

HP OpenView Smart Plug-in for UNIX® Operating Systems

Administrator's Reference

Version: A.02.50

For HP-UX and Solaris OpenView Operations Management Servers



Manufacturing Part Number: None

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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 chapter provides an overview of the main features and functionality that are provided with the Smart Plug-in for UNIX Operating Systems.

Introducing the OSSPI

The HP OpenView Smart Plug-in for UNIX Operating Systems is a software product which, by means of a full integration with OVO—formerly VPO/OpC, a market-leading management solution for networks, systems, databases, and applications in heterogeneous IT environments—extends OVO’s management scope to include distributed environments of UNIX systems. Installed in an environment consisting of one or more OVO servers and one or more OVO managed nodes, the OSSPI can be used to monitor and manage the functionality and the availability of hardware, software, and any supported operating-system. For more information on which operating-system versions are supported by the OSSPI, see the *HP OpenView SMART Plug-in for UNIX Operating Systems: Installation Guide*.

The OSSPI is also integrated with other HP OpenView products, for example; OV Service Navigator and OV Performance, and Coda (**OVO Embedded Performance Component**). This integration allows the user of the OSSPI the additional perspective of Service Views. Service Views provide root-cause analysis of all the reported alarms on all essential hardware elements such as CPU, memory, swap space and so on and, in addition, software and operating system. Note that Service Views and performance measurement are only possible if the appropriate *additional* software is already installed and running.

In addition, the functionality of the OSSPI is configured in such a way that it may be used by other HP OpenView SMART Plug-Ins.

Features and Functionality

The Smart Plug-in for UNIX Operating Systems comes with the following features:

- automatic self configuration
- fully customizable
- CIM-based operating-system (OS) service model for the OpenView Service Navigator
- capability to use the OVO Embedded Performance Component and configuration of MeasureWare and GlancePlus by means of OVO templates
- supports MC/ServiceGuard on both the OVO management server and managed nodes
- OS-level system monitoring
- monitoring of computer hardware including; CPU, memory, disks, adapters
- monitoring crucial, kernel-related, table(s) sizes such as file handles and shared memory
- file-system monitoring related to space, errors, availability
- process monitor for OS services, such as; NFS, mail, print, DNS, NTP
- monitoring changes to important configuration files such as `inittab` and `nsswitch.conf`
- a wide range of applications for the quick and easy execution of common OS-related operating tasks
- discovery and monitoring of Solstice DiskSuite 4.2.1 objects on Solaris managed nodes
- discovery and monitoring of Veritas Volume Manager 3.x objects on HP-UX and Solaris managed nodes
- Message correlation of OVPA/Glance Plus alarms showing the current state of objects

2 **OSSPI Components**

This section describes the components that are added to OVO during the installation of the OSSPI software and how to use them.

In this Section

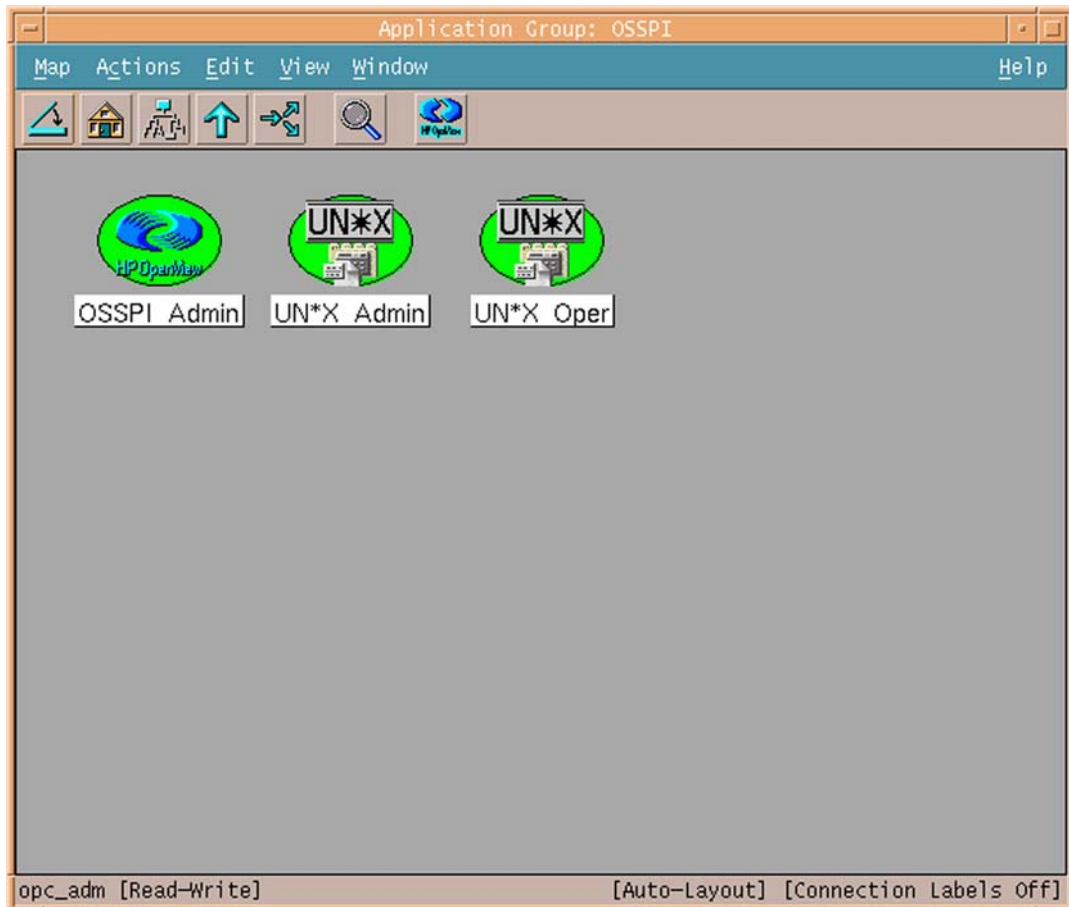
The information in this section shows the OSSPI components added to OVO during the installation of OSSPI and describes how to use the components to best effect. This section provides detailed information about the following:

- “Application Groups”
- “Applications: OSSPI_Admin”
- “Applications: UN*X_Admin”
- “Applications: UN*X_Oper”
- “Message Groups”
- “Node Groups”
- “Template Groups”
- “Templates”
- “Upgrading to the OSSPI Templates”
- “Users and User Profiles”
- “OS Service Views”

Application Groups

The installation of the OSSPI adds a new application group to the OVO Application Bank window. The new application group is called OSSPI and contains three OSSPI-specific application groups as shown in Figure 2-2.

Figure 2-1 **OSSPI Application Groups**



The three new OSSPI application groups, explained in greater detail in the sections that follow, are:

OSSPI Admin	This group contains applications which are intended to be used by the OVO administrator who is responsible for the administration of the OSSPI, namely; installation and de-installation.
UN*X Admin	This group contains applications that can be used for OVO users working on the configuration of the Operating System. The applications in this group are mainly for administrative tasks.
UN*X Oper	This group contains applications that can be used by the OVO operators working on problems in the Operating-System area (as indicated by messages in OVO).

Note that both the UN*X_Admin and the UN*X_Oper application groups are included in all the corresponding user profiles provided with the OSSPI. Assigning the OSSPI user profile to a OVO user automatically assigns any application groups (along with the applications) contained in the user profile. For more information on user profiles, see “Users and User Profiles” on page 45.

To run any one of the applications in the OSSPI application groups, drag a managed node from the Node Bank window (or the Node Group Bank window in which the managed node resides) and drop it onto the application you want to run.

Applications: OSSPI_Admin

The OSSPI application group OSSPI_Admin contains applications which are intended to be used by the OVO administrator who is responsible for the administration of the OSSPI, namely; de-installation, configuration, and version audit.

Figure 2-2 OSSPI Application Group: OSSPI_Admin

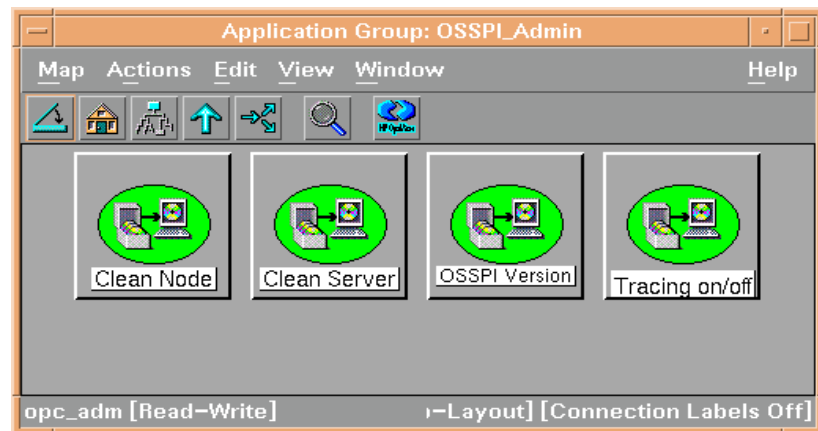


Table 2-1 lists the applications present in the OSSPI_Admin application group and provides a brief description.

Table 2-1 Applications in the OSSPI_Admin Application Group

Application Name	Description
Clean Node	removes the configuration data generated and used by the OSSPI on the OVO managed node
Clean Server	removes the configuration data generated and used by the OSSPI and the OSSPI scripts uploaded on the OVO management server

Table 2-1 Applications in the OSSPI_Admin Application Group

Application Name	Description
OSSPI_Version	uses the what ^a command to determine the version of <i>all</i> the OSSPI executables installed on the OVO managed node by the OSSPI
Tracing on/off	enable/disable tracing and set the trace level, where trace level range from 0 to 9 1=enable, 0=disable

a. Uses osspi_what script for Linux platform.

