

HP OpenView Operations Smart Plug-in for SAP

Installation Guide

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Support

Please visit the HP OpenView web site at:

<http://openview.hp.com/>

There you will find contact information and details about the products, services, and support that HP OpenView offers.

The support area of the HP OpenView web site includes:

- Downloadable documentation
- Troubleshooting information
- Patches and updates
- Problem reporting
- Training information
- Support program information

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 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/MeasureWare 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 for the detection of potential problem areas and keep track of system and R/3 events
- performance data collectors to 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 for the storage of event and action records for all SAP R/3 managed nodes.
- utilities for running routine SAP R/3 management tasks.
- SAP service discovery and integration of SAP R/3 environments with HP OpenView 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 14](#)
- [“Performance Management” on page 16](#)
- [“Service Reporting” on page 19](#)
- [“Combined Availability and Performance Management” on page 19](#)

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 on 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 interfaces with CCMS, which monitors availability issues with R/3. Therefore, 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 OpenView 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 OpenView 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 of events, occurring in SAP R/3 and the supporting infrastructure, on your business.

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:

- Dialog task frequency, response time, and wait time
- Update task frequency, response time, and wait time
- Batch task frequency response time, and wait time
- Spool task frequency, response time, and wait time
- Work-process number, type, and status
- Job statistics and state
- End-to-end transaction times (with 4.6 only)
- Spool and print jobs
- Work-load statistics
- Buffer statistics
- Memory-performance indicators, and much more...

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:

- **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

- **Performance Metrics**

Collect important SAP R/3 performance metrics, which can be used in conjunction with other system or application performance data to identify bottlenecks and long term performance trends

- **Agate hostname routing**

Support for Agate-hostname routing, so that you can use an “Alias” for an AGATE hostname in order to route requests to a given ITS server instance using a machine-name alias.

- **SAP message-server support**

The SPI for SAP ITS monitor now supports the SAP message-server functionality, which is often used in a load-balancing environment, where one Agate instance can be associated with several SAP Application Servers.

The collected data can then be used with OpenView performance tools such as the OpenView Reporter or OpenView Performance Agent to investigate problems and general performance issues.

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.

Integration with OVO

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

CCMS Alert	collects alerts from the SAP R/3 internal monitor, the CCMS alert monitor.
Syslog	collects messages from the SAP R/3 syslog.
Jobs	identifies SAP R/3 batch jobs that are in an abnormal state; for example, aborted jobs.
Processes	reports on the availability of SAP R/3 work processes and database processes at operating system level.
Files	reports on errors in the SAP R/3 trace and log files.
SPI ABAP	modules 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”

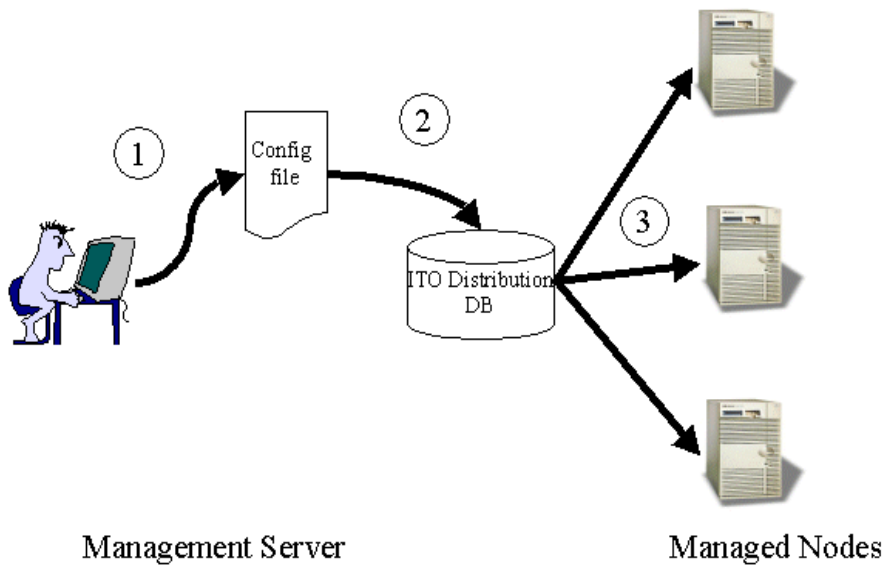
Configuration and Distribution Concepts

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.

Figure 1-1 Global Configuration Concept

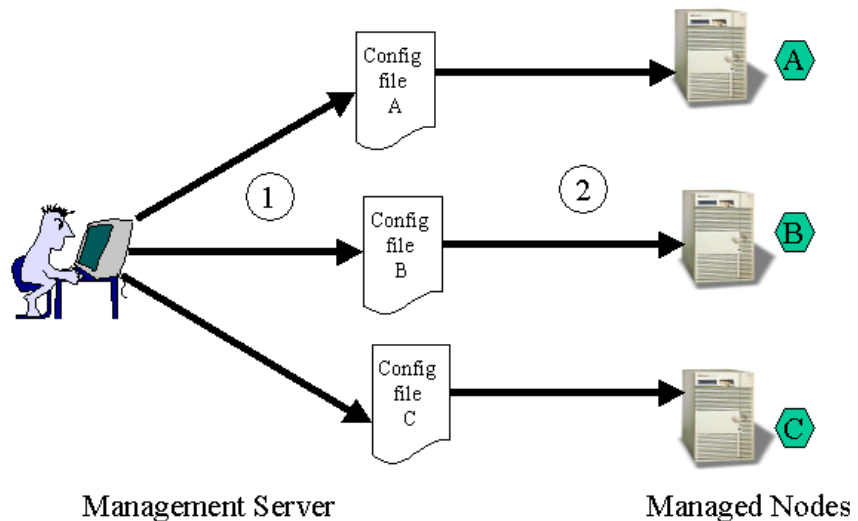


The procedure for *global* configuration distribution shown in [Figure 1-1 on page 21](#) works as described below:

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 edited configuration file is transferred to the OVO distribution database in `/var/opt/OV/share/databases/OpC/mgd_node`

3. The newly defined global configuration is distributed to the managed nodes via OVO template distribution or via the Install Config application.

Figure 1-2 **Local Configuration Concept**



The procedure for *local* configuration distribution illustrated in [Figure 1-2 on page 22](#) works as 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 configuration file is stored in a directory on the Management Server, specific to configurations for the selected node.
2. Each local configuration is copied to its target node using the SPI for SAP application .Distribute Local Config.

Messages and Actions

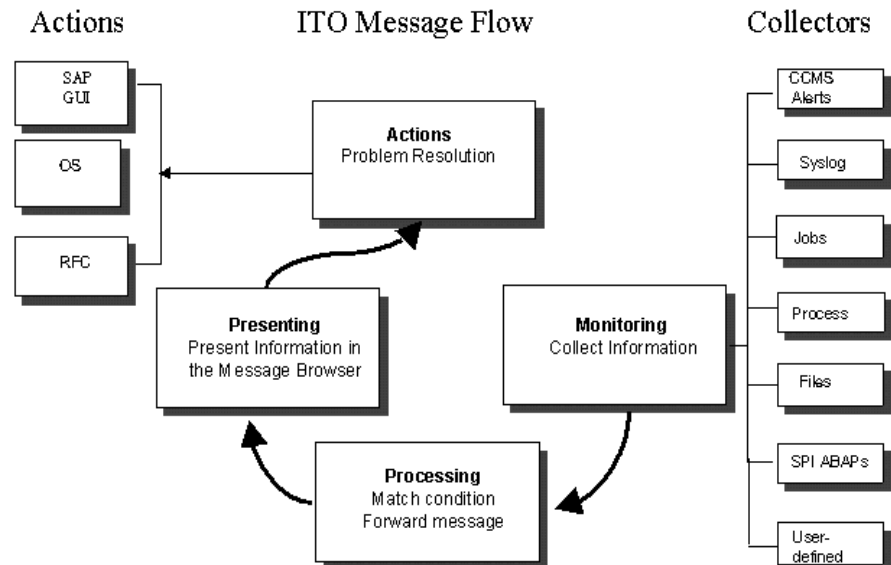
The day-to-day monitoring of the SAP R/3 systems by the SPI for SAP monitors is completely integrated with the facilities offered by OVO.

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 1-3 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 on the SAP R/3 Side” on page 25](#)
- [“Customization on the OVO Side” on page 25](#)

Customization on the SAP R/3 Side

- 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 on the OVO Side

- 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*.

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 37](#)

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:

- ensure that your system meets all requirements, as 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
 - whether SAP R/3 is 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 reduce or avoid the loss of existing customizations.

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 the hardware, operating system, and disk space requirements. For information on which managed node platforms are supported by the SPI for SAP, see [Table 2-3 on page 32](#).

Table 2-1 **Hardware and Disk Space Requirements**

Product	Minimum Disk Space
SPI for SAP on the Management Server	600 MB
SPI for SAP on managed nodes	50-110 MB
SPI for SAP on <i>remote</i> managed nodes	5 MB

Compatible Software Versions

Before you install (or upgrade) the SPI for SAP, use the information provided in this section to ensure that:

- You are using a version of OVO which is compatible with version A.08.71 of the SPI for SAP
- OVO server and agent software are both installed on the OVO Management Server
- the standard, OVO, management-server templates are assigned and distributed to the OVO Management Server
- OpenView Reporter is available to view service reports for SAP R/3, SAP R/3 performance, and SAP ITS Performance Monitor data

NOTE

OpenView Reporter Lite can only collect performance data from systems where the OVO Embedded Performance Component has been installed 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 is available if you want to use performance graphing
 - OpenView Performance Agent software is installed on all the SAP application servers you wish to monitor
 - The HP OpenView SMART Plug-In's DSI-to-DDF wrapper utilities are installed and running on the OVO Management Server using the command; **swlist DSI2DDF**

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

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	6.00	HP-UX 11.0
		Sun Solaris 7, 8
	7.00, 7.10 ^a	HP-UX 11.0/11i ^b
		Sun Solaris 7, 8, 9

- a. OVO 7.10 is a platform release with no new functionality
 b. In this manual, HP-UX 11i (Rev 1.0) is commonly used as a synonym for HP-UX 11.11.

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. For example, 6.20 (6.20) means

SAP R/3 *basis* 6.20 (SAP R/3 *kernel* 6.20).

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>) ^a	
	3.1I (3.1H/I)	4.0B (4.0B)	4.5B (4.5B)	4.6B (4.6B)	4.6C (4.6C)	4.6D ^b (4.6C)	6.10 (6.10/ 6.20)	6.20 (6.20)
AIX 4.3.3	✓ ^c	✓	✓	✓	✓	✓	✓	✓
AIX 5.1					✓	✓	✓	✓
AIX 5.2					✓	✓	✓	✓
HP-UX 11.00	✓ ^c	✓	✓	✓	✓	✓	✓	✓
HP-UX 11i ^d	✓ ^c	✓	✓	✓	✓	✓	✓	✓
Solaris 7	✓ ^c	✓	✓	✓	✓	✓		
Solaris 8	✓ ^c	✓	✓	✓	✓	✓	✓	✓
Solaris 9		✓	✓	✓	✓	✓	✓	✓
Windows NT 4 ^e	✓	✓	✓	✓	✓	✓		
Windows 2000	✓	✓	✓	✓	✓	✓	✓	✓
Windows 2003					✓	✓	✓	✓

a. Changed version-numbering system: SAP R/3 *Basis* version (*kernel* version), for example; SAP R/3 *basis* 6.20 (SAP R/3 *kernel* 6.20)

b. According to SAP, 4.6D is *not* a complete SAP R/3 release, it is a downward-compatible kernel, which is intended to be used mainly by other components of SAP. The 4.6D kernel is shipped with R/3 4.6C Service Release 1.

c. 32 bit *only*

d. In this manual HP-UX 11i (rev 1.0) is commonly used as a synonym for HP-UX 11.11.

e. Service Pack 4 (or higher).

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 new and dedicated tool.

For information about the versions of other related software 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:

- HP-UX 10.20

The following features, software, or operating systems will no longer be supported with *future* versions of the SPI for SAP:

- SAP Shared-memory Interface
- AIX 4.3.3
- MS Windows NT 4
- Sun Solaris 7
- 32-bit OS runtime for all UX operating systems

Upgrading the SPI for SAP

This section describes how to upgrade the SPI for SAP software from version A.08.50 to Version A.08.71. Before you upgrade SPI for SAP software, read through the recommendations below:

1. Ensure you have read and understood the requirements in [“Hardware, OS, and Disk Space Requirements” on page 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 `opcaddwn(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.08.50 to version A.08.71, for example; message conditions. In

addition, although the configuration files from version A.08.50 are compatible with version A.08.71, the default configuration has changed for some of the monitors.

NOTE

We recommend that you do not 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
Monitor	/opt/hpitosap/config/monitors
Global	/opt/hpitosap/config/cmds
Local	/opt/hpitosap/local_config/\<managed_node_name>/cmds
	/opt/hpitosap/local_config/\<managed_node_name>/monitors

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, see 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 A.08.71 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 most 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 37](#).

5. If you are using the SPI for SAP Performance Monitor Sub-agent version A.08.71, 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.
 - 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`
7. Install and configure the new SPI for SAP software according to the instructions provided in [“Installing the Smart Plug-in for SAP” on page 47](#).
8. 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*.
9. 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.

