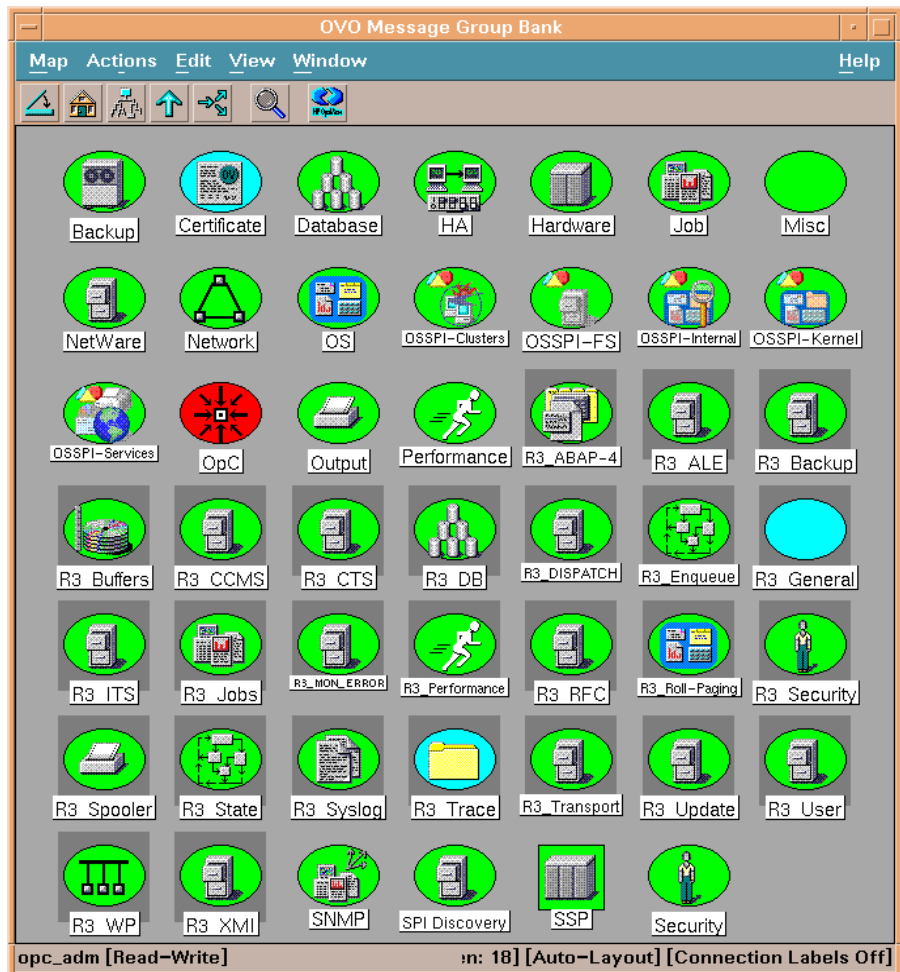


Before you can use any of the application desktop functions with a particular managed node, you need to select the node by clicking its icon in the Managed Nodes window.

The OVO Message Groups Window

The Message Groups window contains symbols for the message groups for which a particular operator is responsible. In this window you can review the status of each group and select specific groups for message review. OVO uses message groups to combine management information about similar or related managed objects under a chosen name and provide status information on a group level.

Figure 7-2 OVO Message Groups



As in the Managed Nodes window, the color of a symbol represents the symbol's current status. A change in the color of a symbol in the Message Groups window indicates a change in status of a managed node within an operator's environment. If a message with the severity level critical arrives in your browser, the Message Groups window automatically opens and moves to the front of your display to notify you of the event. You can, however, configure OVO in such a way that this window remains in its original position when a critical message arrives.

When you are logged on as an operator with SAP responsibilities, your Message Groups window contains some or all of the SAP-specific message groups listed in Table 7-1 depending on the responsibilities assigned to you by the OVO administrator.

Table 7-1 SPI for SAP Message Groups

Message Group	Contents/Purpose
R3_ABAP-4	ABAP/4 database events
R3_ALE	Events concerning the status of iDOCs in the R/3 System
R3_Buffers	R/3 instance buffer problems
R3_Backup	R/3 backup messages
R3_CCMS	CMMS alert messages from r3mona1 when it is configured to use the XMI/XAL interface
R3_CTS	Correction and transport-system alert messages
R3_DB	Internal R/3 database events
R3_Dispatch	ABAP dispatcher events
R3_Enqueue	Enqueue server messages
R3_General	General and R/3 collector messages
R3_ITS	Messages relating to status of the ITS server
R3_Jobs	R/3 jobs
R3_MON_ERROR	SPI for SAP monitor-specific error messages
R3_Performance	R/3 performance messages

Table 7-1 SPI for SAP Message Groups (Continued)

Message Group	Contents/Purpose
R3_RFC	Messages from r3monrfc, the RFC-destination monitor.
R3_Roll-Paging	Rolling and paging activities
R3_Security	Events relating to the security of R/3 systems
R3_Spooler	Spooler events
R3_State	Configuration status information
R3_Syslog	R/3 entries in the syslog log files
R3_Trace	Tracing information if trace is switched on
R3_Transport	Transport related messages
R3_Update	Update error messages
R3_User	User and usage messages
R3_WP	Work process events
R3_XMI	Special syslog XMI messages

Changing Default Message-Group Settings

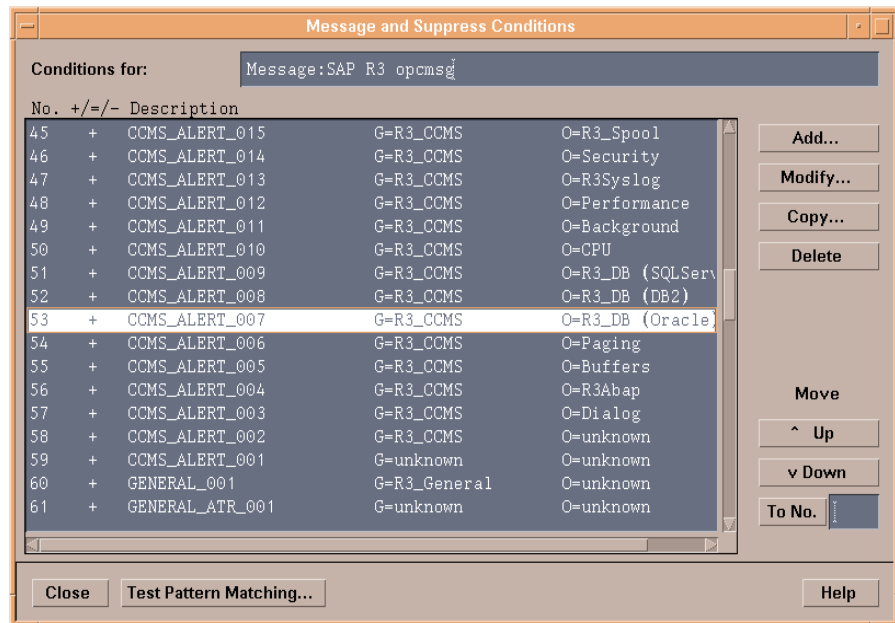
For the sake of convenience, the SPI for SAP automatically assigns messages generated by its monitors to particular message groups. For example, messages relating to the database are assigned to the R3_DB message group. This makes it easier to understand the general theme of a problem when browsing through messages in the OVO message browser. However, you can change these default settings to suit the demands of your environment.