Applications: UN*X_Admin

The OSSPI application group titled UN*X_Admin contains applications that OVO users can use to perform the following tasks:

- perform system administration on managed nodes
- use tools to configure the OSSPI process monitor
- tools to configure the OSSPI file system utilization monitor

Figure 2-3 OSSPI Application Group: UN*X_Admin

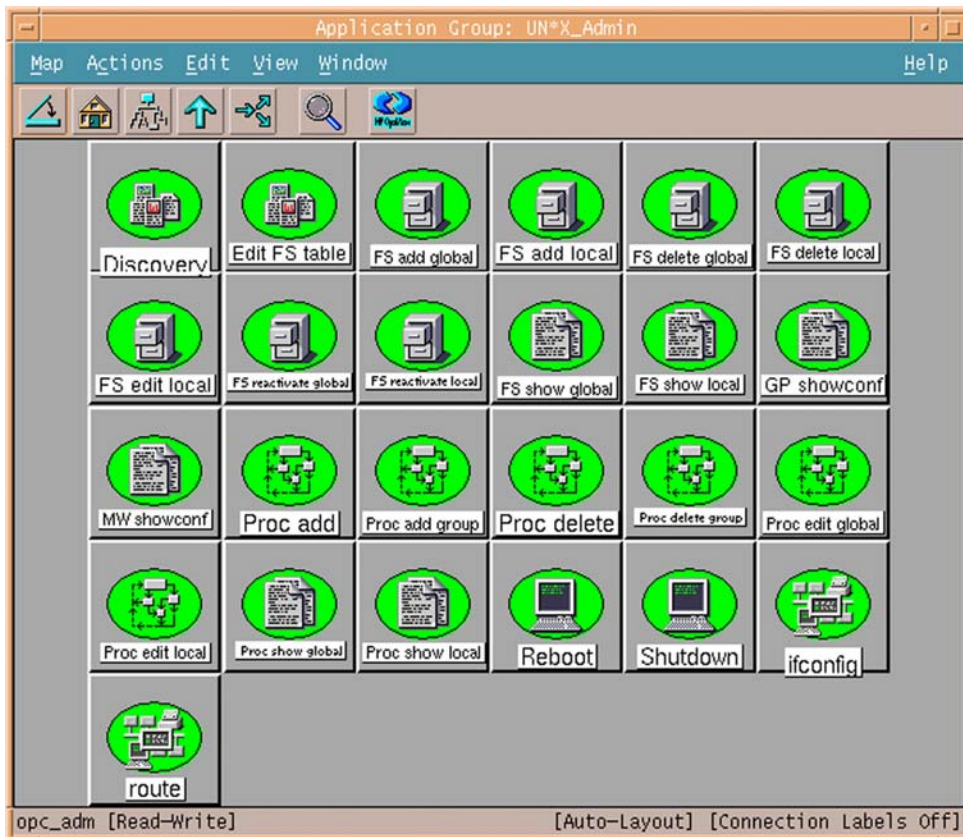


Table 2-2 lists the applications present in the UN*X_Admin application group and provides a brief description.

Table 2-2 Applications in the UN*X_Admin Application Group

Application Name	Description
Discovery	Discover services, which runs on the managed node, does the following actions: Creates configuration data for the OV Service Navigator Uploads the configuration data to the OVO database by means of an operator-initiated action Assign nodes to appropriate node groups
Edit FS table	opens the <code>fstab</code> file in a text editor
FS add global*	adds conditions for <i>local</i> ^a File System to a disk-space configuration file
FS add local*	adds conditions for a <i>local</i> File System to a disk-space configuration file
FS delete global*	deletes conditions for a <i>global</i> ^b File System from a disk-space configuration file
FS delete local*	deletes conditions for a <i>local</i> File System from a disk-space configuration file
FS edit local	opens the <code>fsmon_local.cfg</code> file in a text editor
FS reactivate global*	reactivates conditions for a <i>global</i> File System from a disk-space configuration file
FS reactivate local*	reactivates conditions for a <i>local</i> File System from a disk-space configuration file
FS show global	shows conditions for a <i>global</i> File System as configured in a disk-space configuration file

Table 2-2 Applications in the UN*X_Admin Application Group (Continued)

Application Name	Description
FS show local	shows conditions for a <i>local</i> File System as configured in a disk-space configuration file
GP showconf	shows the OSSPI syntax file for GlancePlus
MW showconf	shows OSSPI alarmdef definition file for the MeasureWare agent
Proc add*	adds a process to a process configuration file
Proc add group*	adds a process group to a process-group configuration file
Proc delete*	deletes a process from a process configuration file
Proc delete group*	delete a process group from a process configuration file
Proc edit global	opens the procmon.cfg file in a text editor
Proc edit local	opens the procmon_local.cfg file in a text editor
Proc show local	displays a list of local OS processes
Proc show global	displays a list of normal OS processes
Reboot	restarts the operating system (reboot) after prompting for confirmation
Shutdown	shuts down the OS (halt) after prompting for confirmation
ifconfig	configures a network interface on the managed node
route	adds or deletes routes on the managed node

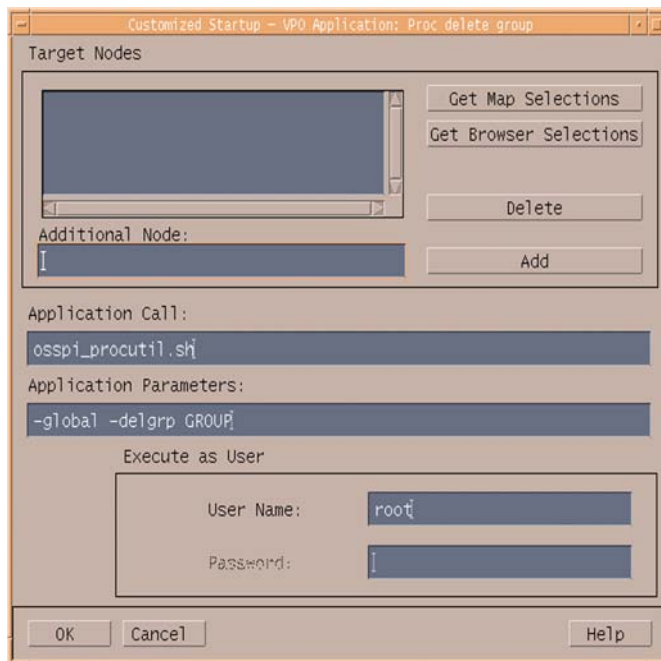
- a. After Discovery the *Local* File System monitor configuration file is generated. You can edit the file.

- b. By default the *Global* File System monitor configuration file is present on the management server. You can use the `Proc reactivate global` tool to modify the configuration file.

The UN*X_Admin applications indicated in Table 2-2 with an asterisk (*) are configured to run with default parameters that may or may not meet the requirements of your particular environment. OVO allows you to modify these parameters in the application-specific Customized Startup window.

For example, the OSSPI Discovery application writes the information found concerning the OS services running on a managed node to a configuration file located at `/var/opt/OV/osspi/conf`. Other OSSPI monitor templates use this information to decide which processes to monitor. If you are not interested in monitoring *all* of the OS services discovered by the OSSPI, you need to customize the `Delete Process Group` application as follows:

Figure 2-4 Customizing OSSPI Application Startup



1. Select and right-click the application you want to customize and select the Customize Startup... option. The Customized Startup window, illustrated in Figure 2-4, opens.
2. Add to or change the contents of the Application Parameters field to suit your requirements. In this example, we could change the parameter *GROUP* with *sendmail*. This would *remove* the *sendmail* process group from the list of services to be monitored by the OSSPI.

Applications: UN*X_Oper

The OSSPI application group UN*X_Oper contains applications to be used by the OVO operators working on problems in the Operating-System area (as indicated by messages in OVO). To run any one of the applications in the UN*X_Oper application group, drag a managed node from the Node Bank window (or the Node Group Bank window in which the managed node resides) and drop it onto the application you want to run.

Figure 2-5 OSSPI Application Group: UN*X_Oper

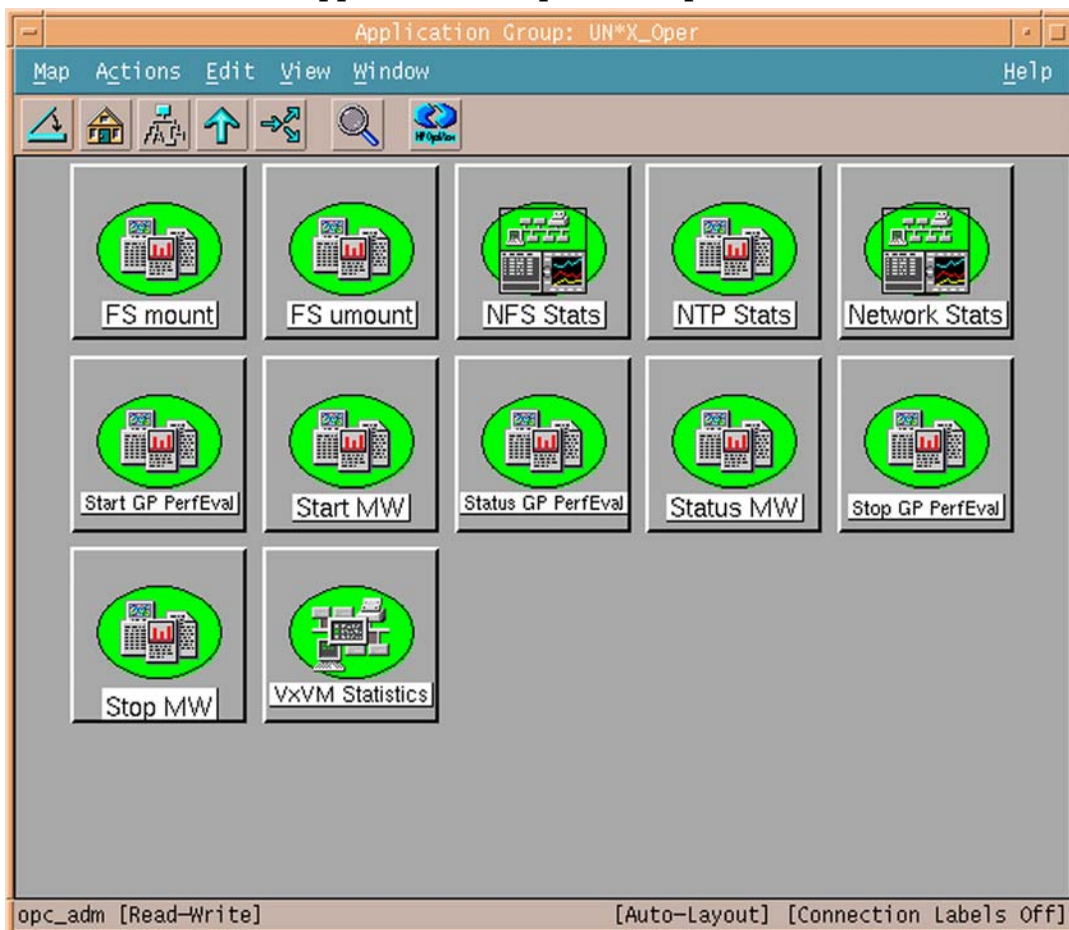


Table 2-3 on page 25 lists the applications present in the UN*X_Oper application group and provides a brief description of each application's scope.

Table 2-3 Applications in the UN*X_Oper Application Group

Application Name	Description
FS mount	mounts a local or a remote FS (File System). If no file-system value is given, it displays the contents of the mtab file.
FS umount	<i>un</i> -mounts local or remote FS (File System). If no file-system value is given, it displays the contents of the mtab file.
NFS Stats	displays statistical information about Network File Systems for the selected managed node, for example; reads, writes, and lookups for both nfs server and client as an absolute number <i>and</i> as a percentage of the total calls. nfsstart (1M) displays statistical information.
NTP Stats	status information about NTP (Network Time Protocol) including error margins for server and peer
Network Stats	displays network status information for the selected managed node, for example; routing-table information, configured network interfaces, and active sockets. netstat (1) displays newtork status information.
Start GP PerfEval	starts GlancePlus for OSSPI if alarm syntax file (alarmdef) present (from distributed GP templates)
Start MW	starts the MeasureWare agent processes on the selected managed node.
Status GP PerfEval	shows the status of the GlancePlus process for the OSSPI alarms.
Status MW	shows the status of the MeasureWare processes on the selected managed node.