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 37
- “Messages and Message Groups” on page 37
- “Applications and Application Groups” on page 38
- “Templates and Template Groups” on page 39
- “Message-source Templates” on page 40
- “Alert Monitors and Alert Collectors” on page 43
- “Performance Monitors” on page 44
- “Reports and Graphs” on page 44
- “Service IDs” on page 45
- “Service Views” on page 45

For more detailed information about the topics covered in this section, see the sections about using the SPI for SAP in the *HP OpenView Smart Plug-in for SAP Installation Guide* and 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.

Messages and Message Groups

The current release of the SPI for SAP contains the following changes and additions to messages generated by the SPI for SAP. SPI for SAP messages now contain the following information:

- the name of the monitor which sent the message

- the hostname of the server where the monitor which sent the message is running or, in the case of a remotely monitored node, the hostname of the server where the problem was discovered
- a *unique* service ID and improved mapping between the message and the service tree

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

- **R3_RFC**

the new message group R3_RFC is assigned to the SPI for SAP user profiles; SAP Administrator and the SAP Operator, and is intended for messages relating to alerts reported by `r3monrfc`, the RFC-destination monitor. For more information about the `r3monrfc` monitor and how to configure it, see the *HP OpenView Smart Plug-in for SAP Administrator's Reference*. Note that a new OVO object, RFC_Destination, is associated with the new message group, R3_RFC.

Applications and Application Groups

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

- **RFC Destination Monitor**

This is a new application, which allows you to configure the new RFC-destination monitor. The RFC Dest. Monitor application appears in the SAP R/3 Admin application. In the SAP R/3 Admin Local application group, you will find the application listed as RFC DEST. For more information about the RFC-Destination Monitor, see [“Alert Monitors and Alert Collectors” on page 43](#).

- **r3ovo2ccms**

The `r3ovo2ccms` command allows you to write OVO messages directly into the CCMS tree, where they can be viewed and used by the SAP Solution Manager in the same way as any other SAP message alert. For more information, see the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

Templates and Template Groups

The current release of the SPI for SAP provides the following *new* templates and template groups:

- **r3monrfc**

The RFC-destination monitor `r3monrfc` is an application-server independent monitor which checks RFC destinations in an SAP 4.6x (and higher) environment. SAP uses RFC destination to execute remotely function modules, which reside on other SAP Systems. This new template appears *only* in the policy group `SAP R/3 4.6/6.x CentralInstance`.

- **r3mondev31, r3monpro31, and r3monxmi31**

The new templates for `r3mondev31`, `r3monpro31`, and `r3monxmi31` are intended to be used to monitor trace files, processes, and system logs respectively on SAP 3.1 systems. These new templates appear in *both* the following template groups:

- `SAP R/3 3.1I AppServer`
- `SAP R/3 3.1I CentralInstance`

The current release of the SPI for SAP makes changes to the following *existing* templates and template groups:

- **SAP R/3 3.1I AppServer**

Added new templates for `r3mondev31`, `r3monpro31`, and `r3monxmi31`

- **SAP R/3 3.1I CentralInstance**

Added new templates for `r3mondev31`, `r3monpro31`, and `r3monxmi31`

- **SAP R/3 4.6/6.x CentralInstance**

Added new templates for the RFC-destination monitor, `r3monrfc`

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 40](#)
shows you which new conditions are now available
- [Table 2-6 on page 41](#)
shows you which conditions have been modified, and indicates (by means of double underlines) 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
75	LOGON_FAILURE_001	New for the r3status monitor. Failed login now produces a new message: "... user login failure" instead of the old: "SAP sys down"
113	MONITOR_RUN_ERROR_003	New condition for the r3monoms monitor: "No operation mode configured..."
114	MONITOR_RUN_ERROR_002	New condition for the r3monoms monitor: "Cannot get current operation mode..."

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

Condition Number	Condition Name	Description
128	RFC_EXCEPTION_001	new condition on RFC exception error and used by <i>all</i> alert collector related monitors
129	RFC_DESTINATION_001	new communication-error condition for new RFC-destination monitor r3monrfc

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_CONDITIONS	<ul style="list-style-type: none"> Removed: NODE IP 0.0.0.0 <host> Host information is now added directly through an opcmmsg call with the -node parameter. Changed: host to \$MSG_NODE_NAME Only in the Service-Name fields
8	JOB_MAX_RUN_TIME_001	Improved mapping between messages and service tree: SAP_SPI:<sid>:<inst>:Batch@@<\$MSG_NODE_NAME>
9	JOB_MIN_RUN_TIME_001	
10	JOB_START_PASSED_001	
11	JOB_ABORTED_001	Improved mapping between messages and service tree: SAP_SPI:<sid>:<inst>:Enqueue@@<\$MSG_NODE_NAME>
12	ENQUEUE_001	

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

Condition Number	Condition Name	Changes and Additions
13	OM_SWITCH_TEST_001	Improved mapping between messages and service tree: SAP_SPI:<sid>:<inst>:Dispatch@@<\$MSG_NODE_NAME>
14	OM_SWITCH_LATE_001	
15	OM_SWITCH_INACTIVE_001	
16	SPOOL_ERROR_RANGE_001	Improved mapping between messages and service tree: SAP_SPI:<sid>:<inst>:Spool@@<\$MSG_NODE_NAME>
17	PRINT_ERROR_EXISTS_001	
18	SPOOL_ENTRIES_RANGE_001	
23	UPDATE_ACTIVE_001	Improved mapping between messages and service tree: SAP_SPI:<sid>:<inst>:Update@@<\$MSG_NODE_NAME>
24	UPDATE_ERROR_EXISTS_001	
25	USER_LOGGEDIN_MAX_001	SAP_SPI:<sid>:<inst>:Dialog@@<\$MSG_NODE_NAME>
29	WP_STATUS_DEBUG_001	Improved mapping between messages and service tree: SAP_SPI:<sid>:<inst>:Processes@@<\$MSG_NODE_NAME>
30	WP_STATUS_PRIVATE_001	
31	WP_STATUS_RESTART_001	
32	WP_CHECK_CONFIGURED_001	
33	WP_IDLE_001	
34	WP_AVAILABLE_001	
42	R3MONAL_PROBLEM_001	changed duplicate suppression to SUPP_DUPL_IDENT_OUTPUT_MSG
58	CCMS_ALERT_002	removed duplicate suppression SUPP_DUPL_IDENT
72	SAPSYSUP_002	added: SAP_SPI:<sid>:<nr>@@<\$MSG_NODE_NAME>
74	SAPSYSDOWN_002	

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

Condition Number	Condition Name	Changes and Additions
76	XMISYSLOGID_TA_001	Added user and date information to both the "condition" and "set" message texts. Duplicate message suppression can now either include or exclude these attributes according to whether you want to suppress messages or display them.
77	XMISYSLOGID_SD_001	
78	XMISYSLOGID_KO_001	
79	XMISYSLOGID_KM_001	
80	XMISYSLOGID_BI_001	
81	XMISYSLOGID_AW_001	
82	XMISYSLOGID_BP_001	Added user and date information to both the "condition" and "set" message texts. Duplicate message suppression can now either include or exclude these attributes according to whether you want to suppress messages or display them.
83	XMISYSLOGID_BS_001	
84	XMISYSLOGID_BB_001	
85	XMISYSLOGID_BV_001	
86	XMISYSLOGID_SH_001	

Alert Monitors and Alert Collectors

The following changes and additions have been made to the SPI for SAP alert, and alert-collector monitors:

- **RFC-Destination Monitor**

The new monitor, `r3monrfc`, is application-server independent and checks RFC destinations in an SAP environment. SAP uses RFC destination to execute remotely function modules, which reside on other SAP Systems.

- **SAP R/3 3.1 Systems**

The new monitors `r3mondev31`, `r3monpro31`, and `r3monxmi31` are intended to be used to monitor trace files, processes, and system logs respectively on SAP 3.1 systems. These new monitors are similar to the existing SAP 4.x monitors `r3mondev`, `r3monpro`, and `r3monxmi` but use different binaries.

- **CCMS Alert Monitor**

The default polling interval for the `r3monal` (CCMS alert) monitor has been reduced from 10 (ten) minutes to 5 (five) minutes.

- **Correction & Transport System Monitor**

The default polling interval for `r3moncts`, the Correction & Transport System monitor, has been increased from one (1) minute to one (1) hour.

- **r3mondmp, r3monsap, and r3monwpa**

The monitoring interval of `r3mondmp` (the ABAP Dump monitor), `r3monsap` (the CCMS 3.x Alert monitor), and `r3monwpa` (the Work-process monitor) has been increased from two (2) minutes to five (5) minutes.

Performance Monitors

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

- **Internet Communication Manager Performance**

The `ICMSTAT_PERF` monitor collects performance statistics for the Internet-Communication Manager.

Reports and Graphs

There are a number of changes to the reports and reports metrics provided with the current version of the SPI for SAP, namely:

- New Reports include information and analysis of the following new areas:

- **ICM Statistics - Overview**

Overview of the status of the Internet Communication Manager plus general information about queues, threads, and connections

- **ICM Statistics - Details**

A much more detailed view of the status of the Internet Communication Manager including up-time and down-time periods, plus statistics for request queues, work threads, and open connections

Service IDs

The SPI for SAP CCMS alert monitors `r3monal`, `r3monsap`, and `r3monxmi` are required to monitor multiple areas of the SAP landscape concurrently. In order to be able to distinguish more easily between messages coming from different areas, this version of the SPI for SAP assigns a unique service ID to each message generated by the SPI for SAP. *All* the message conditions associated with the messages generated by the SPI for SAP monitors have been modified to reflect this. For more information about the changes to the SPI for SAP message-source template conditions, see [“Message-source Templates” on page 40](#).

Service Views

The new SPI for SAP service-discovery no longer uses the SAP shared memory interface: now, service discovery for the SPI for SAP uses SAP profiles to determine which SAP Systems are available for monitoring. Note that the service discovery needs access to the information stored in the `r3itosap.cfg` file to complete its task successfully. For more information about service discovery, see the section on “Service Views” in the *HP OpenView Smart Plug-in for SAP Administrator’s Reference*.

Before you Begin

Changes and Modifications to the SPI for SAP

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 48](#)
- 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 49](#)
2. [“Uploading SPI for SAP Components to OVO” on page 51](#)
3. [“Verifying the SPI for SAP Installation” on page 53](#)
4. [“Specifying SAP Clients to Monitor” on page 55](#)
5. [“Selecting the Performance Data Source” on page 59](#)
6. [“Installing the SAP GUI on the OVO Management Server” on page 61](#)

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 CDROM. To install the software:

1. Insert the CD ROM containing the SPI for SAP software in the CD ROM drive
2. As user root, test the connection to the CD-ROM drive to ensure that the Smart Plug-in for SAP bundle 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; 10.0HPUX, 11.0HPUX, or SOLARIS. Note that */dev/dsk/c1t2d0* is used here only as an example. You should replace */dev/dsk/c1t2d0* with the 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 CD is in the drive.

3. Install the software bundle using the `swinstall` command. For example, to install the SPI for SAP software bundle on an OVO Management Server on HP-UX 11, enter:

```
swinstall -s \
/CDROM/OV_DEPOT/11.0HPUX.sdtape SPI-SAP-ITO
```

To install the SPI for SAP software bundle 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](#).

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-HP-UX	Package for HP-UX managed nodes
SPI-SAP-ITO.SAPSPI-R3PERF	Package for performance subagents
SPI-SAP-ITO.SAPSPI-SOL	Package for SUN Solaris managed nodes
SPI-SAP-ITO.SAPSPI-TRA	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/ovstop opc ovoacomm
```

3. Run the SPI for SAP installation script, which you can find in the `/opt/hpitosap/install/` 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 SAP SPI 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 SAP processes to access the OVO Management 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

- 4. Restart the OVO Management Server processes using the following command. Enter:

```
/opt/OV/bin/ovstart opc ovoacomm
```

- 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, placed all the SPI for SAP elements such as Message Groups, applications, message-source Templates available 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 124](#).

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 3.1I AppServer, and SAP R/3 4.6/6.x CentralInstance, and so on.

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 `r3itocus` script provided by the SPI for SAP takes you through the required steps and completes all necessary actions once you have supplied the information that is requested.

1. Change to directory `/opt/hpitosap/install` and run the `r3itocus` script. enter:

`./r3itocus`

The `r3itocus` script opens the `r3itosap.cfg` configuration file in a text editor so that you can enter the required information concerning your SAP Systems. To assist you, examples are provided (commented out by default) which 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 73](#).

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.
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 3-1](#), CTO and 11 are the SID and number of the SAP instance running in the high-availability cluster. [Example 3-1](#) 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 3-1 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 an High-availability Environment” on page 105](#).

Lastly, in order 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 SAPLOCALHOST.

4. Save your changes and exit the text editor.
5. You are asked if you want to activate the configuration. If you are happy with the configuration and confident that it is ready to be activated, answer; **Yes**.

The configuration is uploaded to the distribution directory on the OVO Management Server.

6. Check that the SAP systems have been correctly added by watching the bottom of the screen for output similar to [Example 3-2](#):

Figure 3-1 Example r3itosap.cfg File

```

-----
#-----
#                               SAP   SAP   SAP   SAP   SAP   SAP   Hardware
#                               System Number Client User Password Lang [UX,NT]
# Examples:
#HostSapAssign    =hpbbcpo5.bbn.hp.com =LPO    =00    =099    =default =default =default =UX
#HostSapAssign    =hpbbsap2.bbn.hp.com =BNT    =00    =001    =default =default =default =NT
#HostSapAssign    =isoit342.bbn.hp.com =IMD    =00    =002    =default =default =default =NT
#HostSapAssign    =isoit270.bbn.hp.com =CTO    =00    =001    =default =default =default =NT
# Example for SAP R/3 3.x
#HostSapAssign    =hpbbcpo5.bbn.hp.com =LPO    =00    =001    =user1   =pass1   =E      =UX
# Example for SAP R/3 4.x
#HostSapAssign    =hpbbcpo5.bbn.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 3-2 Adding SAP SIDs to the r3itosap.cfg File

```

"/opt/hpitosap/config/cmds/r3itosap.cfg" 15 lines, 1175 characters
>>> Encoding passwords in file /opt/hpitosap/config/cmds/r3itosap.cfg started
>>> Encoding of passwords done
>>> Scanning SAP systems for existing front-end done
>>> Symbolic link /usr/sap/SP6/SYS/exe/run -> /opt/hpitosap/sapgui created
>>> Directory /usr/sap/SP6/D0/work created

```

In order to activate this configuration, execute "Activate R/3 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 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*.