For example, if you configure r3monal, the SPI for SAP's CCMS Alert monitor, to use the XMI/XAL interface in SAP R/3, the SPI for SAP automatically assigns any messages generated by r3monal to the R3_CCMS message group. However, there are a large number of messages from this source, and it can be helpful to re-assign the messages to sub-groups, which more accurately reflect the nature of the problem that the message describes.

If you want to change the message group to which individual messages are assigned, you can change the attributes of the message condition which generates the message in the first place. Note that messages generated by SAP's database are originally assigned to the message group R3_CCMS but are then re-assigned to the message group R3_DB if a defined condition matches which shows that the message originates from a problem in an Oracle, DB2, or SQLServer database.

Figure 7-3

Default Message Group Settings



To change a message condition's attributes, select the message as illustrated in Figure 7-3, click the Modify... button. In the Set Attributes section of the Condition No. # window that appears, change the value in the Message Group field to match the name of the new message group, to which you want the generated messages to belong.

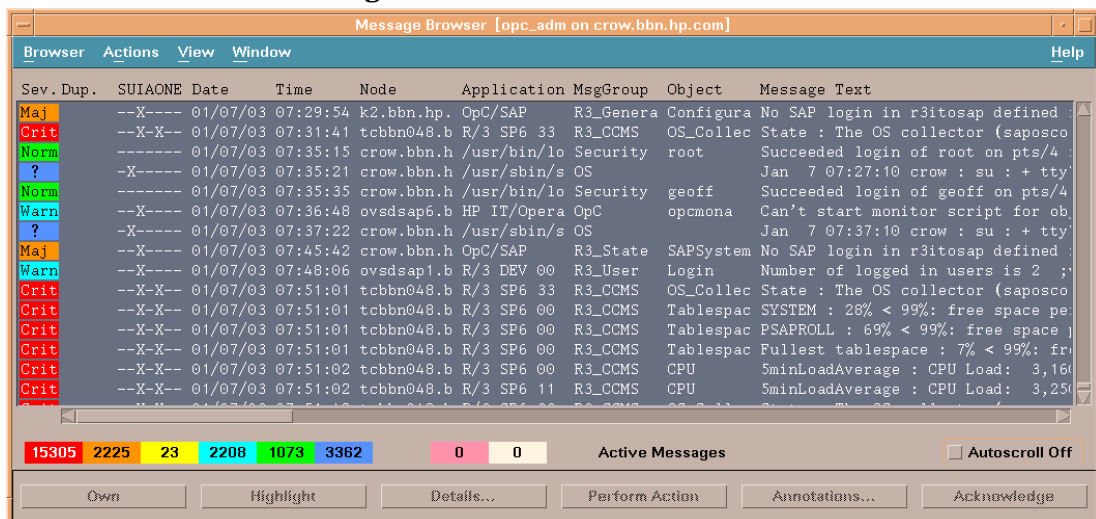
The OVO Message Browser Window

The Message Browser window is your unique view of all active messages received at your display station from the managed nodes of the message groups assigned to you.

You can use this window to review and manage messages and to guide problem resolution. Incoming messages are displayed with pre-configured attributes and status information. You can:

- Look at all the details about a single message and, to resolve the message-triggering event:
 - execute an operator-initiated action, or
 - have OVO perform an automatic action for you.
- Restart actions at any time or even stop the execution of an action
- Print messages and prepare message reports.
- Document your actions and read through previously performed actions using OVO's annotation facility
- Acknowledge messages in the Message Browser window after actions are completed

Figure 7-4 OVO Message Browser



Understanding SAP R/3-related Messages

Incoming messages are displayed with pre-configured attributes and status information, which can be particularly useful in identifying and understanding SAP R/3-related messages. [Table 7-2](#) summarizes the message attributes you can use to identify a message in your browser as an SAP R/3-related message.

Table 7-2 **SAP R/3-related Message Attributes**

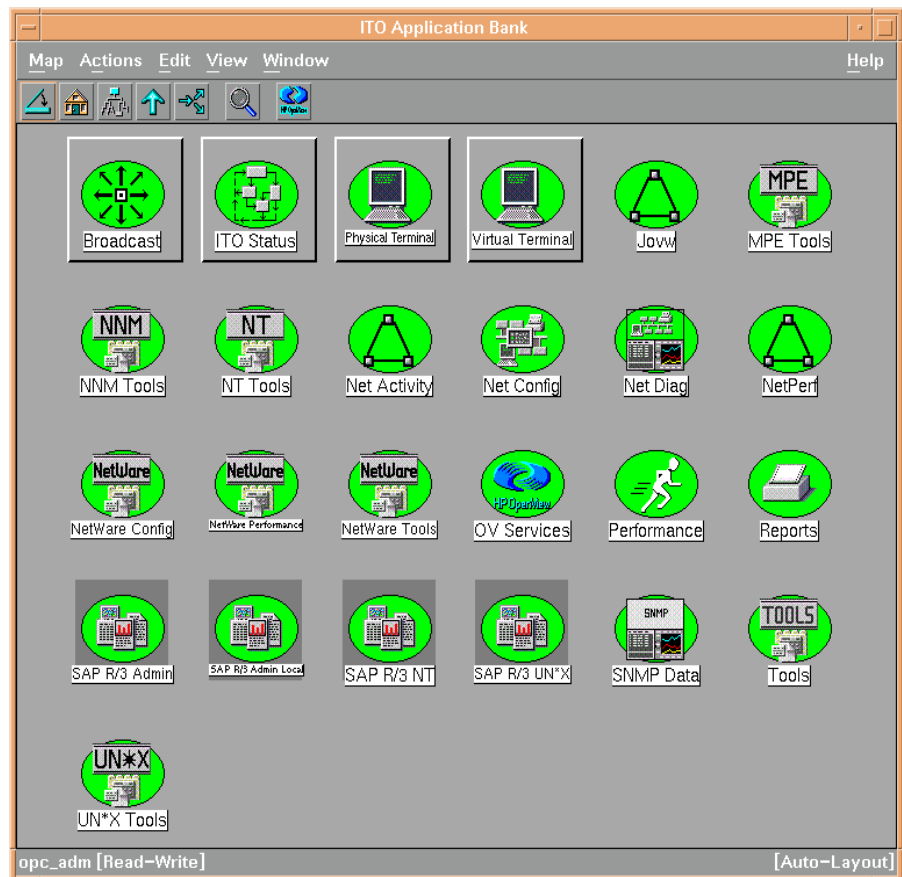
Message Attribute	Description
Application	Identifies the application which was affected or detected the message cause. For the SPI for SAP R/3, the application is always R/3, followed by a SAP system name and number.
Message Group	Identifies the message group to which the message belongs. For SPI message groups see Table 7-1 on page 129 .
Object	Identifies the object which was affected by, detected, or caused the message.

The OVO Application Bank Window

The Application Bank window displays the applications, console sessions, and command broadcast which you can use to manage your SAP R/3 environment. In this window, or in the Managed Nodes window, you can:

- Start applications
- Open console sessions
- Broadcast commands on selected nodes

Figure 7-5 The OVO Application Desktop



SPI for SAP Application Groups

A group symbol represents a group of applications. Double-clicking a group symbol opens a second-level desktop containing the applications of the group. The following application groups are added to the Application Bank when the SPI for SAP is installed:

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

The SAP R/3 Admin Application Group

The SAP R/3 Admin application group includes applications for editing and distributing files for global configuration, as well as other administrative functions such as moving the SAP transport to the SAP transport directories on managed nodes.