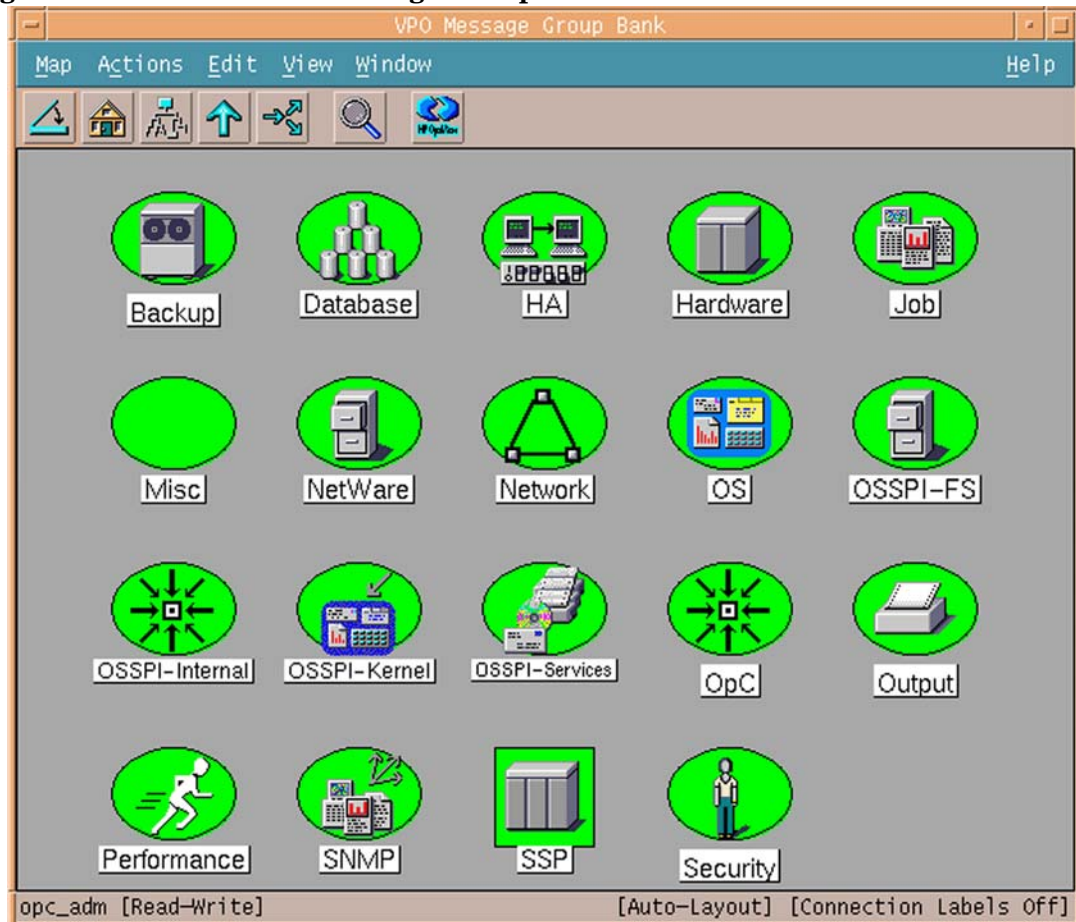
Table 2-3 Applications in the UN*X_Oper Application Group (Continued)

Application Name	Description
Stop GP PerfEval	stops GlancePlus for the OSSPI
Stop MW	stops the MeasureWare agent processes on the selected managed node.
VXVM Statistics	prints statistics information on Veritas Volumes

Message Groups

The OSSPI installs four message groups that are specifically designed to handle messages generated by the templates and monitors started by the OSSPI. Figure 2-6 shows the OSSPI message groups.

Figure 2-6 OSSPI Message Groups



OSSPI generates a variety of messages on Hardware, Network, Output, OS, Performance, and SNMP - areas that may already be covered by pre-defined OVO message groups.

OSSPI assigns relevant messages to existing OVO message groups. Messages that do not belong to the OVO message groups are assigned to one of the following OSSPI-specific message groups:

OSSPI-FS	Messages relating to the local and network file systems as well as logical volumes
OSSPI-Internal	Internal messages concerning the operation of the OSSPI itself
OSSPI-Kernel	Messages relating to the kernel and kernel resources
OSSPI-Services	Messages relating to the services discovered and monitored by the OSSPI

Note that all OSSPI message groups are assigned by default to *all* the OSSPI user profiles, which are uploaded to OVO during the installation of the OSSPI. This means that assigning any of the OSSPI user profiles to a OVO user ensures that this OVO user receives OSSPI messages automatically assuming the appropriate node groups assigned, too. For more information about OSSPI user profiles, see “Users and User Profiles” on page 45.

Node Groups

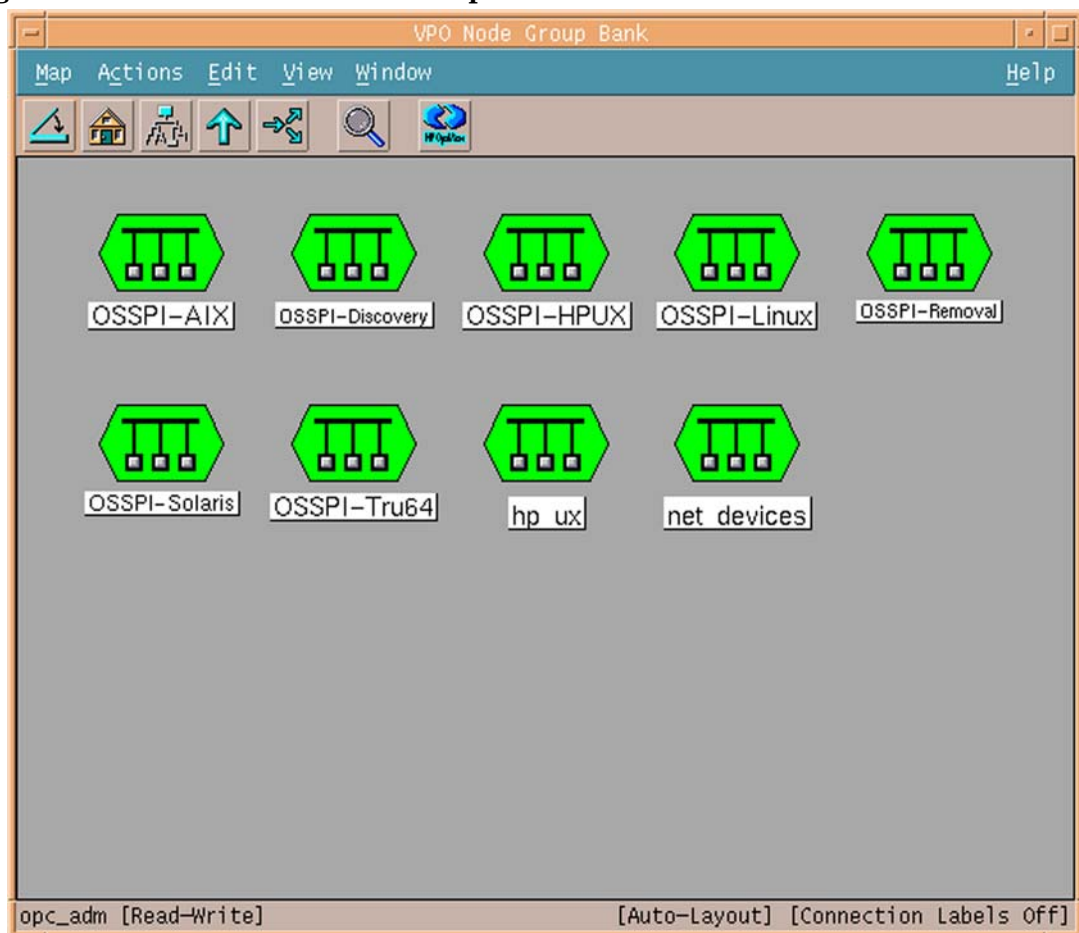
During the installation of the OSSPI software, a number of new, OSSPI-specific node groups are added to the OVO Node Bank window, as illustrated in Figure 2-7 on page 30. The OSSPI-specific node groups installed by the OSSPI are intended to be used in the following way:

OSSPI-AIX	Contains the nodes running AIX that you want to monitor with the OSSPI.
OSSPI-HPUX	Contains the nodes running HP -UX that you want to monitor with the OSSPI.
OSSPI-Linux	Contains the nodes running Linux that you want to monitor with the OSSPI.
OSSPI-Solaris	Contains nodes running Solaris that you want to monitor with the OSSPI.
OSSPI-Tru64	Contains nodes running Tru64 that you want to monitor with the OSSPI.
OSSPI-Discovery	Before running Discovery, all nodes must be placed in this Node group.
OSSPI-Removal	Prepares a node for removing OSSPI configuration data, reset OVPA and Glance Plus alarms to their original settings.

The node groups themselves are empty on installation. Following Discovery the node is assigned to the node group based on the OS running on the node. Example: A node running Linux OS will be assigned to the Linux node group.

Note that the OSSPI node groups are assigned to the OSSPI user profiles, which are described in more detail in “Users and User Profiles” on page 45. This means that OVO users to whom you assign the OSSPI user profiles will automatically receive messages from all those nodes included in the OSSPI node groups.

Figure 2-7 OSSPI Node Groups



Template Groups

The installation of the OSSPI uploads a number of template groups to the OVO database. The high-level OSSPI template groups are assigned automatically to the corresponding high-level OSSPI node groups.

NOTE

Do not distribute the templates before running Discovery. Templates are dependant on the configuration file that is created only after discovery.

For more information about assigning and distributing templates in OVO, see “Getting Started” on page 55.