Selecting the Performance Data Source

By default, OVO for UNIX deploys the OpenView Performance Agent (previously MeasureWare) with all OVO A.07.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 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 7.x for UNIX Management Servers

Managed Node Operating System	Location of the <code>nocoda.opt</code> File
AIX	<code>/var/lpp/OV/conf/dsi2ddf/nocoda.opt</code>
HP-UX / Solaris	<code>/var/opt/OV/conf/dsi2ddf/nocoda.opt</code>
MS Windows	<code>\usr\OV\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 3-3](#).

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 3-3](#) 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 3-3

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_ovdsap_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 CD. You should use the most recent version of the SAP GUI available in 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.

This section explains how to install:

- the Motif GUI for SAP R/3 4.5 for HP-UX 11i for connections to SAP R/3 systems, version 4.5B or earlier
- the Java GUI for SAP R/3 4.6 for HP-UX 11i for connections to SAP R/3 systems including 4.6 and later

NOTE

Instructions and pre-requisites for installing the Motif and Java GUIs for SAP R/3 4.6 on Solaris may be found on the SAP R/3 installation CD.

Installing the Motif GUI for SAP R/3 4.5

To install the Motif GUI for SAP R/3 4.5 on an OVO Management Server running HP-UX 11i, you need to perform the following steps as user `root`:

1. Insert the CD in the drive and, if not already mounted, mount the CD drive:

```
mkdir /CDROM  
mount /dev/dsk/c1t2d0 /CDROM
```

Note that `/dev/dsk/c1t2d0` is used here only as an example.

2. If not already present, create the following UNIX *group* and UNIX *user*:

```
UN*X Group:    sapsys  
UN*X user:     c11adm (in the group sapsys)
```

Note that **c11** is a dummy concept that is used here simply to ensure the successful installation of the SAP GUI.

3. Set the path for the SAP binaries:

```
mkdir -p /usr/sap/C11/SYS/exe/run  
chown -R c11adm:sapsys /usr/sap
```

4. Change to the `sapgui` directory. Enter:

```
cd /opt/hpitosap/sapgui
```

5. Unpack and execute the SAP GUI installation file. Enter for:

```
HP-UX 11.00    <mountdir>/GUI/UNIX/HP11_32/CAR -xvf\  
<mountdir>/GUI/UNIX/HP11_32/SAPFRONT.CAR
```

6. Before continuing with the installation of the SPI for SAP, we recommend you test the SAP GUI installation by attempting to start it manually.

- a. The `sapgui` command connects by default to the SAP instance 00. To connect to the SAP R/3 instance 00 on `<hostname>`, enter:

```
/opt/hpitosap/sapgui/sapgui <hostname>
```

- b. To connect to any SAP R/3 instance other than 00 running on `<hostname>`, enter:

```
/opt/hpitosap/sapgui/sapgui /H/<hostname>/S/<service>
```

where:

hostname is the name of the server on which the SAP R/3 instance is running, for example;

```
/H/sapserver.sap.com
```

service is `sapdp<instance>` and `<instance>` is the appropriate 2-digit SAP instance number, for example;

```
/S/sapdp01
```

Note that `/etc/services` is used here to resolve the port number/protocol required for the connection between **sapdp01** and OVO. SAP processes which need to access the OVO Management Server are allocated port ranges

either manually or by the `r3itoin`s configuration script as part of “Uploading SPI for SAP Components to OVO” on page 51.

NOTE

Remember to ensure that the GUI re-directed from the SAP host is allowed to be displayed on the X server of the machine on which you are running the `sapgui` command.

Installing the Java GUI for SAP R/3

If you plan to manage nodes which run SAP R/3 version 4.6x or later or other components of the SAP environment, you have to install the SAP R/3 Java GUI 4.6 (or later) on the OVO Management Server. We recommend that you use the most stable version of the SAP R/3 Java GUI, which at the time of writing is 6.20 compilation 5. If the Java GUI for SAP 4.6D is not available for HP-UX 11i or Solaris 7/8 on any SAP installation CD that you have, you will have to download it from an SAP ftp server.

NOTE

See the *HP OpenView Smart Plug-in for SAP Software Release Notes* for more information about versions and availability of the SAP Java GUI.

To install and run the SAP R/3 4.6D Java GUI on the OVO Management Server on Solaris 7/8, please refer to the instructions available on the SAP GUI installation CD.

Before installing the Java GUI for SAP R/3, check which version of the Java Runtime Environment (JRE) is required for the Java GUI for SAP R/3 that you are installing. If the required version is not already installed on your OVO Management Server, please refer to the appropriate documentation on the SAP GUI installation CD, which indicates which version of the JRE is required for your operating system. For HP-UX, the Java Runtime Environment required by the Java GUI for SAP R/3 is available either on the DART Application Release CDs or in the following location: <http://www.hp.com/go/java/>.

To install and run the SAP R/3 4.6D Java GUI on the OVO Management Server on HP-UX 11i:

1. Obtain the SAP Java GUI file `PlatinGUI-HPUX-46D.tar.Z` either from the SAP R/3 4.6D presentation CD or the SAP ftp server
2. Uncompress and untar the file `PlatinGUI-HPUX-46D.tar.Z` and install it to the following directory: `/opt/PlatinGUI`
3. Verify that the installation has completed successfully and that the SAP GUI executables are available.
4. Create the following links to the SAP GUI executables:

```
ln -s /opt/PlatinGUI/bin/sapgui\
/opt/hpitosap/sapgui/sapgui
```

```
ln -s /opt/PlatinGUI/bin/guilogon \
/opt/hpitosap/sapgui/javaguilogon
```

5. Start the SAP R/3 GUI using the following command:

```
/opt/hpitosap/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, for example:

```
/H/sapserver.sap.com
```

port_nr is the port number allocated to the SAP process as defined in `/etc/services`, for example:

```
sapdp01      3200/tcp
sapgw01      3300/tcp
```

SAP processes which need to access the OVO Management Server are allocated port ranges either manually or by the `r3itoin`s configuration script as part of [“Uploading SPI for SAP Components to OVO” on page 51](#).

For example, if `<hostname>` is **sapserver** and `<port_nr>` **3200** is defined for the SAP instance you want, then enter:

```
/opt/hpitosap/sapgui/sapgui /H/sapserver/S/3200
```

6. Note that you have to configure your SAP GUI in order to be able 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.

Installing the Smart Plug-in for SAP

Installing the SAP GUI on the OVO Management Server

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 the XMI Authorization Profile” on page 72.](#)

Note that this is only required for SAP version 3.1I or earlier. Later versions of SAP R/3 provide this authorization profile.

3. [“Setting Up an SAP User for OVO” on page 73.](#)

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.

4. [“The OVO Agent User Account on MS Windows” on page 75.](#)

Without access to the shared memory, service views will not work and the SPI for SAP monitors cannot determine if an SAP system is up or down.

5. [“Configuration Values for SPI for SAP Monitors” on page 77.](#) 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 Components to the SAP nodes” on page 91.](#)

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 naming conventions used for the transport objects are as follows:

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

Function Groups:    /HPOV/ZLPO
                   /HPOV/ZSPB
                   /HPOV/ZSPA
                   ...
Function modules:   /HPOV/OV_*

Programs:           /HPOV/YSPI*
                   /HPOV/ZHPSPI*

Roles:              /HPOV/Z_SAPSPI_MONITORING
```

NOTE

This 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.

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
```

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 <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
```

NOTE

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/hpitosap/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 the XMI Authorization Profile

If you are working with SAP R/3 version 3.1I and want to use the `r3monxmi` Syslog monitor, which uses the XMI API in SAP R/3, you need to set up an XMI authorization profile. If you are using a more recent version of SAP R/3, you do *not* need to perform this step. *You only need to perform this step if you are working with SAP R/3 version 3.1I.*

To set up an authorization profile for SAP R/3 3.1I, proceed as follows:

1. Log on to SAP R/3 (3.1x only)
2. Call the following transaction. Enter: `/nsu02`
3. Create a new profile called: `SAP_XMI_ALL`

The *profile* name defined here is not to be confused with the name of the *authorization* objects which you add to the profile later.

4. In the Profile List window, double-click the profile:

`SAP_XMI_ALL`

5. Click the [Insert authorization] button
6. Scroll down the list of object classes and double-click the following item:

Basis: Administration

7. In the Class Basis: Administration window, scroll down the authorization list and check [✓] the following authorizations to assign them to the `SAP_XMI_ALL` profile:

Authorization...	Object...
<code>S_XMI_ADMIN</code>	Auth. for external management...
<code>S_XMI_ALL</code>	CCMS...

8. Click the [✓] button to add the authorizations. The authorizations you have added appear in the Consisting of authorizations field.

9. Activate the new profile using the following menu sequence:

Profile: Activate...

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 with the following parameters:

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 monitor configuration files. 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 4.6 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/Z_SAPSPI_MONITORING

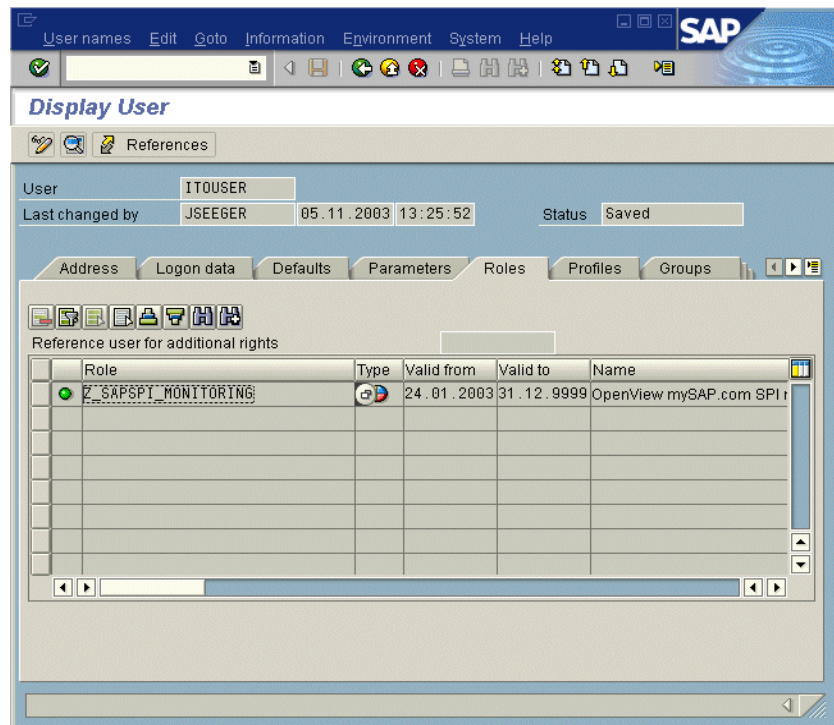
Authorization Profiles:

The SAP Authorization Profiles you select depend on the version of SAP R/3 installed, for example:

- SAP R/3 3.1x:

- S_A.ADMIN¹ and SAP_XMI_ALL
 - SAP R/3 4.0/4.5:
S_A.ADMIN and S_XMI_ALL
 - SAP R/3 4.6/6.x: see User Roles
4. Activate the profile and assign it to the SAP user “ITUSER”, which you have already created.
 5. Log on to SAP R/3 as user ITUSER.
 6. SAP R/3 prompts you to change the password initially defined for ITUSER. If you have not defined your own SAP user logins, and intend to make use of the =default value in the monitor configuration files, enter the following, new password: **HPSAP_30**

Figure 4-1 SAP R/3 4.6C User Roles for ITUSER



1. For more information see [“Setting Up the XMI Authorization Profile”](#) on page 72.

The OVO Agent User Account on MS Windows

The information in this section applies only if you are intending to set up the Alert Monitors to use the SAP shared-memory check, which you trigger with the SAPSHMCheck keyword in the Alert-monitor configuration file. Note that only the following Alert Monitors can make use of the SAPSHMCheck keyword: r3monal, r3mondev, r3monpro, r3monsap, and r3monxmi.

The OVO agent uses the HP ITO account user account on MS Windows managed nodes to access shared memory. The account must be a member of the user group SAP_<SID>_LocalAdmin.