Figure 7-6 SAP R/3 Admin Application Group

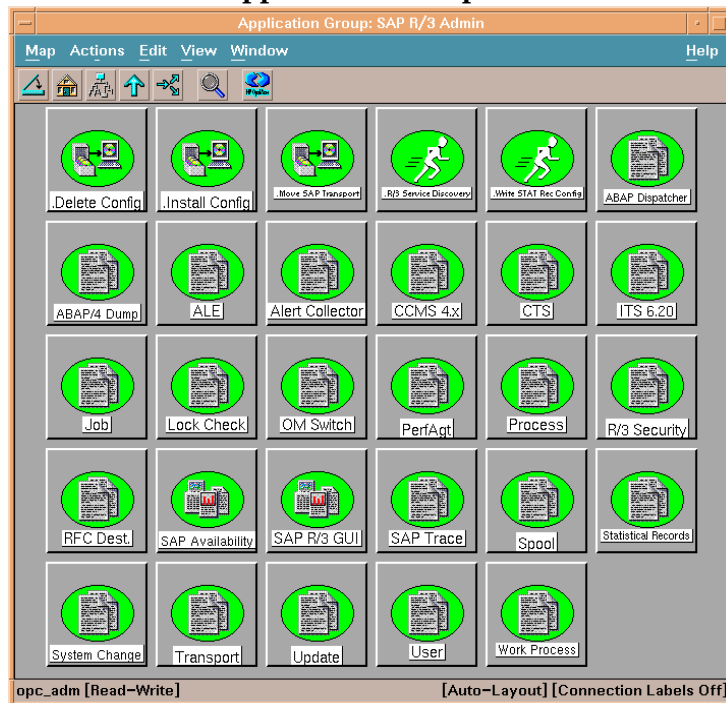


Table 7-3 lists the applications which appear in the SAP R/3 Admin application group and describes briefly what each of the applications does.

Table 7-3 SAP R/3 Admin Applications

Application	Description
ABAP/4 Dump	Opens the global <code>r3mondmp.cfg</code> configuration file for the ABAP-dump monitor
ABAP Dispatcher	Opens the global <code>r3mondisp.cfg</code> configuration file for the Dispatcher monitor
Alert Collector	Opens the global <code>r3monaco.cfg</code> configuration file
ALE	Opens the global <code>r3monale.cfg</code> configuration file for the iDOC-status monitor
CCMS 4.x	Opens the global <code>r3monal.cfg</code> configuration file of the central SAP R/3 CCMS alert monitor
CTS	Opens the global <code>r3moncts.cfg</code> configuration file
.Delete Config	Removes global configuration files from selected managed nodes. This should only be used when de-installing the product
.Install Config	Installs global configurations on selected managed nodes. This is the recommended way to distribute monitor-configuration files to the managed nodes.
ITS 6.20	Opens <code>r3monits.cfg</code> , the configuration file of the SAP ITS 6.20 monitor
Job	Opens the global <code>r3monjob.cfg</code> configuration file of the job monitor
Lock Check	Opens the global <code>r3monlck.cfg</code> configuration file for the lock-check monitor
.Move SAP Transport	Moves the RFC Transport to the directory: <code>/usr/sap/trans</code> . The OS user starting the application must have write access to the directory

Table 7-3 SAP R/3 Admin Applications (Continued)

Application	Description
OM Switch	Opens the global <code>r3monoms.cfg</code> configuration file for the operation-mode switch monitor
PerfAgt	Opens the performance agent's global configuration file <code>r3perfactt.cfg</code>
Process	Opens the process monitor's global configuration file <code>r3monpro.cfg</code>
RFC Dest.	Opens the RFC monitor's global configuration file the <code>r3monrfc</code>
R/3 Security	Opens the SAP security monitor's global configuration file <code>r3monsec.cfg</code>
.R/3 Service Discovery	Automatically creates a service-configuration file that defines a service view of the SAP R/3 services on the selected managed node(s)
SAP Availability	Opens the SAP status monitor's global configuration file, <code>r3status.cfg</code>
SAP R/3 GUI	Opens the SPI for SAP's central configuration file <code>r3itosap.cfg</code>
SAP Trace	Opens the SAP trace monitor's global configuration file <code>r3mondev.cfg</code>
Self Healing Info	Starts data collection for the self-healing services feature on selected managed nodes or node groups
Self Healing Register	Registers selected managed nodes or node groups with the self-healing services data-collection tool
Spool	Opens the SAP spooler monitor's global configuration file <code>r3monspl.cfg</code>
Statistical Records	Opens the performance monitor's configuration file <code>r3perfstat.cfg</code>
System Change	Opens the change-system monitor's global configuration file <code>r3monchg.cfg</code>

Table 7-3 SAP R/3 Admin Applications (Continued)

Application	Description
Transport	Opens the Transport monitor's global configuration file <code>r3montra.cfg</code>
Update	Opens the update monitor's global configuration file <code>r3monupd.cfg</code>
User	Opens the SAP user monitor's global configuration file <code>r3monusr.cfg</code>
Work Process	Opens the work-process monitor's global configuration file <code>r3monwpa.cfg</code>
.Write STAT Rec Config	Write statistical records in SAP R/3

If you use a SPI for SAP application to check or modify a configuration file, `r3conf` uses the text editor defined by the environment variable `$EDITOR`. If the variable `$EDITOR` is *not* set, `r3conf` uses `vi` to edit the SPI for SAP configuration files. For more information about editing and distributing monitor configurations, see the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

The SAP R/3 Admin Local Application Group

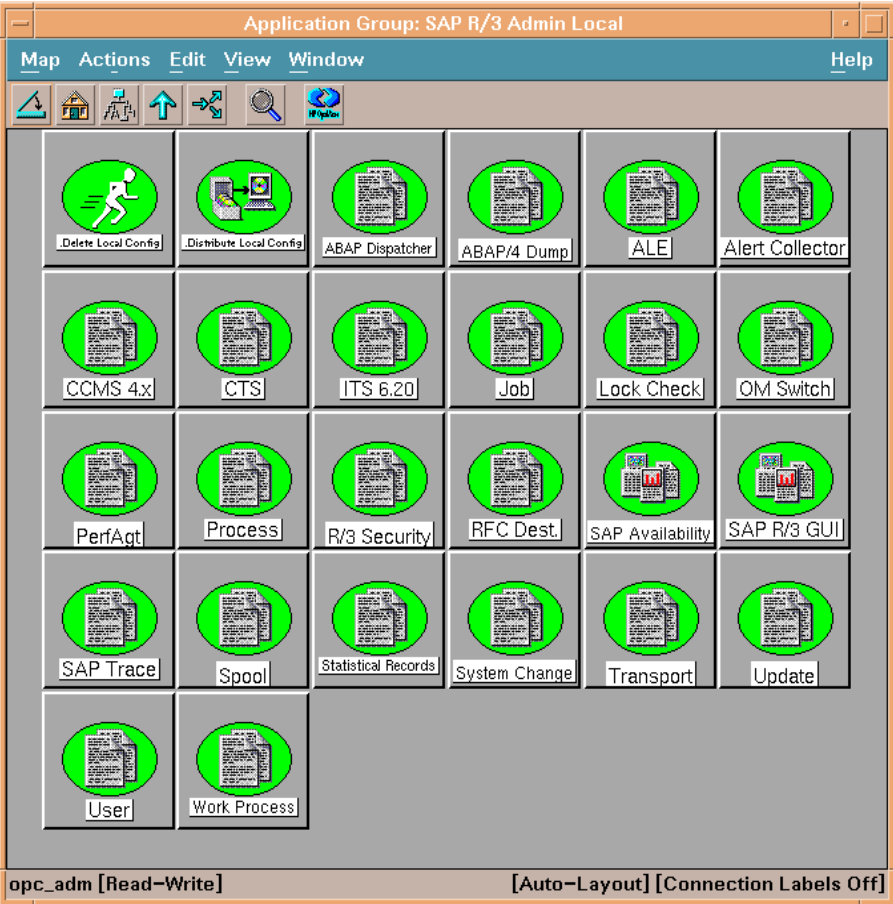
The SAP R/3 Admin Local group includes applications for editing and distributing files for local configuration.