Figure 2-8 OSSPI Template Groups

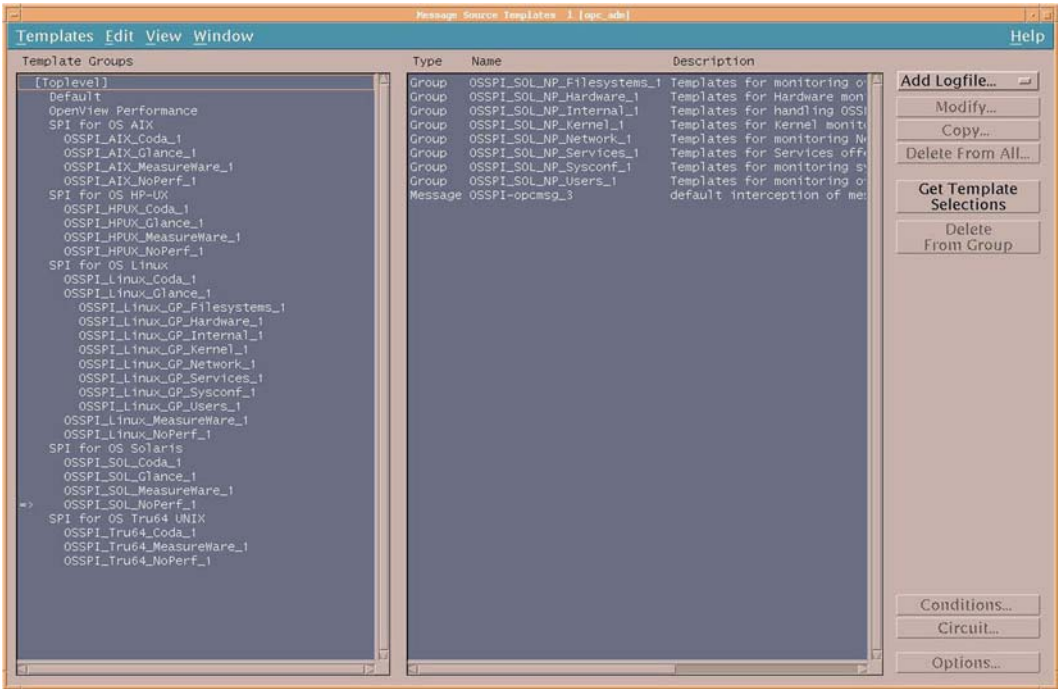


Figure 2-8 shows the high-level template groups that are installed by default with the OSSPI software, namely:

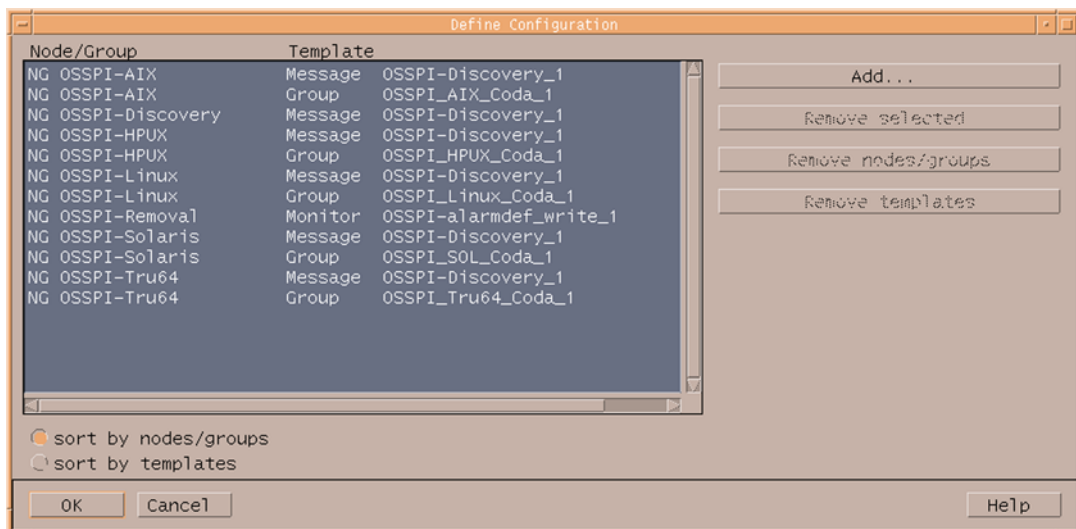
- SPI for OS AIX
- SPI for OS HP-UX
- SPI for OS Linux
- SPI for OS Solaris
- SPI for OS Tru64 UNIX

Check that the correct, default templates and template groups have been automatically assigned by selecting any one of the newly added nodes and using the following menu option:

Actions: Agents > Assign Templates...

The Define Configuration window shown in Figure 2-9 on page 32 opens. Check that the correct template and template-group assignments have been made.

Figure 2-9 OSSPI Default Template Group Assignments



Note that identical template groups are installed for AIX, HP-UX, Linux, Solaris, and Tru64 and contain similar templates. Table 2-4 on page 33 lists the high-level groups and provides a short description of what they do.

Table 2-4 **SPI for OS HP-UX Templates and Template Groups**

Template Group ^a	Functionality
OSSPI_HP-UX_CODA	Template group to be used to monitor the managed node using the OV embedded performance components.
OSSPI_HP-UX_Glance	Template group to be used if GlancePlus performance tools are installed on the managed node you want to monitor with the OSSPI
OSSPI_HP-UX_MeasureWare	Template group to be used if OV Performance (formerly MeasureWare) tools are installed on the managed node you want to monitor with the OSSPI
OSSPI_HP-UX_NoPerf	Template group to be used if there are no performance tools installed and running on the managed node
OSSPI-Discovery	Template to be used for discovery-related messages
OSSPI-alarmdef_write_1	Template that automatically configures and writes the alarm definition file for OV Performance and GlancePlus.

a. Replace *HP-UX* with *AIX*, *Linux*, *Sol*, or *Tru64* for high-level, operating-system-specific template groups.

Table 2-5 lists the template groups in the OSSPI_HP-UX_Glance template group. The contents of the OSSPI_HP-UX_Glance template group are nearly identical to the OSSPI_HP-UX_CODA, OSSPI_HP-UX_MeasureWare and OSSPI_HP-UX_NoPerf template groups—the names of the templates in the group have been changed to reflect the chosen performance tool.

Table 2-5 **OSSPI_HP-UX_Glance_1 Template Group**

Template Group^a	Functionality
OSSPI_HP-UX_GP_FileSystems	monitors local and network file-systems utilization and volume group space
OSSPI_HP-UX_GP_Hardware	monitors the hardware related metrics for the hardware including; CPU, network interfaces, swaps and disk utilization
OSSPI_HP-UX_GP_Internal	monitors the OSSPI internal processing messages related to OSSPI error, trace logfiles and alarmdef events
OSSPI_HP-UX_GP_Kernel	monitors the status of the kernel and kernel resources including modifications to the kernel image, file-lock, file-open, process, semaphore, and shared-memory tables
OSSPI_HP-UX_GP_Network	monitors the network interfaces on the node
OSSPI_HP-UX_GP_Services	monitors the OS services such as cron and crontab, dns, nfs, print, sendmail, and so on.
OSSPI_HP-UX_GP_Sysconf	monitors the modifications made to the system configuration such as /etc/inetd.conf
OSSPI_HP-UX_GP_Users	monitors user activities such as bad logins, login and logout histories, and switch-user events

- a. In all references above, replace *HPUX* with *AIX*, *Linux*, *Sol*, or *Tru64* as appropriate for the operating system running on the node, and replace *GP* with *CD*, *MW*, or *NP* for the appropriate performance tools (GP for Glance Plus, CD for Coda, MW for OVPA/MeasureWare) and NP, if no performance Tools are present on the node.

Templates

The templates provided with the OSSPI may be split into the following generic areas:

Table 2-6, OSSPI Logfile Templates, Table 2-6 on page 36

Table 2-7, OSSPI Monitor Templates, Table 2-7 on page 38

Table 2-8, OSSPI Performance Templates, Table 2-8 on page 40

Table 2-9, OSSPI Message Interceptor Templates, Table 2-9 on page 41

The names of the templates listed in the following tables are abbreviated versions of the actual template names that appear in the OVO GUI. The full OSSPI template names have the prefix OSSPI and, where appropriate, an identifier for the operating system, for example; AIX, HPUNIX, Linux, SOL (for Sun Solaris), or Tru64. In addition, the extension (*_#*) identifies the template version.

For example: OSSPI-HPUNIX-*<Template_Name>*_1 refers to version 1 of the same template. The platform name is specified within the template name such as in OSSPI_AIX_cfgmon_1. The template is specific to the platform. If the template name does not contain any platform names as in OSSPI-MailQueue, the template is common to all platforms and changes made in these templates will be reflected for all platforms.

Table 2-6 on page 36 lists the logfile templates installed with the OSSPI, gives a brief description of their scope, and indicates how often the template polls the logfile for information and updates.

Table 2-6 **OSSPI Logfile Templates**

Template Name	Description	Polling Interval
BadLogs	Unsuccessful user logins	10s
Boot	Monitors system boot messages, for example; /sbin/rc and /etc/rc.log	1m
Dmesg	Kernel message log	10s
DNSstat	Monitor DNS statistics	30m
Logins	Successful user logins	10s

Table 2-6 **OSSPI Logfile Templates (Continued)**

Template Name	Description	Polling Interval
MailAliases	Monitors changes to mail aliases file	10m
MailLog	Monitors the sendmail application logfile	10m
PrintLog	Monitors the print logfile	10m
SNMPConf	Monitors SNMP configuration file entries	10m
SNMPLog	Monitors SNMP logfile entries	10m
Su	Monitors the switch user activities and reports	20s
Syslog	Monitors system log file, for example; /var/adm/syslog/syslog.log on HP-UX	1m
Veritas_log	Monitors the Veritas Volume Manager log file	1m

Table 2-7 on page 38 lists the *monitor* templates installed with the OSSPI, gives a brief description of their scope, and indicates how often the monitor template polls for information and updates.

NOTE

The System Configuration Monitor template (OSSPI-cfgmon) monitors a generic list of system configuration monitor files. These configuration files such as /etc/inetd.conf, /etc/fstab, /etc/passwd usually exist on the nodes based on the operating system. The template monitors the timestamp of the files and sends notifications to the message browser when these files undergo any changes. If the template detects any missing configuration files, it sends a message with a minor severity to the message browser. The Operator may choose to ignore or suppress these messages if the files are not critical for the operating system run on the node.

Table 2-7 **OSSPI Monitor Templates**

Template Name	Description	Polling Interval
alarmdef_write	Monitors changes to the alarmdef file	1m
cfgmon ^a	Tracks changes to the system configuration files, for example; the entries in the crontab file, the inetd process, the fstab file and so on.	30m
ChkGlancePid	Monitors the Glance processes run by OSSPI when Glance Plus templates are deployed on the node.	1m
CronProc	Monitors the cron process	15m
defect_long ^b	Long-term monitor of bad disk blocks	28d
defect_short ^b	Short-term monitor of bad disk blocks	6h
DNSLookup	Monitors the DNS availability	10m
DNSProc	Monitors the DNS server process	1m
Filesystem	Monitors the file system as well as inode utilization.	5m
InetdProc	Monitors the inetd process	1m
InternalLog	Monitors the size of the OSSPI internal log and trace files	10m
kmon ^b	Monitors the state of the kernel image including: creation date of actual kernel, compiled kernel, and kernel parameter file	1h
MailPerm	Monitors the permissions of the mail files and directories	1h
MailProc	Monitors the sendmail process	10m
MailQueue	Monitors the length of the mail queue	10m

Table 2-7 OSSPI Monitor Templates (Continued)

Template Name	Description	Polling Interval
Mount	Monitors the mounted file systems and access	20m
NetInterfaces	Monitors the network interfaces	5m
NFSClientProc	Monitors NFS client processes	5m
NFSServerProc	Monitors NFS server processes	5m
NTPProc	Monitors the ntpd process	10m
QuotaUsage	Monitors the quota usage	30m
Printenable	Monitors and checks if the printers are enabled	10m
PrintProc	Monitors the print cap process	10m
PrintQueue	Monitors the length of the print queue	10m
PrintPerm	Monitors the print file permissions	1h
Pty_Avail	Monitors the availability	365d
sdsmon	Monitors the Solstice DiskSuite objects. Reports if a new object has been added after discovery or if a discovered object has been deleted	1h
SNMPProc	Monitors the SNMP processes	10m
swapmon	Monitors swap usage	5m
SyslogProc	Monitors the syslog process	1m
Veritas	Monitors the status of Veritas Volume Manager	2m
VeritasProc	Monitors the critical Veritas Volume Manager vxiod and vxconfigd processes	1m
VG	Monitors all logical volume groups, created by Logical Volume Manager Group	1h

- a. Due to differences between linux (Debian/SuSE linux) distributions, you may encounter warning messages stating that xinetd.conf is not present on the node. These may be safely ignored, if the distribution uses inetd.conf, and not xinetd.conf
- b. Not available for AIX.