IMPORTANT

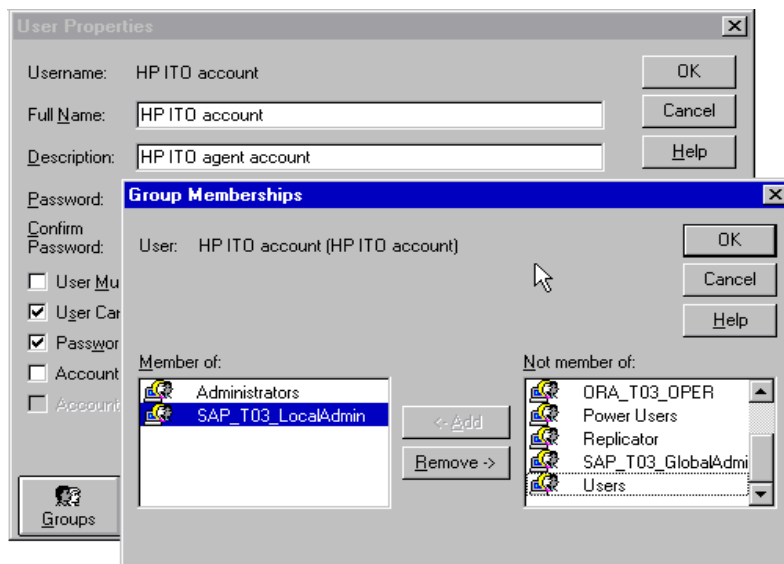
If you install the OVO agent on an MS Windows machine under the System account rather than the HP ITO Account, you do not need to perform the steps described in the section.

To check and, if necessary, change the configuration of the HP ITO account on a Windows NT system:

1. Start the User Manager by using the following menu sequence:
Start:Programs > Administrative Tools (Common) > User Manager for Domains
2. Locate and double click the user name: HP ITO account. The User Properties window appears.
3. In the User Properties window, click the [Groups] button. The Group Memberships window appears as illustrated in [Figure 4-2](#).
4. In the Group Memberships window, make sure that group SAP_<SID>_LocalAdmin appears in the Member of: list. If it does not, then locate the SAP_<SID>_LocalAdmin group in the Not Member of: list and use the [<- Add] button to add it to the Member of: list.

5. Click [OK] to save the changes.

Figure 4-2 **The Group-Memberships Window**



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. The SPI for SAP includes the monitors listed in [Table 4-1](#).

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

Monitor Name	Description
r3monaco	Alert collector for TemSe calls
r3monale	iDOC status monitor
r3monal	CCMS monitor
r3monchg	System change monitor
r3moncts	Correction and Transport system monitor
r3mondev	Trace monitor of the SAP logfile: <SID>/<INSTANCE>/work/dev*)
r3mondmp	ABAP/4 Dump monitor
r3monjob	Job monitor
r3monlck	Lock check monitor
r3monoms	Operation mode switch monitor
r3monpro	Operating system process monitor
r3monrfc	SAP RFC-destination monitor
r3monsap	Alert monitor
r3monspl	Spool monitor
r3montra	Transport monitor
r3monupd	Update monitor

Table 4-1 SPI for SAP Monitors (Continued)

Monitor Name	Description
r3monusr	User monitor
r3monwpa	Work-process availability monitor
r3monxmi	XMI syslog monitor
r3status	SAP R/3 status monitor

The SPI for SAP also includes two sets of configuration and distribution applications as follows:

- Global** applications which can be applied to *all* managed nodes
- Local** applications which apply only to a *specified* managed node

For information about (and instructions for) configuring monitors see the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

NOTE For more information about installing Performance Agent agent-related functionality, see the *HP OpenView Smart Plug-in for SAP Administrator's Reference*.

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. [“Distributing SPI for SAP Components to the OVO Management Server” on page 81](#)

In this step, you use the OVO GUI to distribute the SPI for SAP actions, commands, and monitors to the OVO Management Server.

2. [“Assigning the SAP Servers to the SAP Node Group” on page 83](#)

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 84](#)

The SPI for SAP creates four new operator profiles, which may be used as a basis for creating your own SAP operators.

4. [“Assigning SPI for SAP Templates to SAP Nodes” on page 88](#)

The SPI for SAP’s default template groups contain *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 Components to the SAP nodes” on page 91](#)

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

Distributing SPI for SAP Components to the OVO Management Server

In this step, you use the OVO GUI to distribute the SPI for SAP actions, commands, and monitors to the OVO Management Server. The instructions in this section assume that the OVO agent software is already installed on the Management Server.

1. As user `root`, check that the OVO Management Server processes are running on the OVO Management Server and, if necessary, start them using the following command. Enter:

```
/opt/OV/bin/ovstart opc ovoacomm
```

You will also need to ensure that the OVO agent is running on the Management Server. Enter the following command:

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

2. In the Node Bank window, select the OVO Management Server.
3. From the menu bar of the Node Bank window, select:.

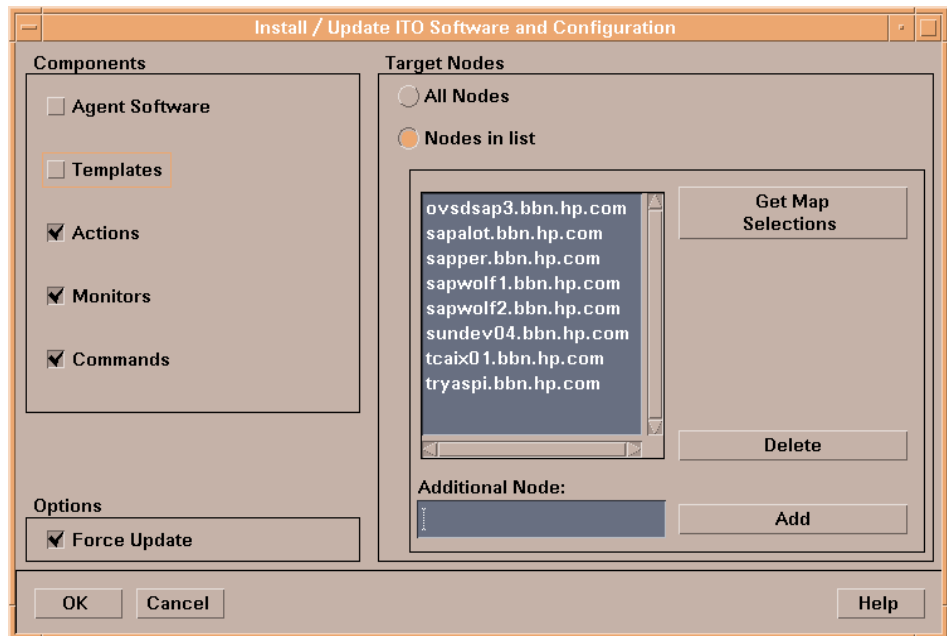
Actions:Agents-> Install/Update SW & Config.

The Install/Update ITO Software and Configuration window opens as shown in [Figure 5-1 on page 82](#).

4. Select the following options:

In the Components field:	<input checked="" type="checkbox"/> Actions
	<input checked="" type="checkbox"/> Monitors
	<input checked="" type="checkbox"/> Commands
In the Target Nodes field:	<input checked="" type="checkbox"/> Nodes in List
In the Options field:	<input checked="" type="checkbox"/> Force Update

5. Click [OK] to start the distribution.

Figure 5-1 Install/Update ITO Software and Configuration Window

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.

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 window2. Select the SAP node3. Drag it to the sap 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-> Add2. Specify the sap 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	✓			✓

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 CCMS	✓			✓
R3_CTS	✓			
R3_DB	✓	✓	✓	✓
R3_Enqueue	✓		✓	✓
R3 General	✓			✓
R3_ITS	✓			✓
R3_Jobs	✓			✓
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	✓	✓	✓	✓

3. 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	✓			✓

4. 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 R/3 3.1I AppServer`
- `SAP R/3 3.1I Central Instance`
- `SAP R/3 4.0/4.5 AppServer`
- `SAP R/3 4.0/4.5 Central Instance`
- `SAP R/3 4.6/6.x AppServer`
- `SAP R/3 4.6/6.x Central Instance`
- `mySAP.com ITS`

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.

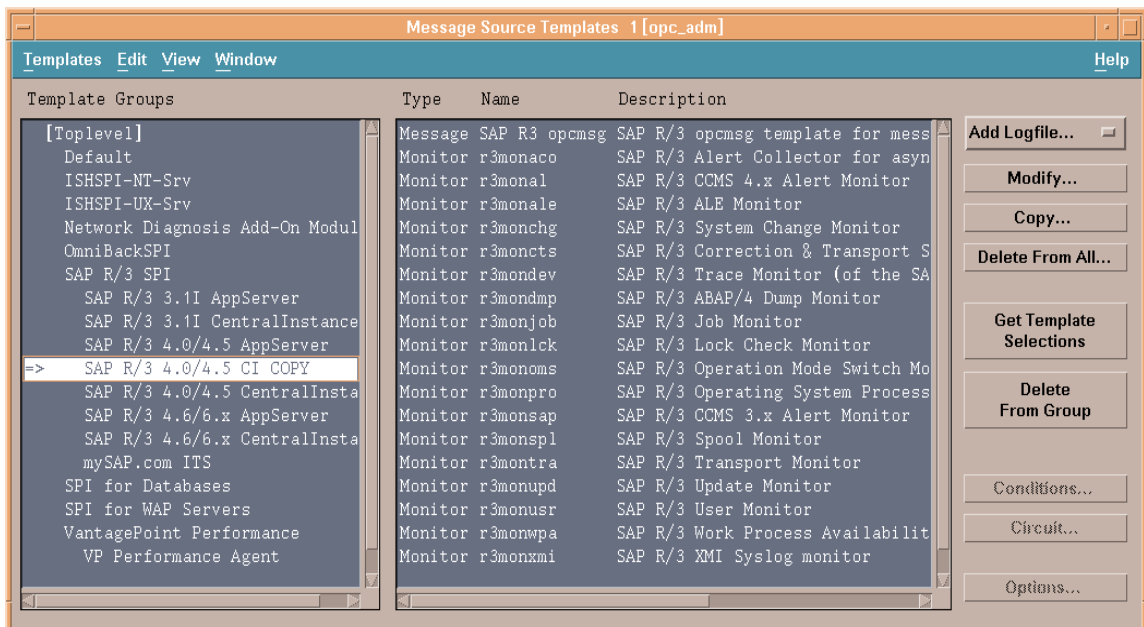
IMPORTANT

The SPI for SAP's default template groups contain *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 89](#) 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*.

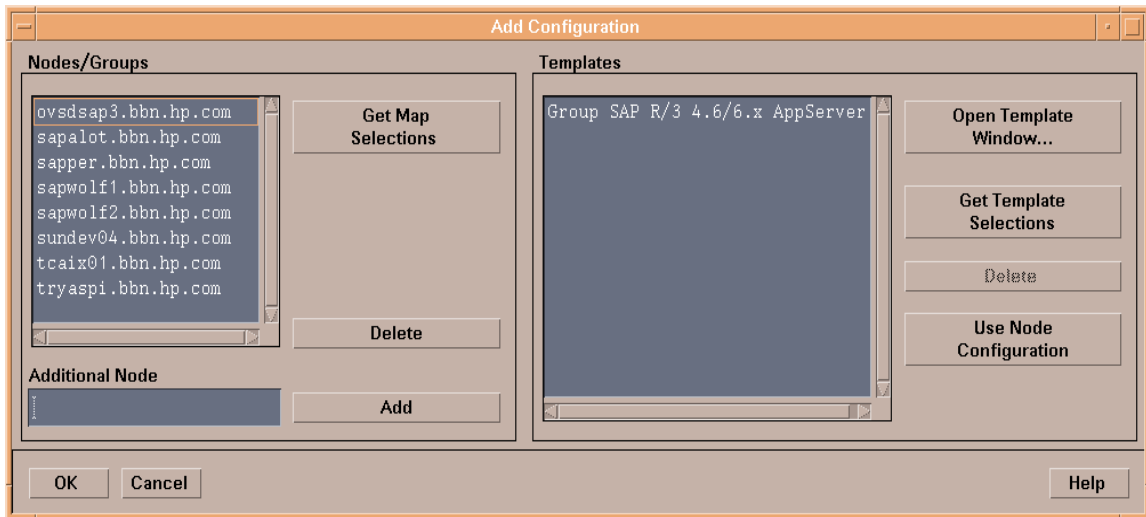
Figure 5-2 Removing Templates from Template Groups



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—either 3.1, 4.0/4.5, 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 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 Components to the SAP nodes

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

1. Select the SAP nodes to which you wish to distribute SPI components. Note that for the first distribution, this selection should include *all* SAP nodes.
2. 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 92](#).
3. Select the components you wish to distribute. Note that you must perform this step twice, each time selecting different components, as described in [Table 5-4](#):