Table 7-4 SAP R/3 Admin Local Applications

Application	Description
.Delete Local Config	Deletes the <i>local</i> SPI for SAP configuration files on the selected managed nodes and, in addition, any files related to the selected managed nodes, which reside on the OVO management server.
.Distribute Local Config	Distributes and installs the local SPI for SAP configurations on the selected managed node(s)

The contents of the SAP R/3 Admin and SAP R/3 Admin Local application groups are very similar. Table 7-4 on page 138 lists *only* those applications in the SAP R/3 Admin Local application group that have not already been described in Table 7-3 on page 136 and indicates what each applications does. Figure 7-7 on page 139 shows the applications available in the SAP R/3 Admin Local application group.

Figure 7-7 Application Desktop for SAP R/3 Admin Local



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

The SAP R/3 UN*X and SAP R/3 NT Application Groups

These two groups include applications that provide direct, context-sensitive startup of the SAP R/3 front-end on UNIX and MS Windows platforms respectively. For instance, if you receive a performance alert, you can click the Performance icon and open the SAP performance analysis tool.

In addition, the SAP R/3 UNIX group includes a number of applications that involve interactive actions with terminal output, for example: Check R/3 Database, Status R/3 Config, or Version Verify. These applications are not supported on the MS Windows platform.

Before you select an application from one of these groups, you must select the managed node on which you want the application to run. Make sure that you select the application from the application group that corresponds to the managed node's platform, for example: Unix or Microsoft Windows.

[Table 7-5](#) lists the applications, available in both application groups, that open a SAP GUI session.

Table 7-5 SPI for SAP Applications that Call SAP Transactions

Application	Description	SAP Transaction code
Control Panel	CCMS control panel	RZ03
DB Performance	Shows database performance through tables and indexes.	DB02
Gateway	Gateway monitor	SMGW
Job Maintain	Define background jobs	SM36
Job Overview	Status of background jobs	SMX
Job Performance	Job performance	SM39
Maintain Thresholds	Maintenance thresholds	RZ06
Operation Modes	Maintain operation modes	RZ04
Operation Sets	Maintain operation sets	SM63

Table 7-5 SPI for SAP Applications that Call SAP Transactions

Application	Description	SAP Transaction code
Performance	Workload analysis	ST03
Process	Process overview	SM50
Profile Maintain	Profile maintain	RZ10
Servers	Server overview	SM51
Syslog	System log, local analysis	SM21
Syslog Msg	System log message maintenance	SE92
Users	User overview	SM04

The Version Verify tool allows you to compare the installed base version of the SPI for SAP with the version of any SPI for SAP components that have been added subsequently. Note that the Version Verify tool is one of several tools provided by the Self-Healing Services feature. For more information about registering and using Self-Healing Services, see [“Setting up Self-Healing Services” on page 151](#).

Accessing Data on a Managed Node

The following applications allow quick access to SAP R/3 related information from the selected managed node.

Table 7-6 SAP R/3 Information and Platform Availability

SPI for SAP Application Name	SAP R/3 UN*X	SAP R/3 NT
Check R/3 Database	✓	
R/3 Info	✓	✓
R/3 Process Logs	✓	
Start R/3 Front-end	✓	

Table 7-6 SAP R/3 Information and Platform Availability (Continued)

SPI for SAP Application Name	SAP R/3 UN*X	SAP R/3 NT
Status R/3 Config	✓	

Checking the R/3 Database

The Check R/3 Database application establishes a connection to the database server and thus provides a rapid way of checking the database connection.

SAP R/3 Information

The R/3 Info application provides the following information for SAP R/3 instances that are installed on a selected node:

- Hostname
- SAP system name
- Instance name
- Instance number
- SAP release number
- List of processes for the selected instance

NOTE

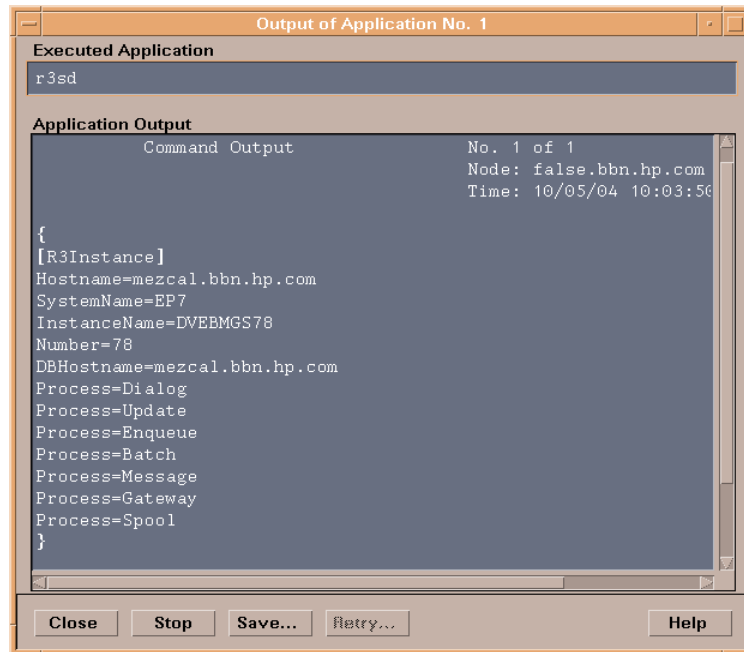
The R/3 Info application is available for both UNIX and NT nodes and present in both the SAP R/3 UNIX and SAP R/3 NT application groups.

To display information for a selected managed node:

1. In the Node Bank window, select the UNIX or MS Windows node for which you want to display a information about SAP R/3.
2. In the SAP R/3 UNIX or SAP R/3 NT application group window, double-click the R/3 Info icon. The requested information is displayed, as shown in [Figure 7-8](#).

Figure 7-8

Output from the R/3 Info Application



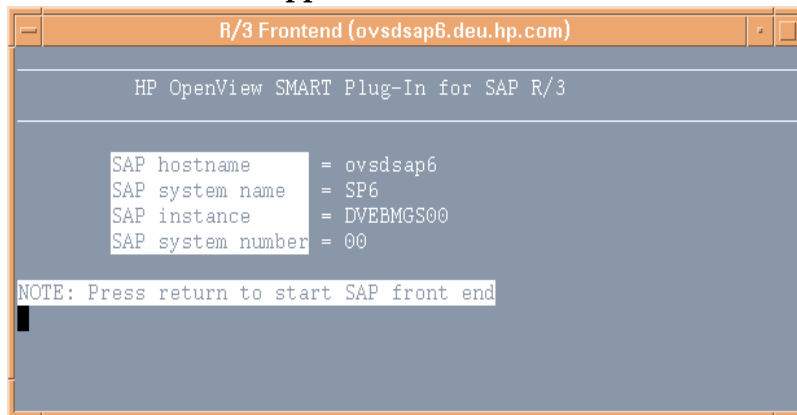
Starting the R/3 Front-End

The Start R/3 front-end application makes full use of the distributed architecture of SAP R/3. It uses the local `sapgui` utility (running on the OVO management server) and profile to connect to the desired SAP system. Because multiple SAP systems may be installed on a selected managed node, you are prompted with a list of installed SAP systems and functional modules.