NOTE

The OSSPI-NP_FileSystem_1 template is a generic template that is linked to the platform-specific OSSPI file-system templates for AIX, HP-UX, etc. Changes to this file-system-monitor template will appear in all the other file-system-monitor templates, too.

Table 2-8 lists the Coda and OV Performance templates installed with the OSSPI, gives a brief description of their scope, and indicates how often the template polls the Coda/OV Performance (or MeasureWare) agent for information and updates. Note that not all the templates listed in Table 2-8 are available for Coda.

Table 2-8 **OSSPI Performance Templates**

Template Name	Description	Polling Interval
CPU_load	CPU load factors	1m
Disk	Disk I/O on local disks	1m
Flock_Tbl	Monitors file locks in use	5m
Fopen_Tbl	Monitors open files	5m
Filesystem	Monitors disk space	5m
IPC ^a	Monitors the IPC, for example; message, semaphore, and shared-memory tables	5m
Kresources ^a	Monitors the Kernel table space; file locks, open files, and processes.	5m
Lan_Coll	Monitors network I/O rate	
Mem_Load	Monitors the load on memory	1m

Table 2-8 **OSSPI Performance Templates (Continued)**

Template Name	Description	Polling Interval
Msg_Tbl	Monitors the message table	5m
Proc_Tbl	Monitors process table usage	5m
NetworkAdapter	Monitors network packet collisions and error rates	
Sema_Tbl	Monitors semaphore usage	5m
Shmem_Tbl	Monitors shared memory usage	5m
Swap_Res	Monitors the global swap rate and usage	1m

a. *NOT* present in the Coda template group

Table 2-9 lists the *OpC* templates installed with the OSSPI, gives a brief description of their scope, and indicates how often the monitor template polls for information and updates.

Table 2-9 **OSSPI Message Interceptor Templates**

Template Name	Description	Polling Interval
alarmwriteMsg	Intercepts messages generated during the creation of alarm definition files for OV Performance or Glance Plus.	n/a
Discovery	Intercepts messages from the OSSPI Discovery application	n/a
FilesystemMsg	Intercepts messages related to file system from OSSPI (s) file system monitor	n/a
opcmsg ^a	Intercepts OSSPI internal processing messages as well as alarm messages from OV Performance or Glance Plus.	n/a

Table 2-9 **OSSPI Message Interceptor Templates (Continued)**

Template Name	Description	Polling Interval
procmonmsg	Intercepts messages relating to process status from OSSPI (s) process monitor.	n/a
xterm	Intercepts messages concerning applications started by OVO on the managed node as well as xterm processes, which failed to start	n/a

- a. This template duplicates and should replace the original OVO `opcmsg` template.

NOTE

The OSSPI installs a new and improved version of the `opcmsg` template alongside the original OVO `opcmsg` template. If you assign both `opcmsg` templates to the same managed node, you will receive duplicate messages. We recommend you replace the original OVO `opcmsg` template with the new OSSPI `opcmsg` template. If you have made any changes to the original OVO `opcmsg` template, you will have to migrate these changes to the OSSPI version of the `opcmsg` template before re-assigning and re-distributing the templates to the managed nodes.

Upgrading to the OSSPI Templates

A number of templates that are installed by default with OpenView Operations have been updated with the OSSPI software. The templates installed by the OSSPI are greatly improved versions of the original OVO templates and provide better and more useful information. Table 2-10 describes which of the OVO templates have been updated and improved by the OSSPI and indicates the old and new names.

Table 2-10 **New, Upgraded Templates with the OSSPI**

OVO Template	OSSPI Template
Logfile Bad Logs	BadLogs
Logfile Boot	Boot
Logfile Kernel Logs	Dmesg
Logfile Logins	Logins
Logfile Mailqueue	maillog
Logfile SU	Su
Logfile Syslog	syslog
Monitor Inetd	inetdproc
Monitor MailQueueLength	mailqueue
Monitor Sendmail	mailproc
Monitor cpu_util	CD_Cpu_Load MWA_Cpu_Load GP_Cpu_Load
Monitor disk_util	CD_Filessystem MWA_Filessystem GP_Filessystem NP_Filessystem

Table 2-10 New, Upgraded Templates with the OSSPI (Continued)

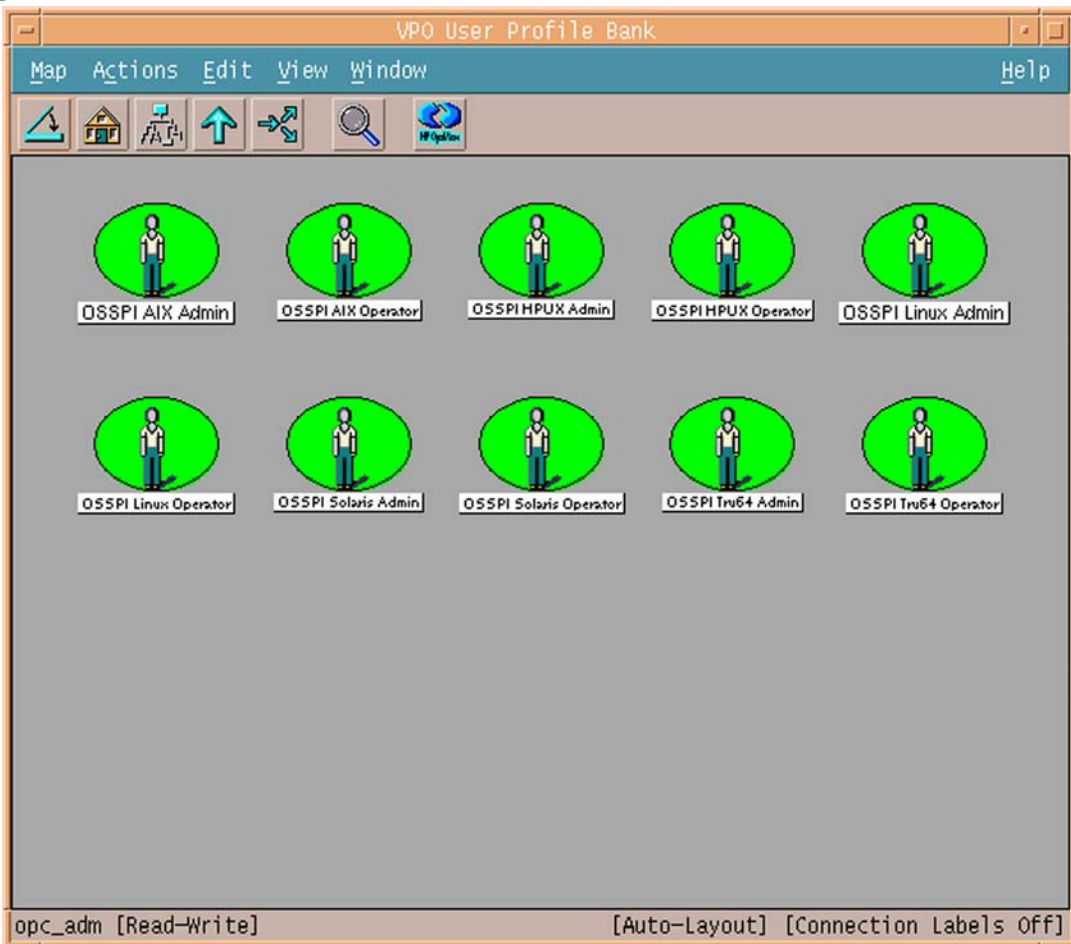
OVO Template	OSSPI Template
Monitor proc_util	CD_Proc_Tbl MWA_Proc_Tbl GP_Proc_Tbl
Monitor swap_util	CD_Swap_Res_ MWA_Swap_Res GP_Swap_Res swapmon

Note that the original, OVO templates are *not* overwritten during the installation of the OSSPI software. After the installation of the OSSPI has successfully completed and the templates have been assigned and distributed, you can choose whether to retain the existing OVO templates or upgrade to the more recent and more powerful OSSPI templates. If you assign and distribute the new OSSPI templates without first removing (or de-assigning) the original OVO templates, you will receive duplicate and/or very similar messages from the old and new templates. For more information about assigning and distributing the OSSPI templates, see “Distributing the OSSPI Templates and Instrumentation” on page 61 and “Distributing the Modified OSSPI Templates” on page 68.

Users and User Profiles

The installation of the OSSPI software adds a number of new user profiles to the OVO User Profile Bank window—an administrator and an operator for each operator system as illustrated in Figure 2-10. The OVO administrator uses user profiles to simplify the process of assigning responsibilities to new OVO users.

Figure 2-10 **OSSPI User Profiles**



Responsibilities defined in a OVO user profile are *global* and, as a consequence, *not* visible in the individual user's responsibility matrix even after the user profile has been assigned. Similarly, responsibilities defined in a OVO user profile are *local* and are only visible in the individual user's responsibility matrix. To get a complete list of an OVO user's responsibilities, you can generate a report using the following menu option:

Actions:Utilities > Reports... > Operator Report

The OSSPI user profiles define the following areas of responsibility:

The OSSPI User Profile...	is for Users Responsible for...
OSSPI AIX Admin	the administration of the OSSPI itself as well as the AIX managed nodes, which the OSSPI is monitoring
OSSPI AIX Operator	the AIX managed nodes, which the OSSPI is monitoring
OSSPI HP-UX Admin	the administration of the OSSPI itself as well as the HP-UX managed nodes, which the OSSPI is monitoring
OSSPI HP-UX Operator	the HP-UX managed nodes, which the OSSPI is monitoring
OSSPI Linux Admin	the administration of the OSSPI itself as well as the Linux managed nodes, which the OSSPI is monitoring
OSSPI Linux Operator	the Linux managed nodes, which the OSSPI is monitoring
OSSPI Solaris Admin	the administration of the OSSPI itself as well as the Solaris managed nodes, which the OSSPI is monitoring
OSSPI Solaris Operator	the Solaris managed nodes, which the OSSPI is monitoring
OSSPI Tru64 Admin	the administration of the OSSPI itself as well as the Tru64 managed nodes, which the OSSPI is monitoring
OSSPI Tru64 Operator	the Tru64 managed nodes, which the OSSPI is monitoring

Table 2-11 shows at a glance which OSSPI application groups are assigned by default to which OSSPI user profiles.

Table 2-11 OSSPI User Profiles: Application Groups

Application Group ^a	OSSPI User Profile									
	AIX		HP-UX		Linux		Solaris		Tru64	
	adm	op	adm	op	adm	op	adm	op	adm	op
OSSPI_Admin	✓		✓		✓		✓		✓	
UN*X_Admin	✓		✓		✓		✓		✓	
UN*X_Oper	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

a. Where UN*X is AIX, HP-UX, Linux, Solaris, or Tru64

Table 2-12 shows at a glance which OSSPI *message* groups are assigned by default to which OSSPI user profiles.