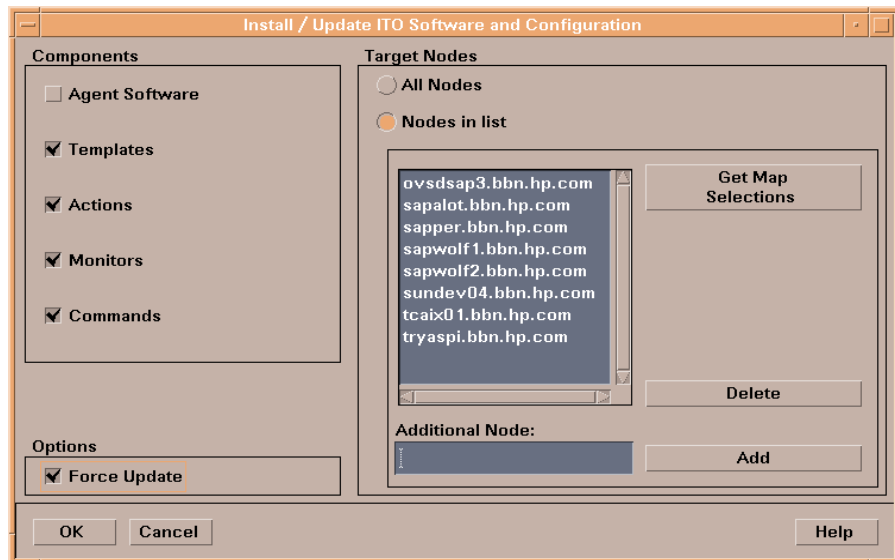
Table 5-4 **Distributing SPI for SAP Templates**

IF	THEN Select
this is the first distribution, <i>before</i> you complete the monitor configurations	✓ Actions ✓ Monitors ✓ Commands
this is the second distribution, <i>after</i> you complete the monitor configurations	✓ Templates ✓ Actions ✓ Monitors ✓ Commands

4. Select Force Update.

5. Click [OK] to finish the distribution.

Figure 5-4 Install/Update ITO Software and Configuration



NOTE

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

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 in a high-availability environment such as an MC/ServiceGuard cluster. Although the information provided concentrates on MC/ServiceGuard, 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 96](#)
A short description of the most common implementations of high-availability software in an SAP R/3 Landscape
- [“Before you Begin” on page 100](#)
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 an High-availability Environment” on page 102](#)
Instructions which walk you through the process of installing the SPI for SAP in a high-availability cluster
- [“Configuring the SPI for SAP in an High-availability Environment” on page 105](#)
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 116](#)
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 117](#)
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 118](#)
Using tools provided by the SPI for SAP, you can generate Service Views of the SAP environment automatically.

- “Removing the SPI for SAP in an High-availability Environment” on page 119

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

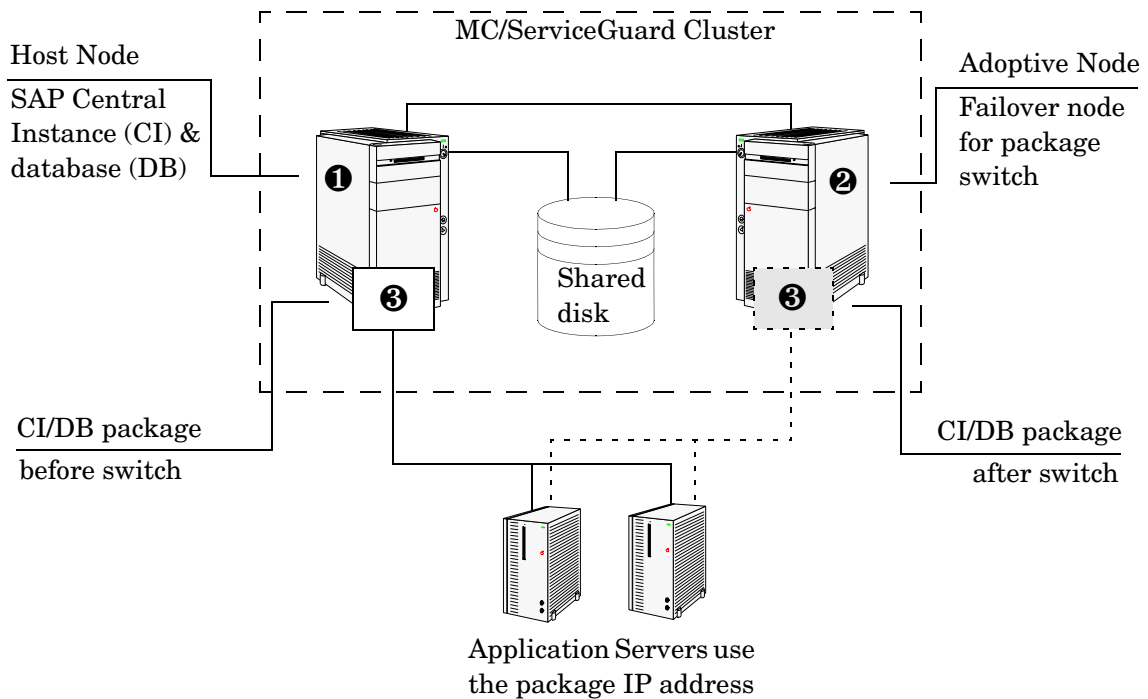
In the single package concept, the server where the database and central instance normally run is included in a cluster with another server, which will act as the adoptive node in the event of a package switch. The adoptive node can perform any one of the following roles:

- 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 (❶) 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 ❶),

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



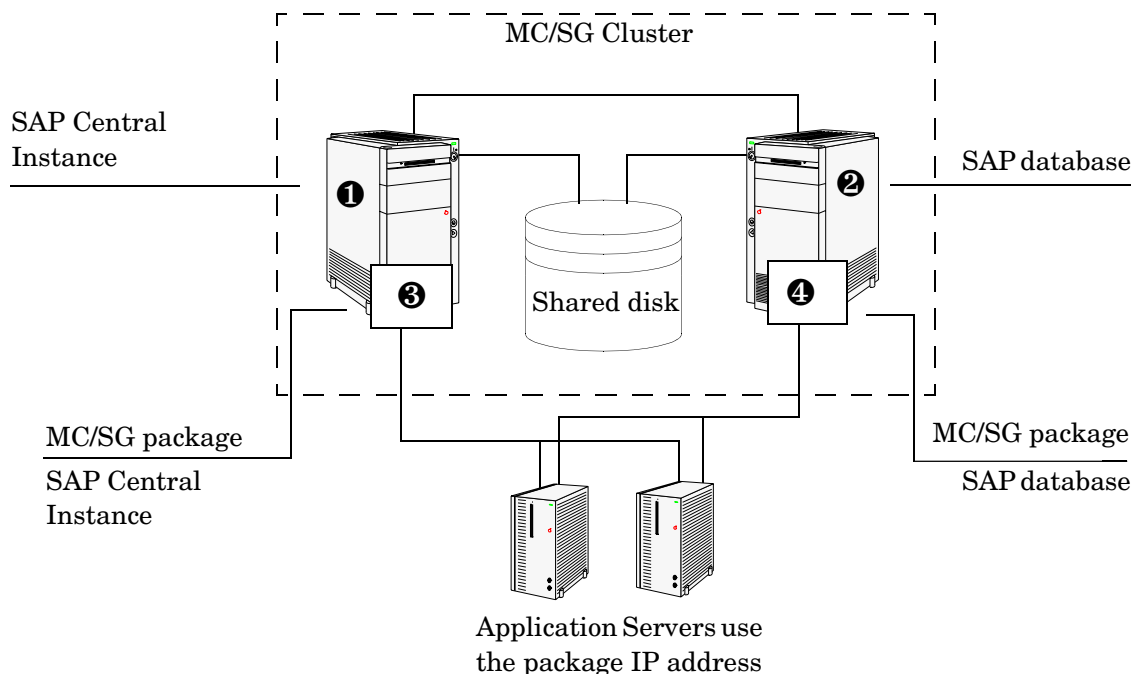
Once these actions have been completed by MC/ServiceGuard, the application servers can reconnect to the central instance and database (③ in [Figure 6-1 on page 97](#)) using the same relocatable IP address, which, as the name suggests, moves with the package.

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



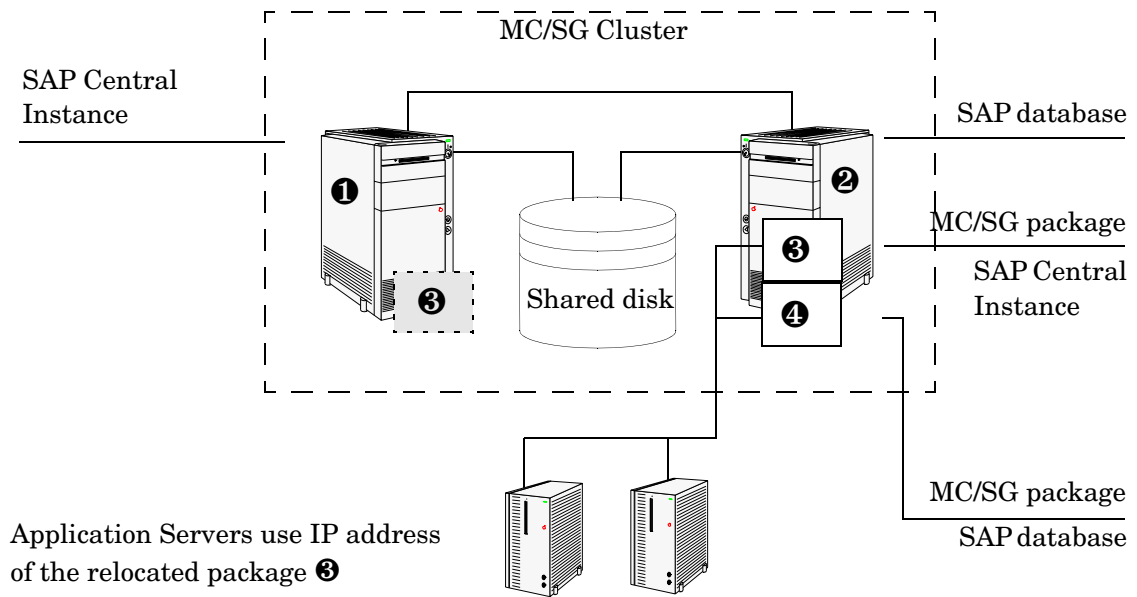
The application servers are not included in the cluster and, as illustrated in [Figure 6-2 on page 98](#), reference each package by means of each package's own relocatable IP address—not the fixed IP addresses of cluster-nodes ❶ and ❷.

If a problem is identified on the central-instance server, the central instance (❸) is taken down on cluster node (❶), and then brought up again on the cluster node (❷). 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 (❸). Once the central-instance package is up and running on the cluster node (❷), the application servers can reconnect to

the central instance using the same IP address as before the failover, namely; the central-instance package's relocatable IP address, which moves along with the package at the time the failover occurs.

Figure 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 100](#)
- [“Configuration Requirements” on page 100](#)
- [“Service Reports and Performance Graphs” on page 101](#)
- [“Service Views” on page 101](#)

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 name which 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 55](#).

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 an High-availability Environment” on page 105](#).

Installing the SPI for SAP in an 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.

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 111](#).

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 55](#).

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 77](#).

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 111](#).

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 failover package switch by setting the history path in each monitor’s configuration file, `r3<monitor_name>.cfg`. For more information about the location of SPI for SAP monitor configuration files and the options you need to set and change, see [“Monitor History Files in a High-availability Cluster” on page 107](#).

Configuring the SPI for SAP in an 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 110](#).

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 55](#).

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 111 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 88 and “[Distributing SPI Components to the SAP nodes](#)” on page 91.

5. History files for the SPI for SAP monitors

Make sure that the correct history file is available for each SPI for SAP monitor both before and after a failover package switch. For more information, see “[Monitor History Files in a High-availability Cluster](#)” on page 107.

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 111.

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 111 before you start the configuration process.

Monitor History Files in a High-availability Cluster

The SPI for SAP alert monitors `r3monxmi`, `r3monal`, `r3mondev`, `r3monpro`, `r3monsap` 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 `r3monxmi`, `r3monal` and `r3monsap` write new information to their respective history files if, and only if, the SAP System they are monitoring is available and the SPI for SAP monitors can connect. If the SAP System being monitored is *not* available, these monitors only update the time stamp to reflect the time of the latest monitor run. The monitors `r3mondev`, `r3monpro`, and `r3status`, on the other hand, write to their respective history file after each monitor run whether 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     =DVEBMGS33 =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 usually `/var/opt/OV/tmp` for UN*X 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/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 108](#) 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>    =/var/opt/OV/tmp  
HistoryPathAIX     =<hostname_2>    =/var/lpp/OV/tmp  
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. Despite this, monitors such as `r3monxmi` and `r3monsap` might still, occasionally, 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 the SPI for SAP's CCMS Alert monitor, `r3monal`, to use the SAP XMI/XAL interface (=XAL) to read CCMS alerts rather than shared memory. Note that the SAP XMI/XAL interface is only available with SAP version 4.6 and higher.
2. Enable (=1) the `r3monal` monitor's auto-acknowledgement feature for CCMS alerts in SAP to avoid duplicate messages appearing in the OVO Message Browser
3. 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.
4. Disable (=0) the shared-memory check using the parameter "SAPSHMCheck" for the following Alert Monitors: `r3monsap`, `r3monpro`, `r3mondev`, `r3monxmi` and `r3monal`.