To start the R/3 front-end:

1. In the Node Bank window, select the UNIX node on which you want to start an SAP session.
2. In the SAP R/3 UNIX application group window, double-click the Start R/3 front-end icon. A window similar to Figure 7-9 is displayed. The local `sapgui` starts, connects to the selected SAP component, and displays the R/3 login screen.

Figure 7-9 **The R/3 Front-end Application**



TIP

Using the R/3 front-end locally improves application performance by decreasing the data flow across the network.

R/3 Process Logs

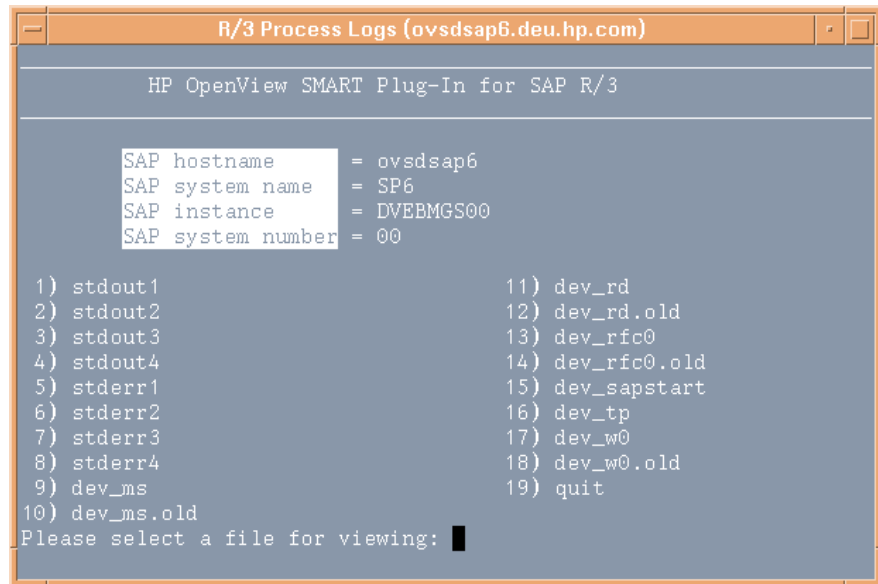
The R/3 Process Logs application reports all error conditions in a specific file structure. Also, all R/3 standard output and standard error information is stored on disk. The log analyzer extracts relevant ERROR information for all functional modules of each SAP system and displays this information for the selected managed node.

To display the R/3 process log for a selected managed node:

1. In the Node Bank window, select the UNIX node for which you want to display a process log.
2. In the SAP R/3 UNIX application group window, double-click the R/3 Process Logs icon.

3. Press **Enter**. The system displays an output file selection window (see [Figure 7-10](#)).

Figure 7-10 Logfile-Output Selection Window



4. Enter the number associated with the output log file you want to view. For example, if you enter 10 for the `dev_w0` file, the system displays a log file such as that shown in [Figure 7-11](#).

NOTE

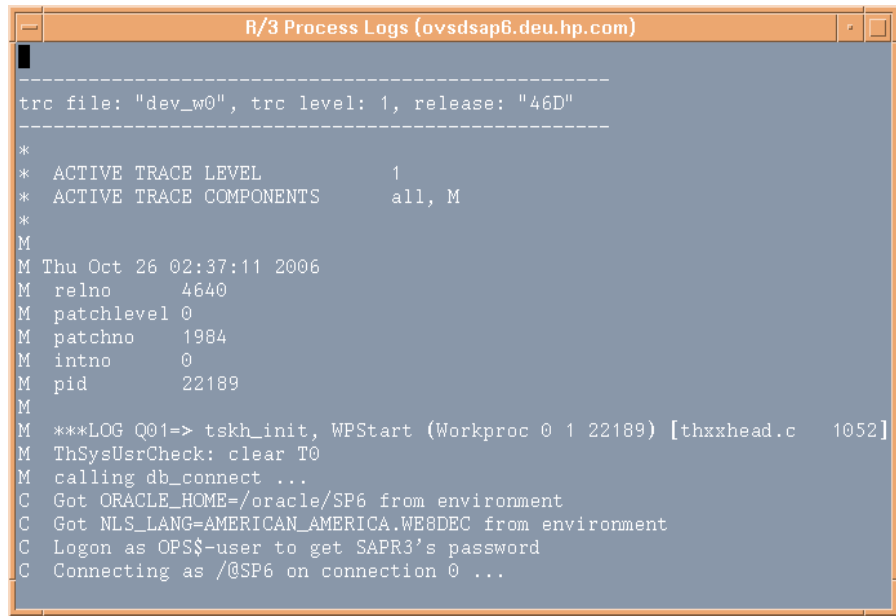
`stdout1-5` and `stderr1-5` are always displayed, even if the associated files do not contain an error message.

5. To access additional process logs, return to the process logs selection window by entering the command:

q!

In order to use commands related to the `vi` editor your editor environment variable must be set to `vi`.

Figure 7-11 **Sample Log File**



```
R/3 Process Logs (ovsdsap6.deu.hp.com)
-----
trc file: "dev_w0", trc level: 1, release: "46D"
-----
*
* ACTIVE TRACE LEVEL          1
* ACTIVE TRACE COMPONENTS    all, M
*
M
M Thu Oct 26 02:37:11 2006
M relno      4640
M patchlevel 0
M patchno    1984
M intno      0
M pid        22189
M
M ***LOG Q01=> tskh_init, WPStart (Workproc 0 1 22189) [thxxhead.c  1052]
M ThSysUsrCheck: clear T0
M calling db_connect ...
C Got ORACLE_HOME=/oracle/SP6 from environment
C Got NLS_LANG=AMERICAN_AMERICA.WE8DEC from environment
C Logon as OPS$-user to get SAPR3's password
C Connecting as /@SP6 on connection 0 ...
```

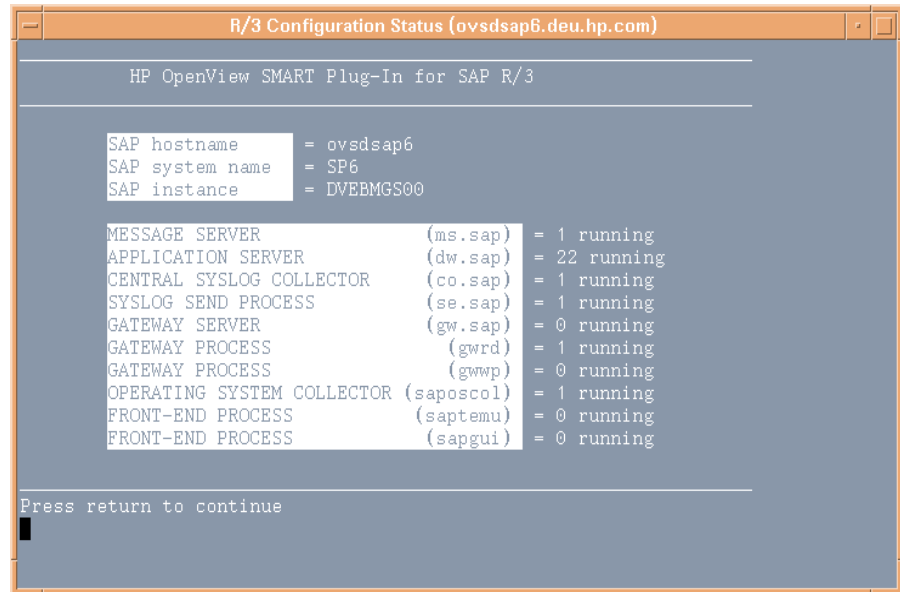
The Status R/3 Config Application

The Status R/3 Config application runs on the selected managed node and provides an ASCII representation of the current local R/3 configuration. Status R/3 Config lists all SAP systems installed on the selected managed node and, in addition, the functional modules per system. The R/3 process status also provides a list of all established R/3 processes and their current status.