Table 2-12 OSSPI User Profiles: Message Groups

Message Group	OSSPI User Profile									
	AIX		HP-UX		Linux		Solaris		Tru64	
	adm	op	adm	op	adm	op	adm	op	adm	op
OSSPI-FS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OSSPI-Internal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OSSPI-Kernel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OSSPI-Services	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 2-13 shows at a glance which OSSPI *node* groups are assigned by default to which OSSPI user profiles.

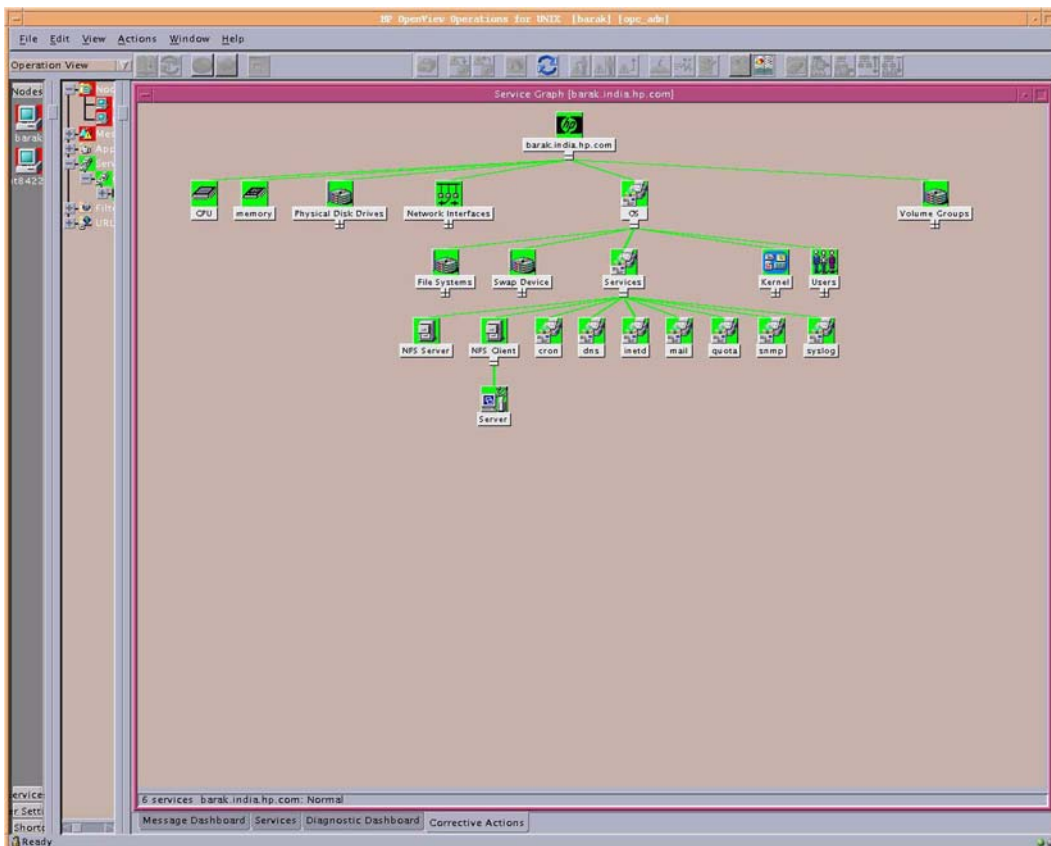
Table 2-13 **OSSPI User Profiles: Node Groups**

Node Group	OSSPI User Profile									
	AIX		HP-UX		Linux		Solaris		Tru64	
	adm	op	adm	op	adm	op	adm	op	adm	op
OSSPI-Discovery	✓		✓		✓		✓		✓	
OSSPI-AIX	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OSSPI-HPUX	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OSSPI-Linux	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OSSPI-Sol	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OSSPI-Tru64	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

OS Service Views

The OSSPI integration with the OpenView Service Navigator provides the user of the OSSPI with the additional perspective of *Service* views. This feature is available only if the OpenView Service Navigator software is installed and running. Service views allows individual systems to be seen in terms of the configured hardware, the installed software, and the OS *services* that are running. The OSSPI discovers the services automatically and uses the discovered data to generate the service Operating System SPI tree for the OV Service Navigator as illustrated in Figure 2-11.

Figure 2-11 **The OSSPI Services**



The service graph generated by the OSSPI is a snap shot of the services on the managed nodes at the time at which the OSSPI *Discovery* application was run. If the service configuration on a managed node subsequently changes, you will have to run the discovery process again to have the changes reflected in the OSSPI service tree.

The combination of the two products allows root-cause analysis of any problems in the most crucial elements of the operating system such as CPU, memory, swap space and so on.

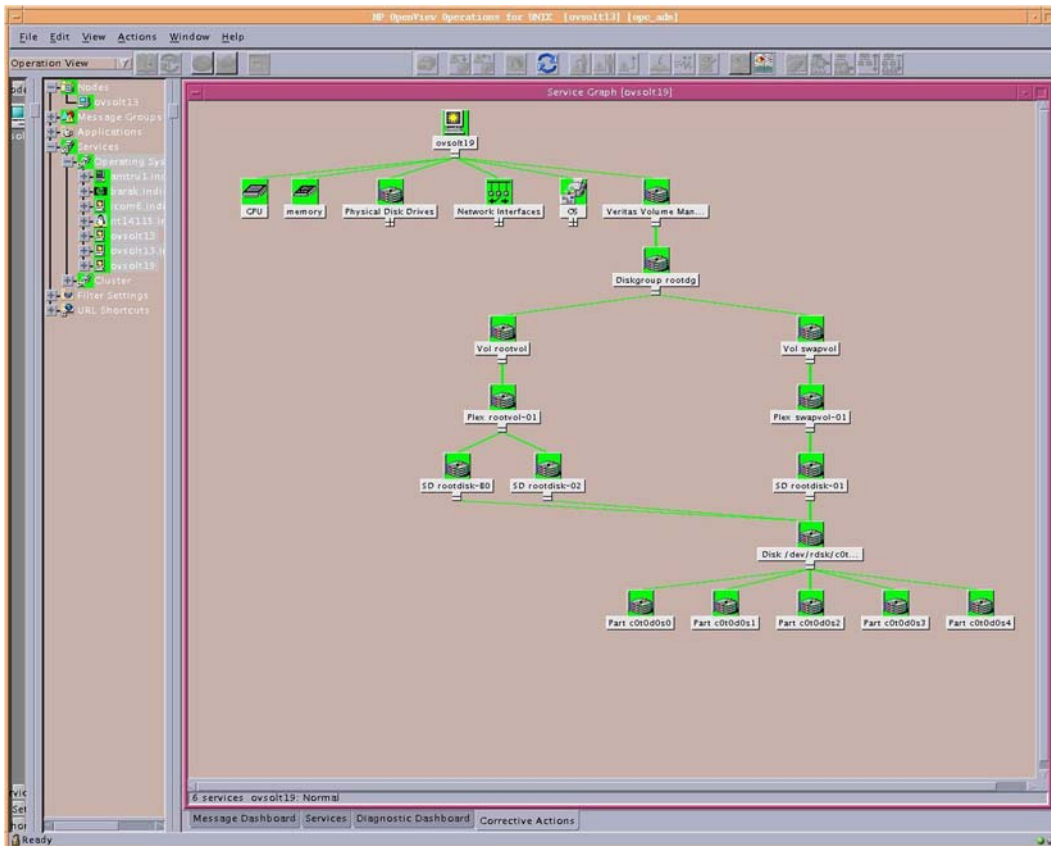
Propagation rules for the objects in the OSSPI service tree are defined by default as *unchanged*. This means that a parent service does not change the status of a child object by, for example; attaching a priority to it. Such a scenario would be feasible if a parent service considered the status of one child service to be more important than the status of another child service.

Calculation rules for the OSSPI service tree are set by default to *Most Critical*. This means that if a parent service has more than one child service, it assumes the status equal to the highest severity of its child services. For more information about calculation and propagation rules, as well as how to go about modifying them, see the *HP OpenView ServiceNavigator Concepts and Configuration Guide*.

Service View for Veritas Volume Manager

The service view for Veritas Volume Manager displays volumes containing sub volumes. Grouping is done under the highest level volume. The current version of the OSSPI does not discover RVG and RLINKS. All the unassociated objects are not discovered.

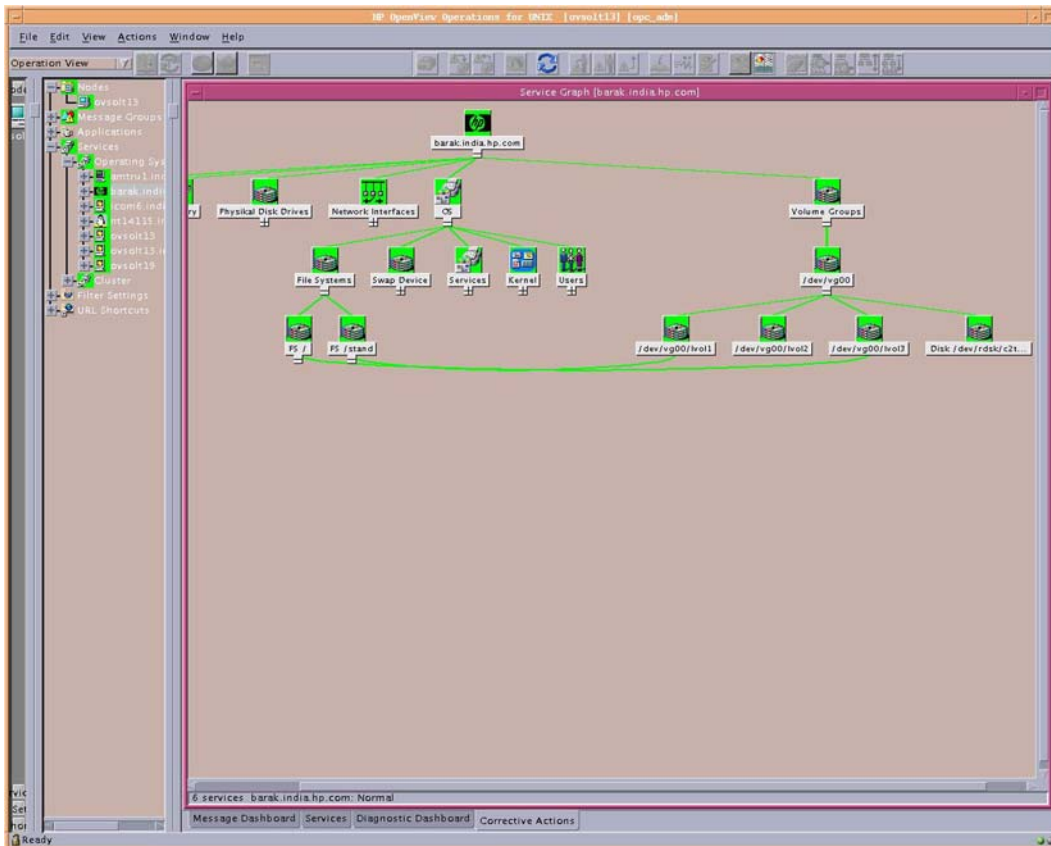
Figure 2-12 Service View for Veritas Volume Manager



Service View for Logical Volume Manager

Inactive Logical Volumes and Logical Volume Groups created by LVM are not displayed in the service view which the OSSPI generates. However, Inactive Volumes created by Veritas Volume Manager are discovered and displayed in the service view.