[Example 6-3 on page 109](#) shows which parameters you should use in `r3monal.cfg` file to set up the `r3monal` monitor to use the XMI/XAL interface, which is available with SAP 4.6 and higher and *must* be enabled for the `r3monal` monitor in a cluster environment. You enable the XMI/XAL interface for `r3monal` with the `CCMSInterface` keyword in the monitor-configuration file.

Example 6-3 Enabling the XAL Interface for `r3monal`

```
# The XAL interface can be only used with SAP 4.6 and higher.
#-----
# SHM => for the shared memory interface (old interface)
# XAL => for the new enhanced XMI/XAL interface (BAPI)
CCMSInterface =XAL

# AutoAcknowledge of CCMS alerts will only work if you use the
# XMI/XAL interface. If you use the SHM interface, the XAL
# settings are ignored.
```

```

#-----
# CCMSAcknowledgeMessage SAP      Ack. filtered   Enable=1
#                               System Messages    Disable=0
CCMSAcknowledgeMessage   =SP6      =0              =1

# A Monitor Set defines the messages you want to forward to
# the OVO console. The Monitor Set can be only used with the
# XMI/XAL interface.
#-----
# Monitor Set      SAP      SAP      Monitor Set  Monitor
#                  System    Number
CCMSMonitorSet     =SP6      =33      =OpenView    =SPI-Monitoring
#-----

```

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

The parameter `SAPSHMCheck` should be explicitly set to disabled (`=0`) for the following Alert Monitors: `r3monsap`, `r3monpro`, `r3mondev`, `r3monxmi` and `r3monal`, as illustrated in [Example 6-4 on page 110](#). By default, the shared-memory check is enabled (`=1`).

Example 6-4

Disabling the SAP Shared-memory Check

```

#-----
# SAPSHMCheck      hostname      Enable =1 (default if not defined)
#                               Disable =0
SAPSHMCheck        =ALL          =0
#-----

```

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 an High-availability Environment” on page 105](#).

If the adoptive node in the high-availability cluster is already configured as an Application Server, then the logins for both the Central Instance (=CI) and the Application Server (=APP) can lead to problems with some of the SPI for SAP components, for example; `r3moncol` and `r3monpro`, both of which require special configuration as described in [“Special-Case Scenarios” on page 111](#).

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 failover package switch as before, you have the option of shutting down the Application Server on the adoptive node after the failover so that the machine’s performance is available solely to the Central Instance. You can then share the user load between any other available Application Servers.

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

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

information about either the Central-Instance processes or the processes 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 failover 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	✓	✓
r3mondmp	✓	
r3monjob	✓	
r3monlck	✓	
r3monoms	✓	
r3monpro	✓	✓
r3monrfc	✓	
r3monsap ^b	✓	✓

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

SPI for SAP Monitor Name	Central Instance	Application Server
r3monspl	✓	
r3montra	✓	
r3monupd	✓	
r3monusr	✓	
r3monwpa	✓	
r3monxmi	✓	✓

- a. CCMS 4.x only
- b. CCMS 3.x alert monitor

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 failover switch do not become confused about which SAP instance to monitor—Application Server or Central Instance.

To avoid problems when the Central Instance and the Application Server are running on the same cluster node at the same time, for example; after a system failover, you need to ensure that each of the monitors which the `r3moncol` starts when the Central Instance comes up on the adoptive node is configured to ignore alerts associated with the Application Server and monitor *only* those alerts that belong to the Central Instance. This means modifying the configuration file of *each* of the SPI for SAP's Central-Instance monitors listed in [Table 6-1 on page 112](#) 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 6-5](#) 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 6-6](#) is incomplete (...).

Example 6-5 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 failover package switch.

In addition, if you want to ensure that the `r3monpro` monitors only those processes belonging to a specific SAP instance on a node where multiple SAP instances are running, for example; after a package switch, you have to make sure that the `r3monpro` monitor knows which SAP instances it is supposed to watch. You can do this by modifying the `R3monpro.cfg` file on the adoptive node in the cluster in such a way that each SAP instance number (defined in the column: `SAP Number=`) is linked to the appropriate process name, as illustrated in [Example 6-6](#).

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

#AlertInstMonPro #	SAP System	SAP Number	Process name	Enable =1	Mode	Process 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 failover and subsequent package switch, the Performance Agent stops collecting values for the SAP metrics on the host node and, as soon as the package comes up on the adoptive node, starts to monitor and report the appropriate SAP metrics on the adoptive node. Metrics for physical components such as CPU and disk performance continue to be collected on both nodes irrespective of where the package is running. This needs to be taken into account when generating and publishing performance reports and graphs.

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 an High-availability Environment” on page 105](#) and [“Specifying SAP Clients to Monitor” on page 55](#).

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 an 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 151](#).
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 152](#).

The SPI for SAP in a high-availability Cluster

Removing the SPI for SAP in an 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 R/3 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 R/3 session:

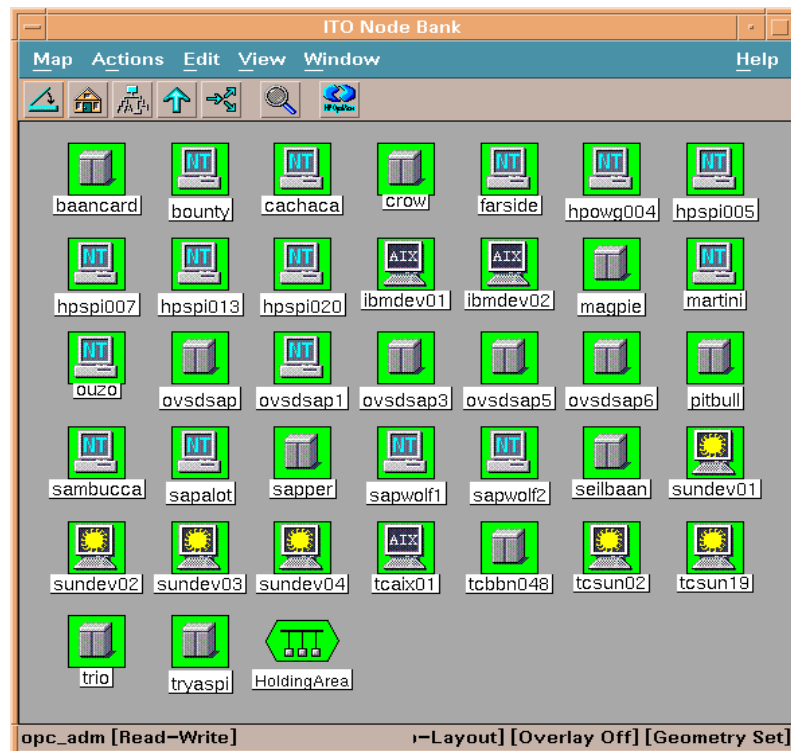
- Starting OVO
- Checking messages
- Responding to messages and resolving problems in SAP R/3
- Viewing SAP R/3 performance data

The OVO Managed Nodes Window

The Managed Nodes window, contains a symbol for each node, collection of nodes called node layout group, or external 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 that 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 Group 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 r3monal 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_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_Performance	R/3 performance messages
R3_RFC	Messages from r3monrfc, the RFC-destination monitor.

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

Message Group	Contents/Purpose
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

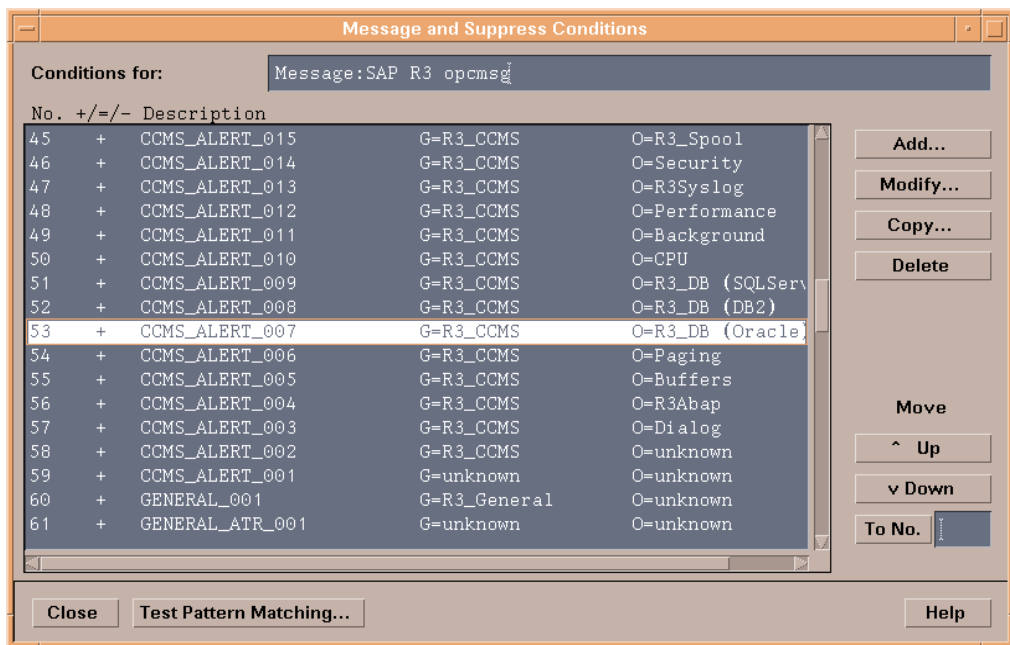
Changing Default Message-Group Settings

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, at a glance, the general theme of the problem when browsing through messages in the OVO Message Browser window. 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. [Figure 7-3 on page 127](#) shows how 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, and use the fields in the Set Attributes section of the window which appears.

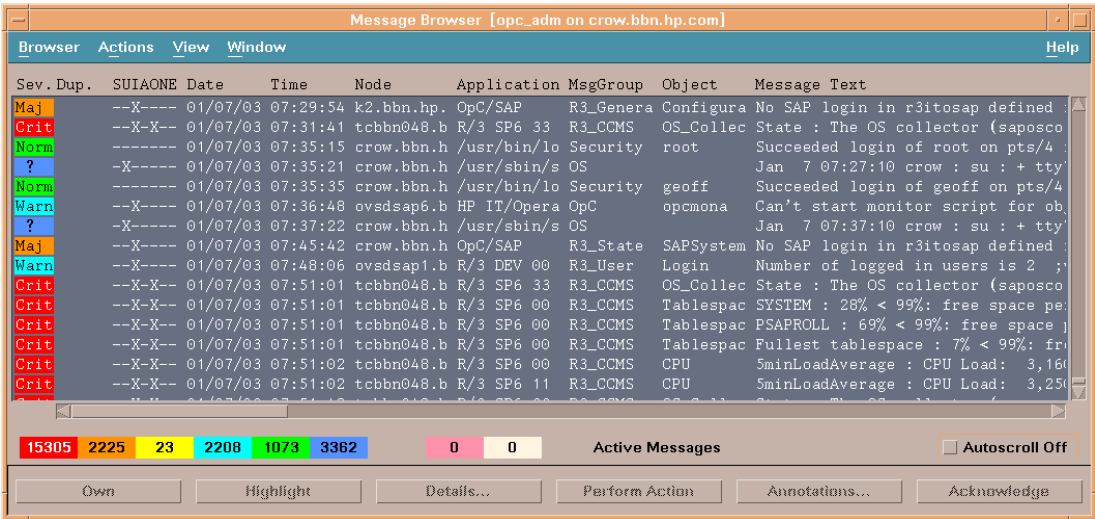
The OVO Message Browser Window

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**

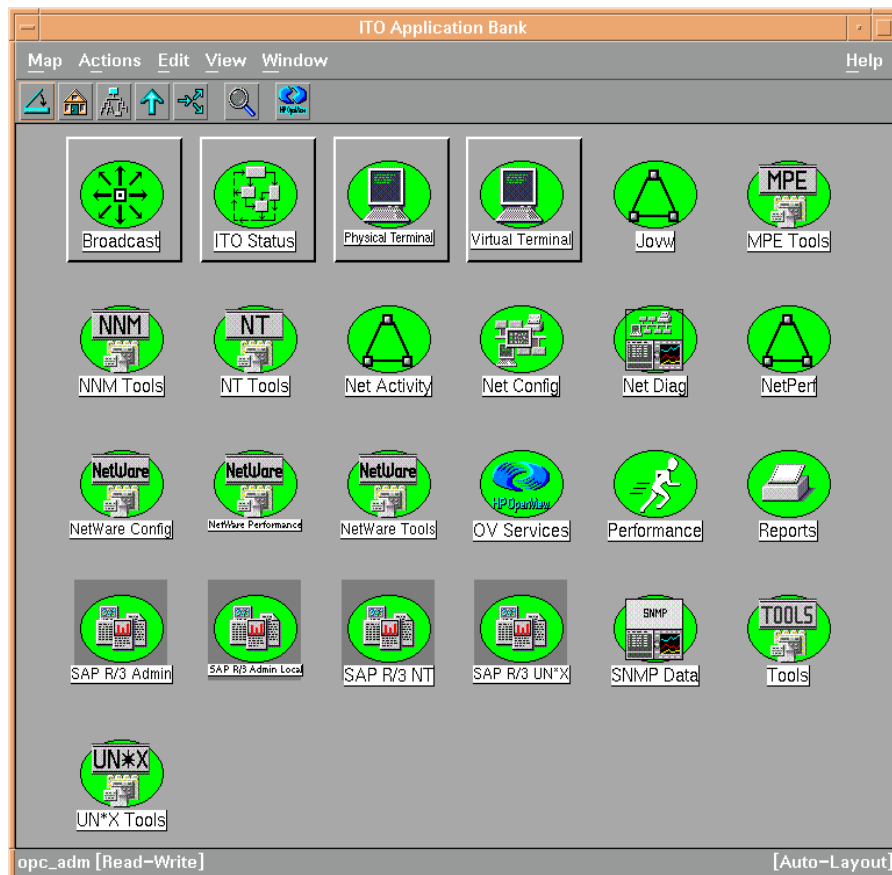
Message Attribute	Description
Application	Identifies the application which was affected or detected the message cause. For the SPI for SAP R/3, the application is always R/3, followed by a SAP system name and number.
Message Group	Identifies the message group to which the message belongs. For SPI message groups see Table 7-1 on page 125 .
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 on 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