Select a managed node, then click the Status R/3 Config icon to display the R/3 Configuration Status window.

Figure 7-12

R/3 Configuration Status Window



Working with SAP Messages in OVO

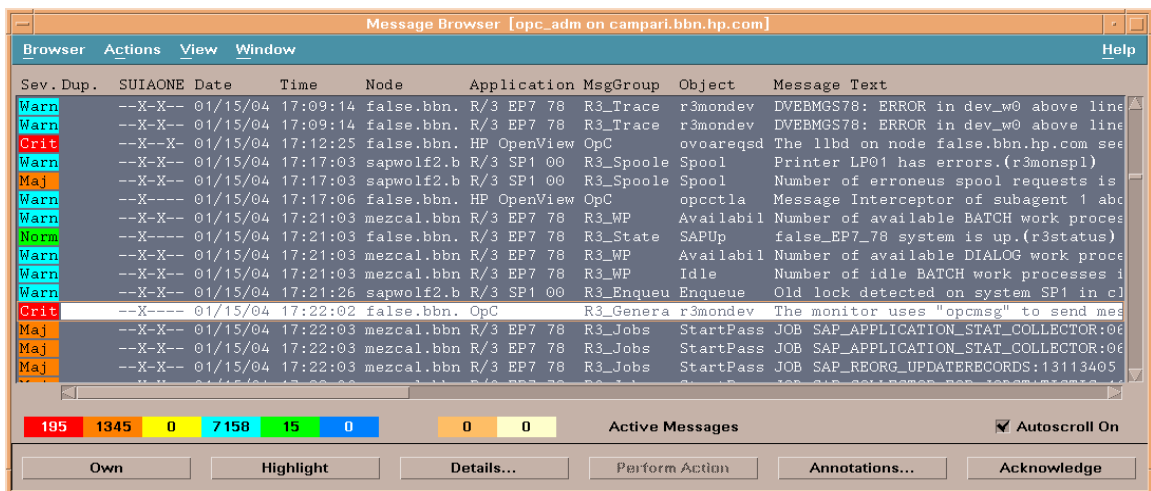
The Message Browser window is your most important source of information about the status of the managed nodes for which you are responsible. If you are logged on to OVO as a user with SAP responsibilities, your Message Browser window will include messages from SAP R/3 managed nodes.

When you select a message in the Message Browser window you can:

- view a detailed description of a problem.
- view instructions of how to deal with the problem.
- initiate a pre-defined action.
- add an annotation to document your actions.
- acknowledge the message so that it is moved to the History Message Browser window.

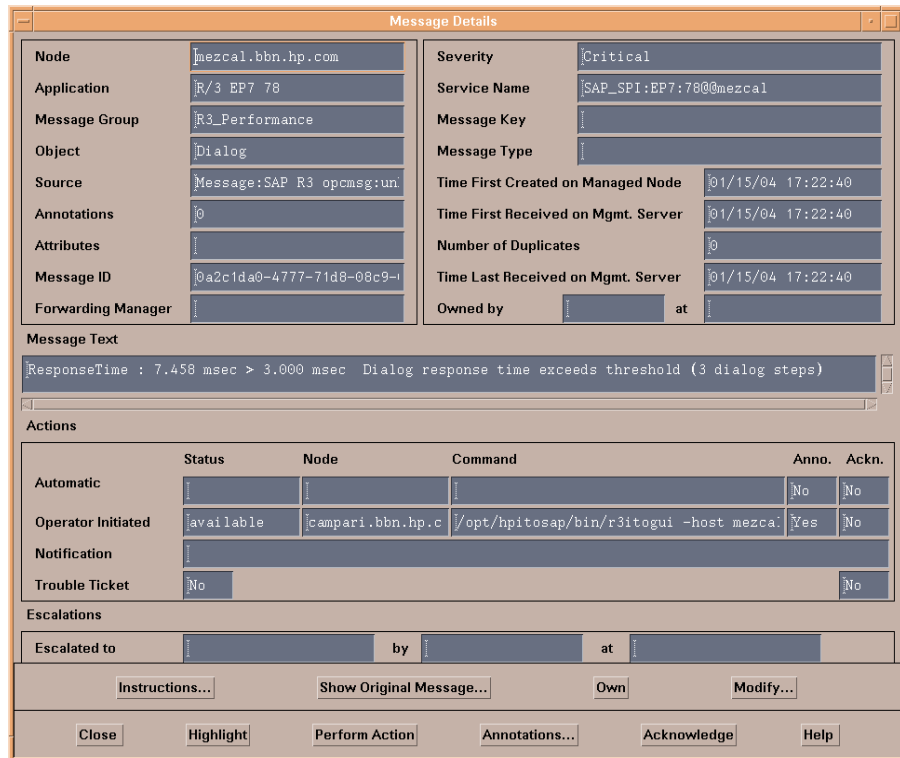
The example that follows shows a typical sequence of events when a critical message appears in the message browser.

Figure 7-13 Selecting a Message in the Message Browser



1. Select the message in the Message Browser window.
2. Click the Details... button in the Message Browser window. The system returns detailed information for the selected message.

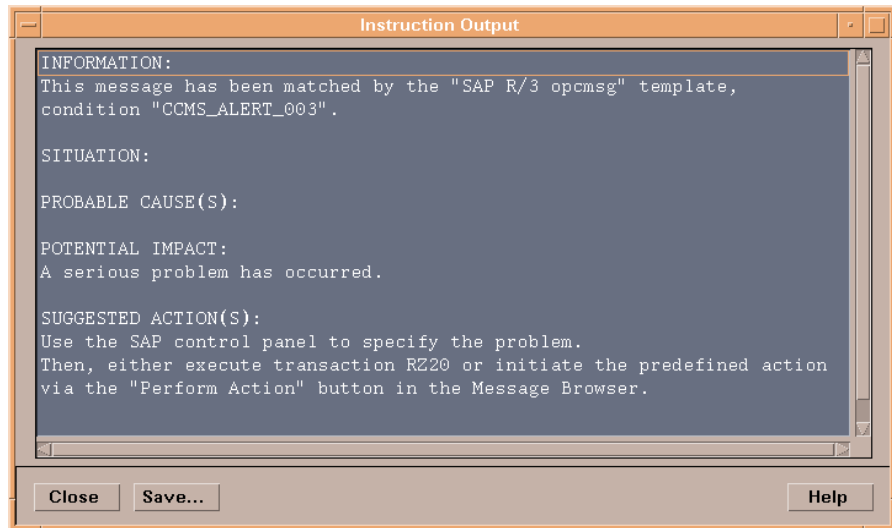
Figure 7-14 Message Details



3. Click the Instructions... button to read the instructions provided by the system.
4. Once you have read and understood the instructions displayed in [Figure 7-14 on page 149](#), click the Perform Actions button. The SPI for SAP automatically provides context-dependent access to the associated transaction.
5. In this window, Use standard SAP methods to fix the problem.
6. Return to the Message Details window shown in [Figure 7-14 on page 149](#).