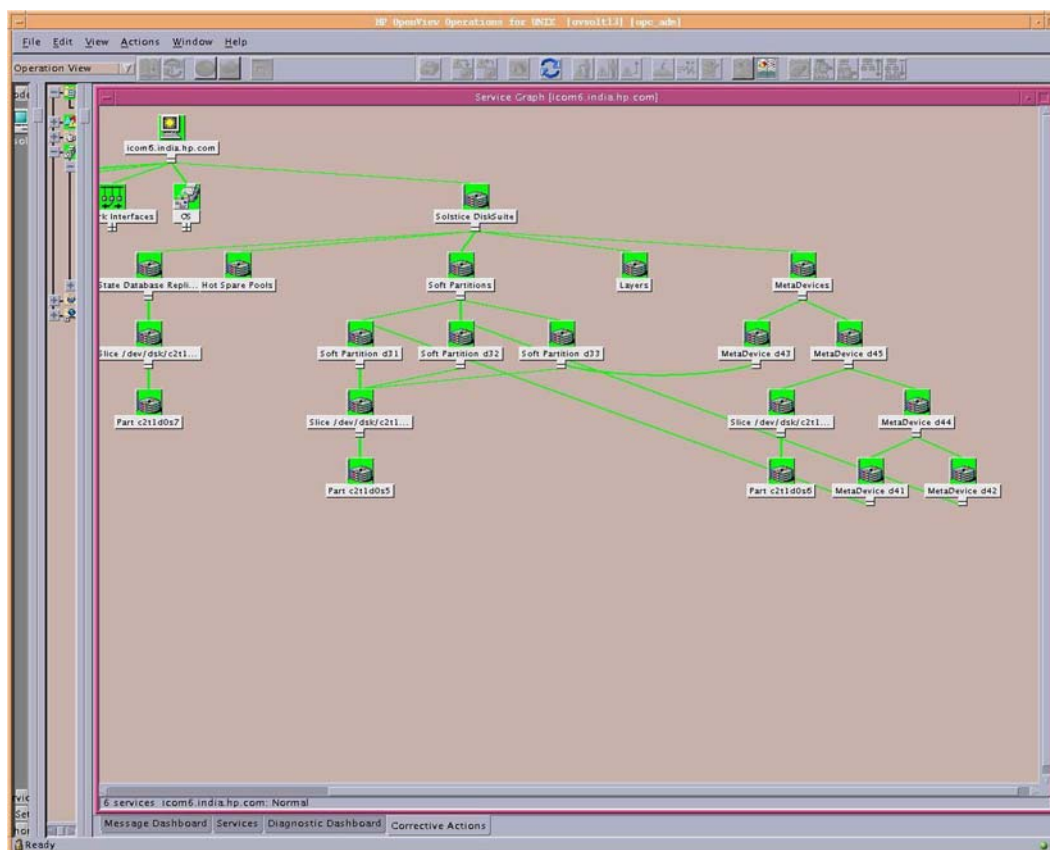
Figure 2-13 Service View for Logical Volume Manager



Service View for Solstice DiskSuite

The service graph of Solstice DiskSuite shows a hierarchical representation of its objects. However, unlike the Windows service graph, if, for example, a meta device (d30) is made up of meta device d20 and d10, you must open d30 before d20 and d10 appear in the service graph. Currently, only State Database Replicas, Hot Spare Pools, Soft Partitions, Layers and Metadevices in the local disk set are discovered and monitored.

Figure 2-14 Service View for Solstice DiskSuite



3 Getting Started

This section describes how to perform the initial configuration of the Smart Plug-in for UNIX Operating Systems. Once you have completed the tasks in this section, you will be able to use the features and functionality of the OSSPI.

In this Section

The tasks described in this chapter take you through the initial configuration of the OSSPI software and must be performed as OVO user `opc_adm`. This chapter includes the following topics:

- “Assigning Nodes to the Discovery Group”
- “Assigning User Profiles”
- “Distributing the OSSPI Templates and Instrumentation”
- “Choosing the Performance Data Source”
- “Discovering OS Services on Managed Nodes”
- “Uploading Discovered OV Service Navigator Configuration Files”
- “Distributing the Modified OSSPI Templates”

Assigning Nodes to the Discovery Group

In order to facilitate the discovery of the services you want to monitor with the OSSPI templates on the various OVO managed nodes in your environment, you first need to add the managed nodes which you want to monitor with the OSSPI to the OSSPI-Discovery node group, one of the default node groups added to the OVO Node Group Bank window during the installation of the OSSPI software.

NOTE

We recommend that you do not assign any managed nodes to the other OSSPI node groups at this point in time as this could lead to a large number of meaningless messages appearing in the Message Browser window.

1. Start the OVO GUI
2. If the nodes you want to monitor with the OSSPI are *already* present in the OVO Node Bank window, you can skip steps 2 and 3 and proceed directly to step 4.

If the nodes you want to monitor with the OSSPI are *not* yet present in the OVO Node Bank window, open the Node Bank window and select the following menu option:

Actions:Node > Add

The Add Node window opens.

3. Enter the requested details as appropriate (label, long hostname, etc), click the [IP Address] button to resolve automatically the IP address, and ensure the newly added nodes appear correctly in the Node Bank window.

Repeat this step for each OVO managed node in your environment that you want to monitor with the OSSPI.

4. Open the Node Group Bank window and expand (by double-clicking) the OSSPI-Discovery node group
5. Drag the managed nodes you want to monitor with the OSSPI from the Node Bank window and drop them into the OSSPI-Discovery node-group window.

NOTE

If the nodes you want to monitor with the OSSPI are part of an MC/ServiceGuard cluster, place a copy of all *physical* nodes in the MC/SG cluster in the OSSPI-Discovery node group. The MC/SG cluster's virtual node has to be added to the OSSPI-HPUX node-group as an External (Message allowed) node.

6. Check that the correct, default templates and template groups have been automatically assigned by selecting any one of the newly added nodes and using the following menu option:

Actions: Agents > Assign Templates...

7. If you want to verify template assignments for an individual node (or group of nodes), you can use the OVO report feature to generate a list of the templates assigned to a given node, as follows:

- a. In the Node Bank (or Node Group Bank) window, select the node (or node group) for which you want to generate a report.

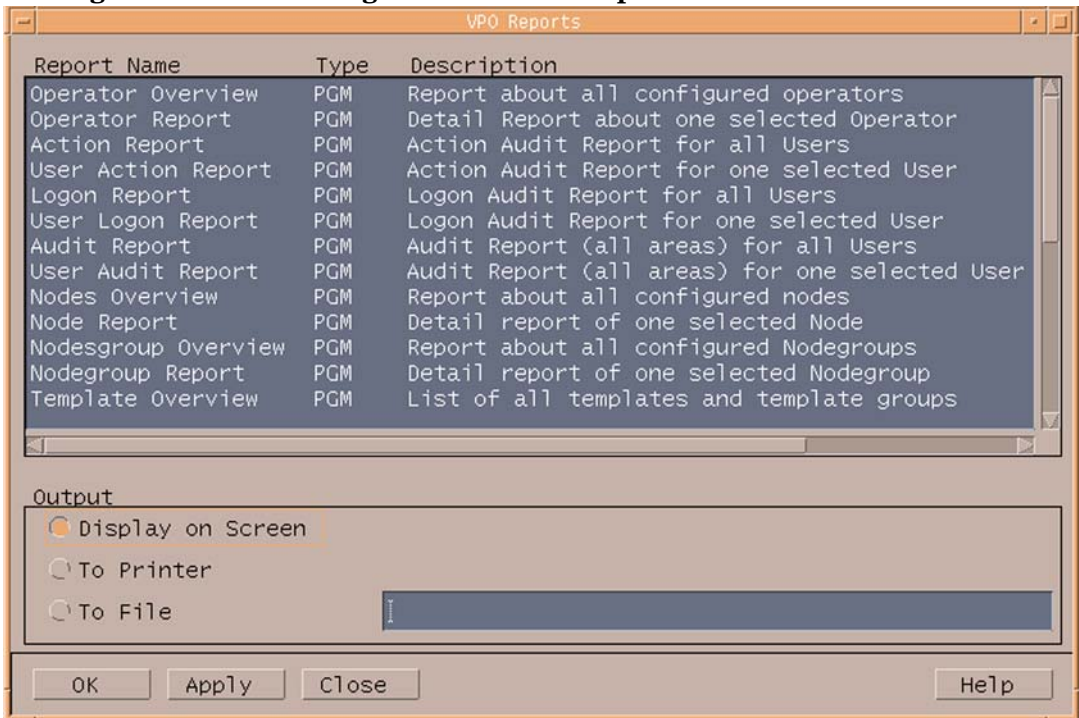
- b. Click the following menu option:

Actions > Utilities > Reports

- c. Select Node Report as illustrated in Figure 3-1.

- d. Make sure that the OSSPI-specific templates listed in “Verifying Installation of the OSSPI Software” in the *HP OpenView Smart Plug-in for UNIX Operating Systems Installation Guide* are present in the list of template assignments generated by the report.

Figure 3-1 Generating an OVO Node Report



Assigning User Profiles

This section describes how to assign the OSSPI user profiles to the OVO users whom you intend to make responsible for the administration of the OSSPI and the managed nodes on which the OSSPI runs. For more information about user profiles in OVO, see “Users and User Profiles” on page 45.

To assign user profiles to OVO users:

1. Open the `User Bank` window.
2. Select and right-click the user to whom you want to assign responsibility for the OSSPI (e.g. `opc_adm`) and choose the following option from the menu that pops up:

`Modify...`

The `Modify User: <user>` window displays. In this example, `<user>` would be; `opc_adm`

3. Click the `[Profiles...]` button. The `Profiles of User: <user>` window appears.
4. Next, open the `User Profile Bank` window
5. Drag the `AIX-admin`, the `HPUX-admin`, the `Linux-admin`, the `Solaris-admin`, and the `Tru64-admin` user profiles from the `User Profile Bank` window and drop them into the `Profiles of User: <user>` window.

NOTE

The responsibilities in a user profile are *global* and, as a result, not immediately visible in the `Responsibility Matrix` window of the individual user to whom the user profile is assigned. Similarly, the responsibilities of the user are *local* and only visible in the user's own responsibility matrix. For example, if you assign the `HPUX-admin` user profile to the OVO user `opc_adm`, *all* the message groups and node groups assigned in the `HPUX-admin` user profile are indeed assigned to the OVO user `opc_adm` even if it does not, at first, appear so in `opc_adm`'s responsibility matrix.