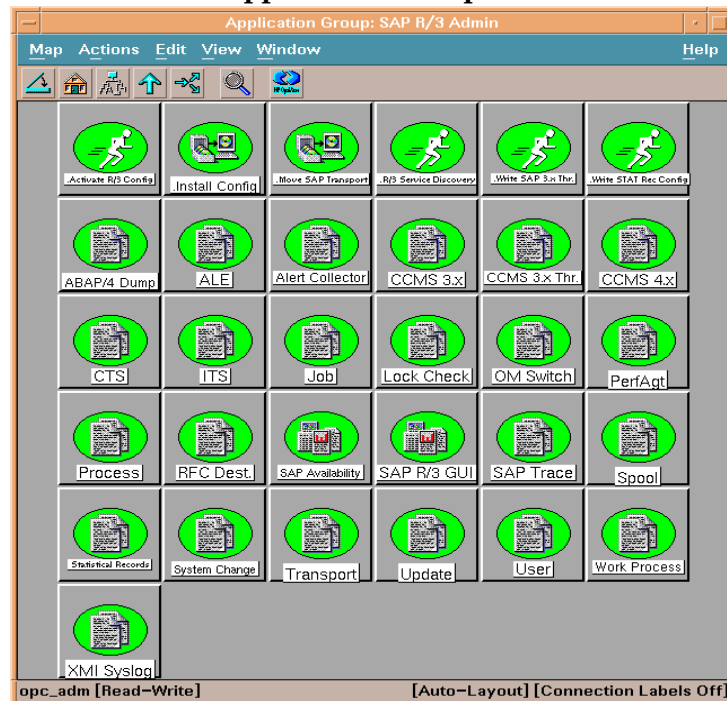


Table 7-3 lists the applications which appear in the SAP R/3 Admin application group and describes briefly what each of the applications does.

Table 7-3 SAP R/3 Admin Applications

Application	Description
.Activate R/3 Config	Activates SPI for SAP config with opctranm
ABAP/4 Dump	Opens the global r3mondmp.cfg configuration file for one of the user-definable (SPI ABAP) monitors
Alert Collector	Opens the global r3monaco.cfg configuration file
CCMS 3.x	Opens the global r3monsap.cfg configuration file of the central SAP R/3 CCMS alert monitor
CCMS 3.x Thr.	Opens the configuration file for the SAP CCMS thresholds (old CCMS architecture only)
CCMS 4.x	Opens the global r3monal.cfg configuration file of the central SAP R/3 CCMS alert monitor
CTS	Opens the global r3moncts.cfg configuration file
.Install Config	Installs activated global configurations on selected managed nodes and commits your SAP R/3 global configuration settings to the OVO database
Job	Opens the global r3monjob.cfg configuration file of the job monitor
Lock Check	Opens the global r3monlck.cfg configuration file for one of the user-definable (SPI ABAP module) monitors
.Move SAP Transport	Moves the RFC Transport to the directory: /usr/sap/trans
OM Switch	Opens the global r3monoms.cfg configuration file for one of the user-definable (SPI ABAP) monitors
PerfAgt	Opens the global r3perfactg.cfg configuration file

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

Application	Description
Process	Opens the global <code>r3monpro.cfg</code> configuration file of the process monitor
RFC Dest.	Allows you to configure the new RFC-destination monitor, <code>r3monrfc</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 R/3 GUI	Opens the general configuration file for the SAP R/3 GUI, <code>r3itosap.cfg</code> .
SAP Trace	Opens the global <code>r3mondev.cfg</code> configuration dev file of the file monitor.
Spool	Opens the global <code>r3monspl.cfg</code> configuration file
Statistical Records	Opens the global <code>r3perfstat.cfg</code> configuration file
System Change	Opens the global <code>r3monchg.cfg</code> configuration file for one of the user-definable (SPI ABAP module) monitors.
Transport	Opens the global <code>r3montra.cfg</code> configuration file
Update	Opens the global <code>r3monupd.cfg</code> configuration file
User	Opens the global <code>r3monusr.cfg</code> configuration file
Work Process	Opens the global <code>r3monwpa.cfg</code> configuration file for one of the user-definable (SPI ABAP module) monitors.
.Write SAP 3.x Thr.	Applies the CCMS thresholds to a SAP system (old CCMS architecture only).
.Write STAT Rec Config	Write statistical records in SAP R/3
XMI Syslog	Opens the global <code>r3monxmi.cfg</code> configuration file of the Syslog monitor.

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.

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



The contents of the SAP R/3 Admin and SAP R/3 Admin Local application groups are very similar. Table 7-4 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 132 and indicates what each applications does.

Table 7-4 **SAP R/3 Admin Local Applications**

Application	Description
.Delete Local Config	Deletes the local SPI for SAP configuration files on the selected managed node and the Management Server
.Distribute Local Config	Distributes and installs the local SPI for SAP configurations on the selected managed node(s)
RFC Dest.	Allows you to configure the new RFC-destination monitor, r3monrfc

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 NT platforms respectively. For instance, if you have a performance alert, you can click the Performance icon and open the SAP performance analysis tool.

In addition, the UNIX SAP R/3 group includes a number of applications that involve interactive actions with terminal output. These applications are not supported on the Windows NT 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. Be sure to select the application from the application group that corresponds to the managed node's platform.

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
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

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
Admin R/3 sapdba	✓	
Check R/3 Database	✓	
R/3 Info	✓	✓
R/3 Process Logs	✓	
Start R/3 Front-end	✓	
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

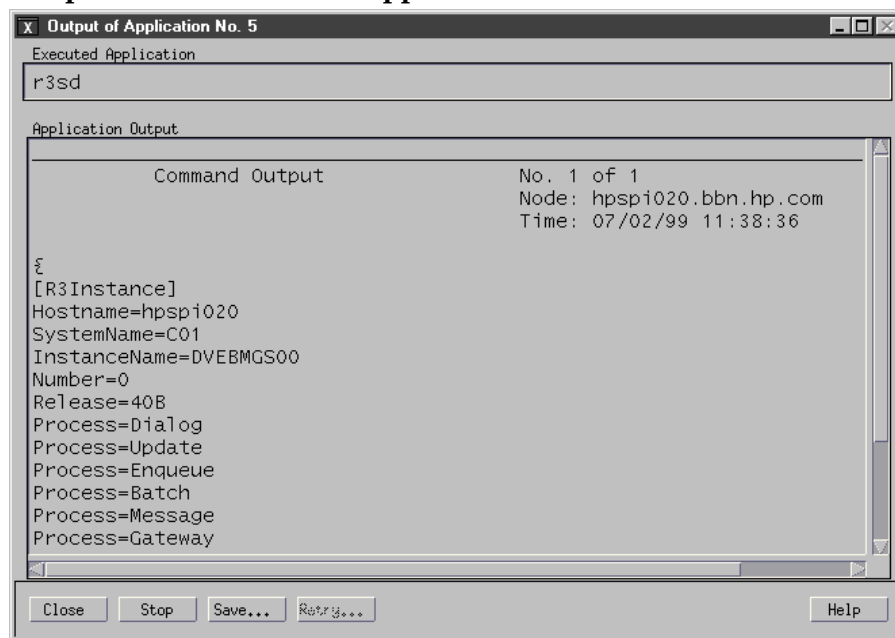
This application is available for both UNIX and NT nodes, so you will find an icon for R/3 Info in both the UNIX SAP R/3 and NT SAP R/3 application groups.

To display information for a selected managed node:

1. In the Node Bank window, select the UNIX or NT node for which you want to display a information about the SAP R/3.
2. In the UNIX SAP R/3 or NT SAP R/3 application group window, double-click on 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

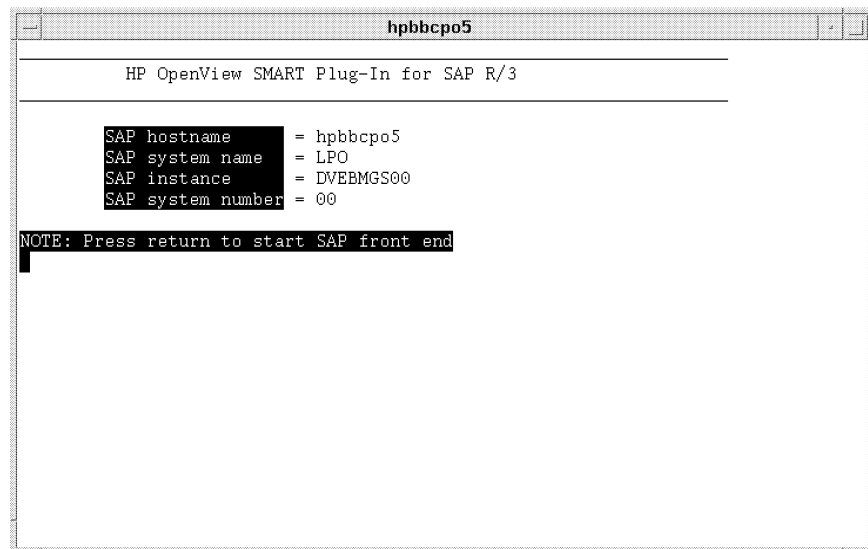
The Start R/3 front-end application makes full use of the distributed architecture of SAP R/3. It uses the local `sapgui` utility (running on the OVO Management Server) and profile to connect to the desired SAP

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 UNIX SAP R/3 application group window, double-click on 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 (see [Figure 7-10 on page 140](#)).

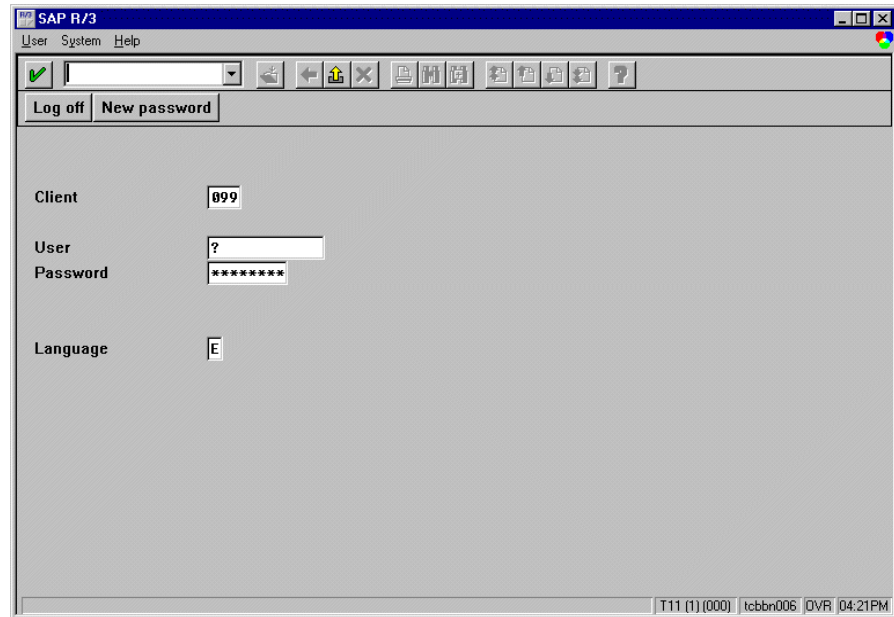
Figure 7-9 Starting the R/3 Front-end



TIP

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

Figure 7-10 **SAP R/3 Login Window**



R/3 Process Logs

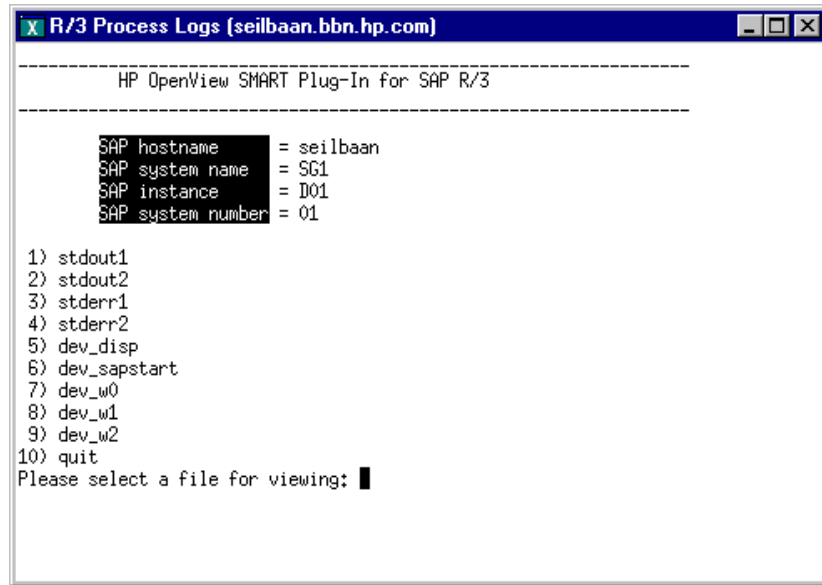
The R/3 Process Logs application reports all error conditions in a specific file structure. Also, all R/3 standard output and standard error information is stored on disk. The log analyzer extracts relevant ERROR information for all functional modules of each SAP system and displays this information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

3. Press **Enter**. The system displays an output file selection window (see [Figure 7-11](#)).

Figure 7-11 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_rd` file, the system displays a trace file such as that shown in [Figure 7-12](#).