7. Click the Acknowledge button to confirm your awareness of the message to which you just responded. Once you have acknowledged the message, the message is moved from the Message Browser window to the History Message Browser window.

Figure 7-15 Message Instructions



Setting up Self-Healing Services

The Self-Healing Services (SHS) feature enables you to collect quickly and easily all the system and application data that support engineers need in order to begin troubleshooting any problems that occur when using an HP OpenView application. You need to configure Self-Healing Services in order to determine what information is sent to whom and when. For more information about how to configure and use the Self-Healing Services feature, see the Self-Healing Services product documentation.

To be able to use the Self-Healing Services (SHS) with the Smart Plug-in for SAP, you first need to register the SPI for SAP with the Self-Healing Services client on each of the nodes managed by the Smart Plug-in for SAP. Once you have registered the managed nodes with the Self-Healing Services client, you can manually trigger the collection of the data required for troubleshooting. The file containing the collected data then needs to be sent by e-mail to the support engineers. The SPI for SAP provides the following tools to help you set up and use the Self-Healing Services feature:

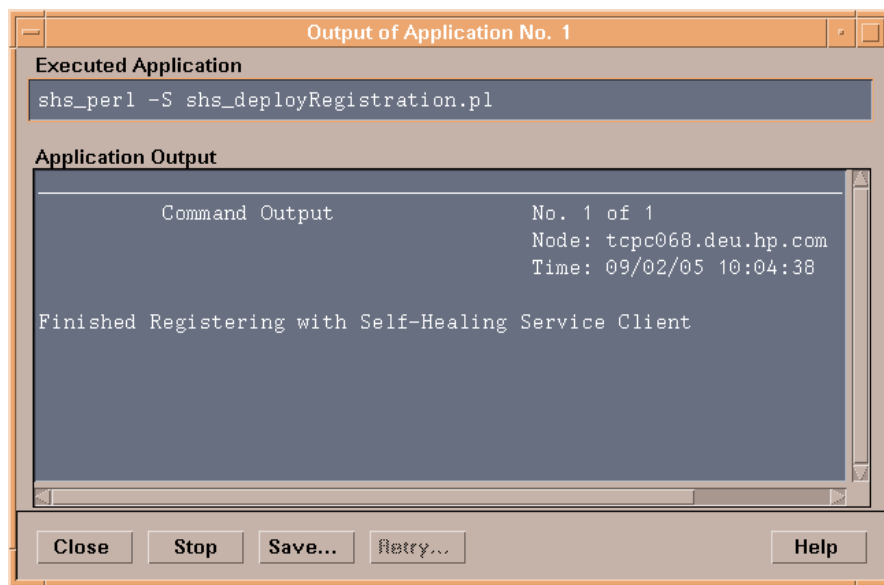
- **Self-Healing Register**
Register the managed node with the Self-Healing Services client
- **Self-Healing Info**
Manually trigger the collection of the data required by the HP Self-Healing Services application
- **Version Verify**
Compares the base version of the SPI for SAP installed with the version of any SPI for SAP components installed on the system.

To register for self-healing services

1. Open the **Node Bank** window and locate the nodes, which you want to register with the Self-Healing Services feature.
2. In the **OVO Application Group** window, locate and open the **Self Healing Services application group**; this application group contains the application you use to register the managed nodes with the Self-Healing Services feature.

3. In the Node Bank window, select the nodes or node groups you want to register with Self-Healing Services, drag them over to the Application Group; Self-Healing window, and drop them onto the Self Healing Reg application.
4. Follow the status of the registration progress by monitoring the application-output window, as illustrated in [Figure 7-16 on page 152](#).

Figure 7-16 Registering with Self-Healing Services

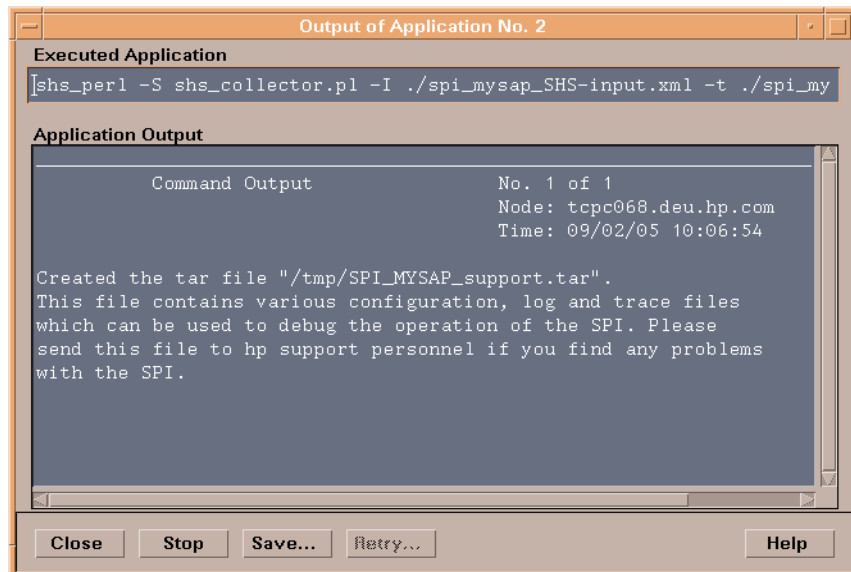


To trigger data collection with self-healing services

1. Open the Node Bank window and locate the nodes, where you want to collect data to analyze with the Self-Healing Services feature.
2. In the OVO Application Group window, locate and open either the SAP R/3 UN*X or the SAP R/3 NT application group; the application group you choose depends on the operating system installed on the managed nodes where you want to run the data collection.

3. In the Node Bank window, select the nodes or node groups where you want to run data collection for Self-Healing Services, drag the nodes or node groups over to the Application Group; SAP R/3 UN*X or Application Bank; SAP R/3 NT window, and drop them onto the Self Healing Info application.
4. Follow the status of the data-collection progress by monitoring the application-output window, as illustrated in [Figure 7-17 on page 153](#).
5. The collected data is stored in the following file on the managed node; you will need to forward the file to the support engineers for evaluation and analysis:
 - UNIX and Linux operating systems:
/tmp/SPI_MYSAP_support.tar
 - MS Windows operating systems:
C:\WINDOWS\TEMP\SPI_MYSAP_support.zip

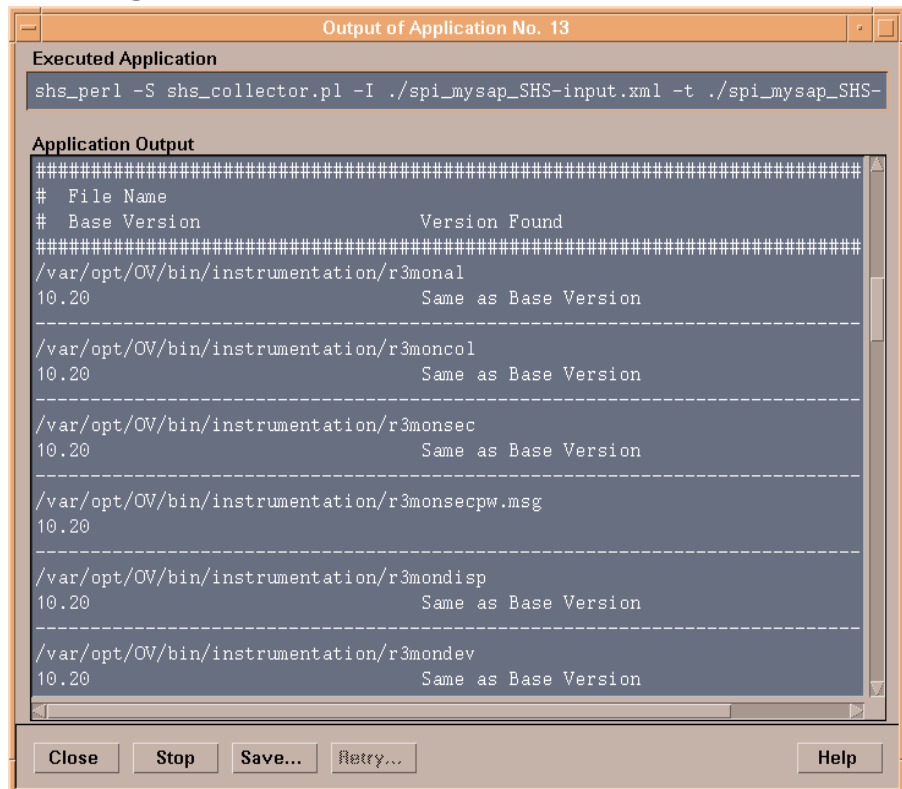
Figure 7-17 Collecting Data with Self-Healing Services



Checking the Installed Software Version

1. Open the Node Bank window and locate the managed nodes where you want to check the version of the installed SPI for SAP software components.
2. In the OVO Application Group window, locate and open the SAP R/3 UNIX or SAP R/3 NT application group; which group you choose depends on the operating system installed on the managed nodes where you want to check the installed software version.
3. In the Node Bank window, select the nodes or node groups located in step one, drag them over to the SAP R/3 UNIX or SAP R/3 NT window, and drop them onto the Version Verify application.
4. Follow the progress of the software check by monitoring the application-output window, as illustrated in [Figure 7-18 on page 154](#).

Figure 7-18 Checking Software Versions



8

Deinstalling the SPI for SAP

This section provides information concerning the removal of SPI for SAP software and any corresponding components.

Removing the SPI for SAP

This section describes how to remove the SPI for SAP software quickly and cleanly. You will need to perform the following tasks, as appropriate, on either the UNIX or MS Windows managed nodes as well as the OVO managements server(s) on which you installed the SPI for SAP software.

CAUTION

The information in this section describes how to perform a complete de-installation of the SPI for SAP software from the OVO management server and the managed nodes by removing *all* the files created during the installation, configuration, and use of the SPI for SAP. You should *not* use the instructions in this section if you want to remove the SPI for SAP software as the first step in an upgrade of the SPI for SAP. For more information about upgrading the SPI for SAP, see [“Upgrading the SPI for SAP” on page 34](#).

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/Performance Subagents from SAP Managed Nodes” on page 157](#)
- [“Removing the SPI for SAP from OVO Managed Nodes” on page 158](#)
- [“Removing the SPI for SAP Software from the OVO Management Server” on page 160](#)

Removing SAP/Performance Subagents from SAP Managed Nodes

To remove the SPI for SAP's SAP/Performance sub-agent components from the SAP managed nodes, you need to carry out the following tasks:

1. As user `opc_adm`, open the Node Bank window, select all the managed nodes where you installed the SAP/Performance sub-agent package, and run the following menu option:

Actions > Subagents > Deinstall...

The Deinstall Subagent window appears.

2. Select the SAP/Performance check box.
3. Click OK to start the de-installation of the sub-agent package. On HP-UX managed nodes, the de-installation removes the sub-agent software from the SAP managed nodes you have selected.
4. Click Yes to continue the de-installation of the sub-agent package. You can find information concerning the de-install operation in the following files:
 - `/var/adm/sw/swagent.log`
 - `/var/adm/sw/swremove.log`

Removing the SPI for SAP from OVO Managed Nodes

To de-assign and remove SPI for SAP management functionality from OVO managed nodes:

1. As user `opc_adm`, open the Node Bank window, select all the managed nodes on which you installed the SAP/Performance sub-agent package, and run the following menu option:

`Actions > Agents > Assign Templates...`

2. Check the `Sort by templates` option and select *all* SAP related assignments. These are any pre-defined template groups (starting with `SAP R/3...`), but also any *individual* SAP-related monitors that you have assigned to particular managed nodes.

In addition, make sure that you also select any assignments based on any copies of the original SAP related templates, as suggested in the installation chapter.

3. Run the following menu option: `Remove selected`.
4. Distribute the modified template assignments to all *appropriate* managed nodes (those managed nodes from which you are de-installing the SPI for SAP software) by selecting the managed nodes in the Node Bank window and executing the following menu option:

`Actions -> Agents -> Install/Update SW & Config...`

5. Check the `Templates` and the `Force Updates` check boxes.
6. Click `OK` to confirm.
7. Use the `.Delete Local Config` application to remove any local-configuration files that exist for any SPI for SAP managed nodes, for example; by selecting in the Node Bank window all the managed nodes from which you want to remove the SPI for SAP, dragging them over to the `SAP R/3 Admin Local` application group, and dropping them onto the `.Delete Local Config` application icon.
8. Use the `.Delete Config` application to remove any global-configuration files that exist for any SPI for SAP managed nodes, for example; by selecting in the Node Bank window all the managed

nodes from which you want to remove the SPI for SAP, dragging them over to the SAP R/3 Admin application group, and dropping them onto the .Delete Config application icon.

Removing the SPI for SAP Software from the OVO Management Server

This section describes how to perform a complete de-install of the SPI for SAP from the OVO management server. You should not use the instructions in this section as the first step in an upgrade of the SPI for SAP software.

To remove the SPI for SAP software from the OVO management server:

1. Open the `Message Group Bank` window, select all message groups starting with `R3_...`, and delete them. Note that you might have to delete the message groups individually.
2. Open the `Message Source Templates` window, select the template group `SAP R/3 SPI`, and choose the option: `Delete From All...`

If the templates in the deleted template groups still appear in the list of templates, you will have to delete the templates individually.

If you made copies of or modifications to the original SAP related templates, as suggested in the installation chapter, select and remove those as well.

3. Open the `User Profile Bank` window, select the SAP related user profiles, and delete them.
4. If you created OVO users used exclusively for dealing with the SPI for SAP software, you can remove those from the `User Bank` window as well.
5. Open the `Application Bank` window, select the four SAP related application groups and delete them.
6. Remove the SPI for SAP related binaries from the OVO database tree. As user root, enter:

```
/opt/OV/lbin/sapspi/r3itoin -u
```

```
Removing SPI for SAP instrumentation from OVO  
instrumentation directory tree
```

7. Distribute the monitors, and commands to all managed nodes using the following menu option:

```
Actions > Agents > Install/Update SW & Config...
```


8. As user root, remove the SPI for SAP software package from the OVO management server. Enter:

```
/usr/sbin/swremove SPI-SAP-ITO
```

9. Remove any existing copies of the SPI for SAP configuration files. Enter:

```
rm -r /var/opt/OV/share/conf/sapspi/*
```

Deinstalling the SPI for SAP

Removing the SPI for SAP Software from the OVO Management Server

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