NOTE

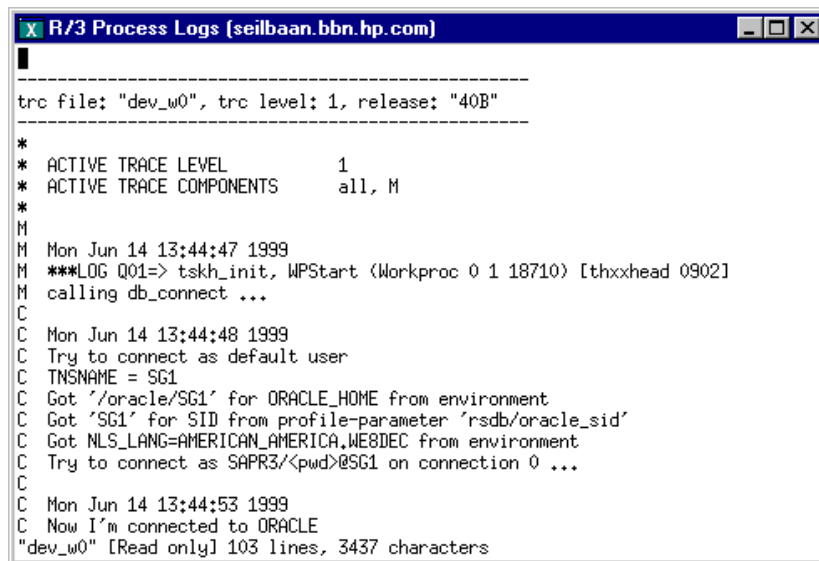
`stdout1-5` and `stderr1-5` are always displayed, even if the associated files do not contain an error message.

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 7-12 Sample Trace File



```
-----
trc file: "dev_w0", trc level: 1, release: "40B"
-----
*
* ACTIVE TRACE LEVEL          1
* ACTIVE TRACE COMPONENTS    all, M
*
M
M Mon Jun 14 13:44:47 1999
M ***LOG Q01=> tskh_init, WPStart (Workproc 0 1 18710) [thxxhead 0902]
M calling db_connect ...
C
C Mon Jun 14 13:44:48 1999
C Try to connect as default user
C TNSNAME = SG1
C Got '/oracle/SG1' for ORACLE_HOME from environment
C Got 'SG1' for SID from profile-parameter 'rsdb/oracle_sid'
C Got NLS_LANG=AMERICAN_AMERICA,WE8DEC from environment
C Try to connect as SAPR3/<pwd>@SG1 on connection 0 ...
C
C Mon Jun 14 13:44:53 1999
C Now I'm connected to ORACLE
"dev_w0" [Read only] 103 lines, 3437 characters
```

The Admin R/3 sapdba Application

The Admin R/3 sapdba application returns information about the installed SAP systems on the selected managed node. It also displays the hostname of the associated database server. Once you have selected the SAP system, the SAP sapdba utility starts automatically.

The database administration utility can only be executed by a specific user. The routine therefore prompts you for the corresponding password before granting access to the sapdba user interface.

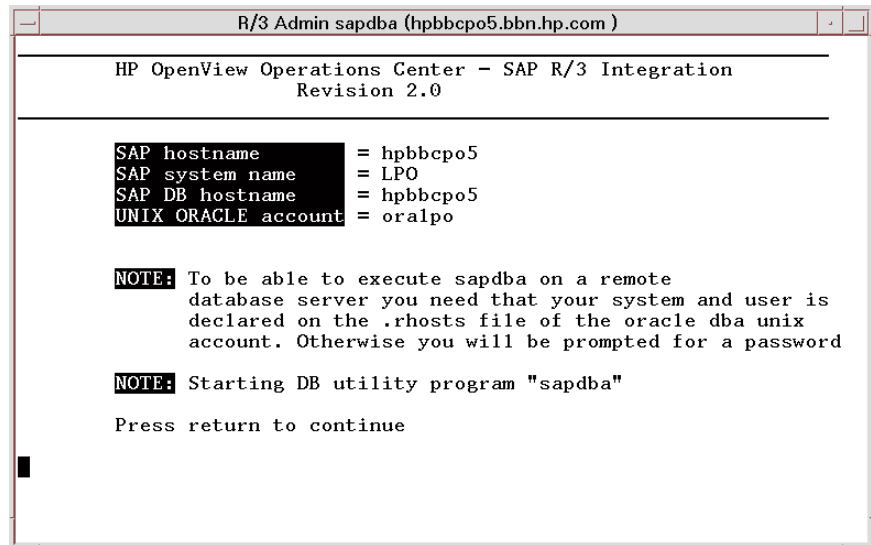
If the selected managed node is not the database server for the selected SAP system, information on the correct hostname is displayed along with prompts to select the appropriate host in the Managed Nodes window and to run R/3 sapdba again.

To run the sapdba utility:

1. In the Node Bank window, select the UNIX node for which you want to run the sapdba utility.

2. In the UNIX SAP R/3 application group window, double-click on the Admin R/3 sapdba icon to display the dba Access Window (see [Figure 7-13](#)) and press **Enter**.

Figure 7-13 Access Window for the sapdba Utility



3. When prompted, enter the appropriate password.
4. Press **Enter** to start the sapdba utility.

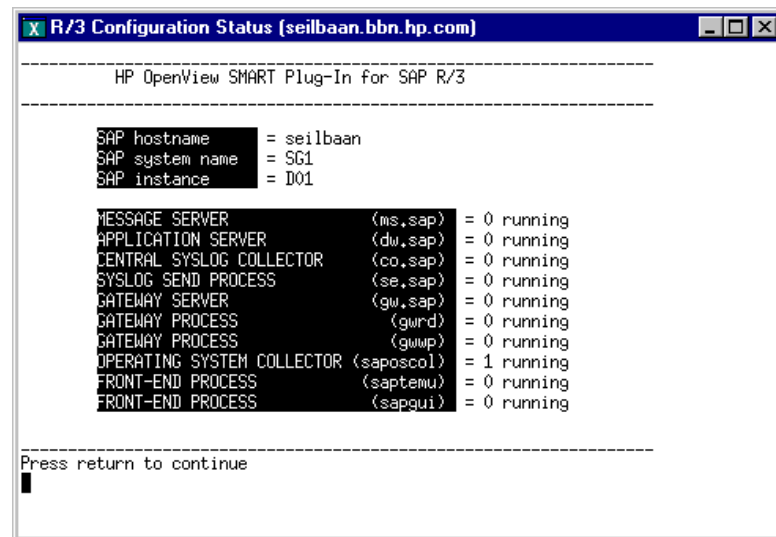
The Status R/3 Config Application

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

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

Figure 7-14

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.

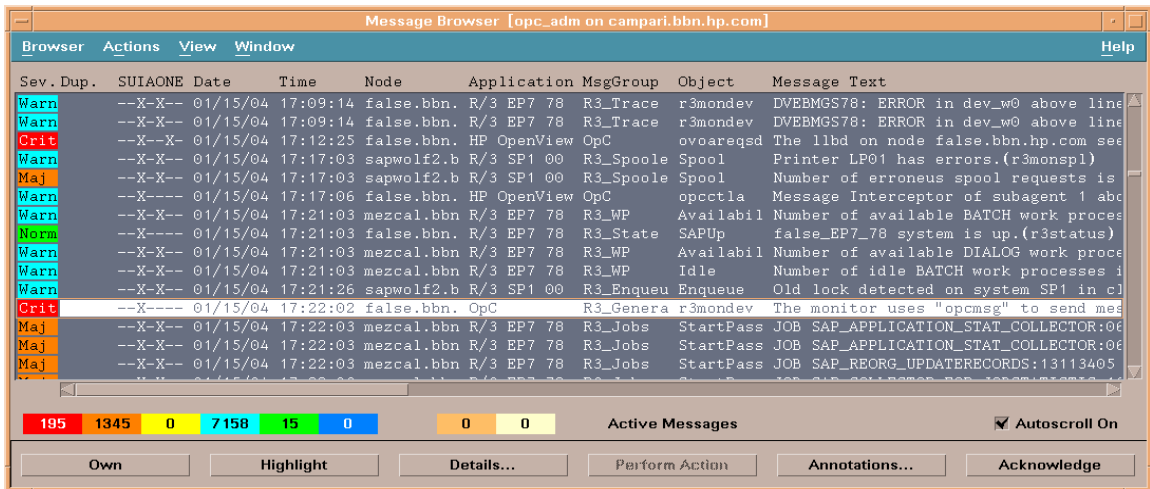
When you select a message in the Message Browser window you can:

- 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.

1. Select the message in the Message Browser window.

Figure 7-15 Selecting a Message in the Message Browser



- Click the [Details...] button in the Message Browser window.
The system returns detailed information for the selected message.

Figure 7-16 Message Details

The screenshot shows the 'Message Details' window with the following sections:

- Message Information:**

Node	mezcal.bbn.hp.com	Severity	Critical
Application	R/3 EP7 78	Service Name	SAP_SPI:EP7:78@mezcal
Message Group	R3_Performance	Message Key	
Object	Dialog	Message Type	
Source	Message:SAP R3 opcmg:un	Time First Created on Managed Node	01/15/04 17:22:40
Annotations	0	Time First Received on Mgmt. Server	01/15/04 17:22:40
Attributes		Number of Duplicates	0
Message ID	0a2c1da0-4777-71d8-08c9-i	Time Last Received on Mgmt. Server	01/15/04 17:22:40
Forwarding Manager		Owned by	at
- Message Text:**

ResponseTime : 7.458 msec > 3.000 msec Dialog response time exceeds threshold (3 dialog steps)
- Actions:**

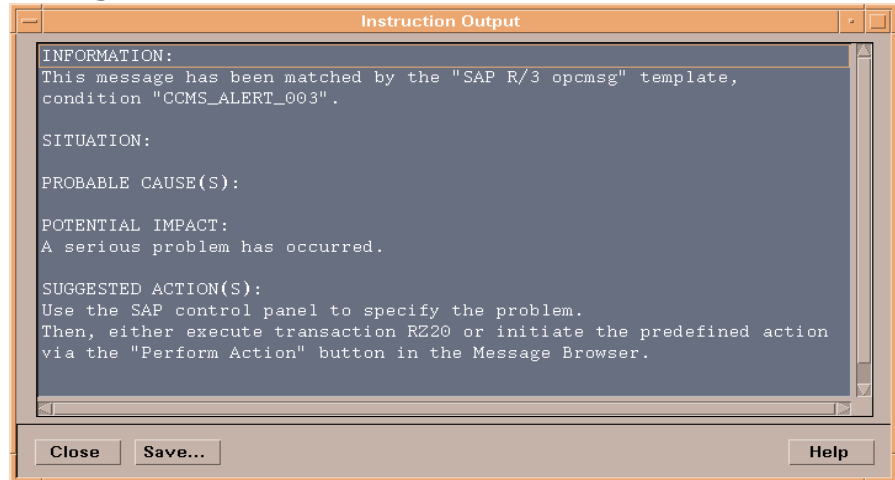
	Status	Node	Command	Anno.	Ackn.
Automatic				No	No
Operator Initiated	available	campari.bbn.hp.c	/opt/hpitosap/bin/r3itogui -host mezcal	Yes	No
Notification					
Trouble Ticket	No				No
- Escalations:**

Escalated to by at
- Buttons:**

Instructions... Show Original Message... Own Modify... Close Highlight Perform Action Annotations... Acknowledge Help

- Click the [Instructions...] button to read the instructions provided by the system.
- Once you have read and understood the instructions displayed in [Figure 7-16 on page 146](#), click the [Perform Actions] button. The SPI for SAP automatically provides context-dependent access to the associated transaction.
- In this window, Use standard SAP methods to fix the problem.
- Return to the Message Details window shown in [Figure 7-16 on page 146](#).

Figure 7-17 **Message Instructions**



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.

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.

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 151](#)
- [“Removing the SPI for SAP from OVO Managed Nodes” on page 152](#)
- [“Removing the SPI for SAP Software from the OVO Management Server” on page 153](#)

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 `swremove` command removes the sub-agent software from the SAP managed nodes you have selected. 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 check box.
6. Click [OK] to confirm.

Removing the SPI for SAP Software from the OVO Management Server

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.
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, switch to the following directory, enter:

```
cd /var/opt/OV/share/databases/OpC/mgd_node/customer
```

Remove all files with the following names:

- `<platform_selector>/monitor/r3*.Z`
- `<platform_selector>/cmds/r3*`

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:

Deinstalling the SPI for SAP

Removing the SPI for SAP Software from the OVO Management Server

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

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