6. In the `Modify User: <user>` window, click `[OK]`.

Distributing the OSSPI Templates and Instrumentation

This section describes how to distribute the OSSPI templates, actions, commands, and monitors to the OVO managed nodes you want to monitor with the OSSPI. To assign and distribute the OSSPI templates, carry out the following steps:

1. In the Node Group Bank Window, click the OSSPI-Discovery node group, and select the following menu option:

Actions:Agents > Install/Update S/W & Config...

The Install/Update S/W & Config... window opens.

2. Verify that the correct nodes and node groups appear and that the template assignments you made in the previous step are correctly displayed in the Assigned Templates list.

3. Next, check (✓) the items you want to distribute and click [OK].

✓ Templates

✓ Actions

✓ Commands

✓ Monitors

4. Click [OK]

OVO opens a shell to indicate the progress of the distribution. When the distribution process has completed, a message appears in the Message Browser window indicating that the template distribution completed successfully. You can refresh the browser window using the following menu option in the Message Browser window:

Browser: Reload

Choosing the Performance Data Source

In this section, you tell OVO which (if any) performance tool is running on the OVO managed node you want to monitor with the OSSPI so that the correct OSSPI templates can be distributed and the appropriate monitors started. The OSSPI allows you to choose between the following performance-related data sources and uses the following pre/postfixes to distinguish between them in the OVO GUI:

CODA/CD	Coda (OVO Embedded Performance Component)
GP	GlancePlus
MW	OV Performance (formerly MeasureWare)
NP	No performance tools are running on the node

In order to distribute to the managed nodes only those templates which the managed nodes require, you should *remove* from the template-assignment list prior to the distribution any template groups which apply to performance tools that are *not* present on the managed node you want to monitor.

NOTE

Coda templates (with the CD prefix) appear by default in the OSSPI template-assignment list for OVO 6.0 and OVO 7.00. For earlier versions of OVO, for example; 5.30, the OV Performance templates (with the MW prefix) appear in the template assignment list by default.

For example, if the OVO Embedded Performance Component is *not* installed on an OVO 6.0 managed node, you should remove the CD_* templates from the default assignment list and replace them with either the MW, GP, or NP templates depending on whether MeasureWare or GlancePlus is installed on the managed node or No Performance tool at all. For more information about the naming conventions used with the OSSPI templates and monitors, see “Template Groups” on page 31.

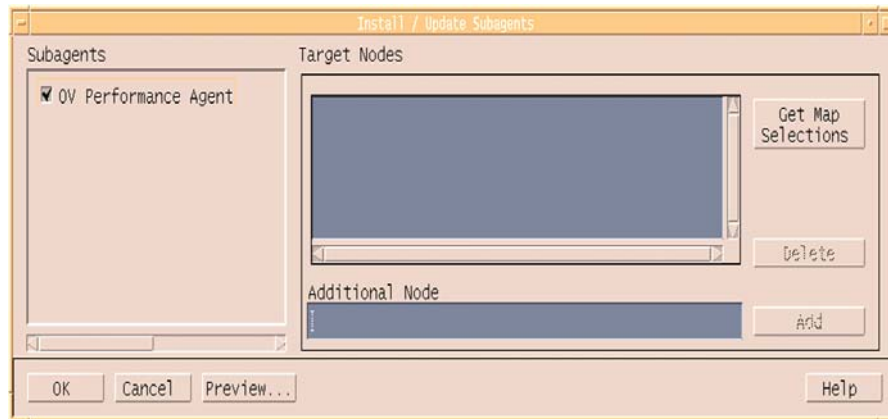
To use the OVO GUI to install the OpenView Performance agent:

1. In the Node Bank window, select the following menu option:

Actions: Subagent > Install/ Update...

The Install / Update Subagents window opens as shown in Figure 3-2.

Figure 3-2 Installing the OV Performance Agent Package



2. Check [✓] the OV Performance Agent button and click [OK]

NOTE

Wait for sometime after the installation of the OV Performance agent is completed in order to be sure that the OV Performance agent processes have indeed started successfully and are running. Run the Status MW application in the Un*X_Oper group to see if all the MW processes (alarm gen) are running. All these processes are required to be running before any of the OSSPI templates are deployed on the node.

Discovering OS Services on Managed Nodes

In this section, you use the `Discovery` application installed by the OSSPI to find out what services are running on the nodes you want to manage with the OSSPI. The OSSPI uses this information to generate a service-configuration file for the OpenView Service Navigator. To discover which service are running on the nodes you want to monitor with the OSSPI:

1. Start the OVO GUI and open the `Node Bank` window.
2. Open the `Application Bank` window and expand the OSSPI application group.
3. Expand the `UN*X_Admin` window and drag the node you want to monitor with the OSSPI over to the `UN*X_Admin` application group window and drop it onto the `Discovery` application. This starts the discovery application on the management server.
4. The `Discovery` application runs as root on the management server and initiates a client side discovery on the managed node.
5. The OSSPI displays the progress of the `Discovery` application in a shell. Note that error messages are written to the following file on the OVO management server:

```
/var/opt/OV/share/ossapi/log/discovery.log
```

6. `Discovery` notifies when it starts, ends or fails. You can view the messages in the active message browser to see the current status of `Discovery`.
7. To reload the message browser, use the following menu option, which is only available in the `Message Browser` window:

Browser: Reload
8. Once discovery application is completed, the node is automatically added to the appropriate OSSPI node group. Example: `Linux` nodes will be assigned `OSSPI_Linux` node group.

Discovery Rerun Scenarios

The discovery process takes a snap shot of the state of the services on the managed node at a given point in time. If the service configuration on a managed node subsequently changes, you will have to run the discovery process again to have the changes reflected in the OSSPI service tree. The OSSPI configuration files are also updated with the current set of monitor able files.

Typical Scenarios when OSSPI discovery should be (re) run on the node.

- When the Logical Volume Manager, Veritas Volume Manager, Solstice DiskSuite setup is modified.
- When new hard disks are configured or added.
- When new network adapters are configured or added.
- When services are configured or new services are installed on the nodes. (named daemon, cron daemon)
- When node is made part of a MC/SG cluster.

NOTE

Inactive Logical Volumes and Logical Volume Groups are not integrated in the service view which the OSSPI generates.I

Uploading Discovered OV Service Navigator Configuration Files

In this section, you upload to the OVO database the service-configuration files generated by the Discovery application, which you ran on the OVO managed nodes in the previous steps.

1. In the Message Browser window, locate and double-click the following message:


```
Discovery Server Done. For Upload to OV Service Navigator, start operator-initiated action.
```


The Message Details window opens.
2. Click [Perform Action] and watch the Status field to verify that the operator-initiated action completes successfully. The operator-initiated action uploads to OVO the service-configuration files it generated for the selected nodes. Note that additional information is also available using the [Annotations...] button.
3. Close the Message Details window.

NOTE

The top-level OSSPI service is assigned by default to the OVO user `opc_adm`. If you want to assign the service to a different OVO user, use the `opcservice` command as illustrated below.

Enter: **`opcservice -assign <user> OSSPI`** where `<user>` is the name of the OVO user to which you want to assign the OSSPI service. Note that the new service assignment is recognized (and displayed in the service tree) after upload to the service engine.

The following message should appear in the message-browser window to indicate the successful completion of the `opcservice` command:

```
Successfully assigned services to operator <user>
```

Automatic Assignments of Nodes to Node Groups

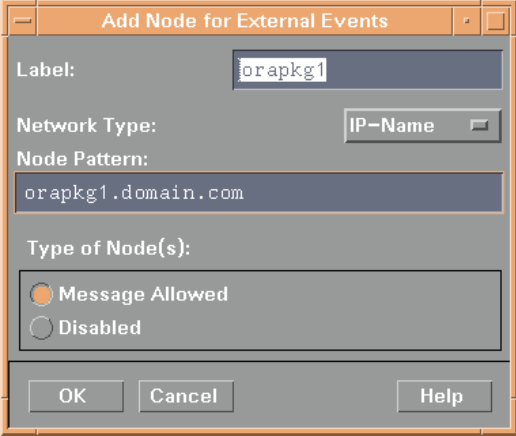
Once discovery application is completed, the node is automatically added to the appropriate OSSPI node group.

However, if the nodes you want to monitor with the OSSPI are part of an MC/ServiceGuard cluster, each MC/SG package (or *virtual* node) must be represented in the OSSPI-HPUX node-group as an *External* (message-allowed) Node, as illustrated in Figure 3-3 by orapkg1. Note that this is a *requirement* for shared file system monitoring.

orapkg1 shown in the figure is the package name and must be a *valid* DNS name resolving to orapkg1.domain.com

Figure 3-3

Adding External Nodes



The screenshot shows a window titled "Add Node for External Events". Inside the window, there are the following elements:

- Label:** A text field containing "orapkg1".
- Network Type:** A dropdown menu currently set to "IP-Name".
- Node Pattern:** A text field containing "orapkg1.domain.com".
- Type of Node(s):** A section with two radio buttons: "Message Allowed" (which is selected) and "Disabled".
- Buttons:** At the bottom of the window are three buttons: "OK", "Cancel", and "Help".

Distributing the Modified OSSPI Templates

To complete the distribution of the OSSPI templates to the OVO managed nodes you want to monitor with the OSSPI, you have to distribute the OSSPI templates a second time, as follows:

1. In the Node Group Bank Window, hold down the **Ctrl** key, click the OSSPI-AIX, OSSPI-HPUX, OSSPI-Linux, OSSPI-Solaris, and OSSPI-Tru64 node groups, and select the following menu option:

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

The Install / Update VPO Software and Configuration... window opens.

2. Verify that the correct nodes and node groups appear and that the template assignments you made in the previous step are correctly displayed in the Assigned Templates list.
3. Next, check [✓] the items you want to distribute. In this case, it is only the new templates assigned in the previous step:

✓ Templates

Actions

Commands

Monitors

4. Finally, check [✓] the Force Update option to ensure that modifications are distributed:

✓ Force Update

5. Click [OK].

4 Customizing the OSSPI

This chapter describes how to fine-tune the wide variety of functions and features in the OSSPI software to suit the demands of your environment.

In this Section

This section provides reference information which is designed to help you understand how the OSSPI works and, in addition, how to go about adapting it to suit the precise requirements of your particular environment. The section includes:

- “Configuring Performance Tools Centrally with OVO Templates”
- “Configuring OV Performance and GlancePlus”
- “Using Threshold-Monitor Conditions to Set up OV Performance and GlancePlus”
- “Configuring the OVO Embedded Performance Component”
- “Using Threshold-Monitor Conditions to Set up the OVO Embedded Performance Component”
- “Monitoring File Systems with the OSSPI”
- “Monitoring Processes with the OSSPI”
- “Service Discovery”
- “Monitoring OS-Service Configuration Files”
- “Configuring Standard Templates”
- “Modifying Polling Intervals for Monitoring File System Utilization (GlancePlus and OVPA)”

Configuring Performance Tools Centrally with OVO Templates

If performance tools such as Coda, OV Performance, or GlancePlus are running on the managed nodes which you want to monitor with the OSSPI, you can use OVO message-source templates to configure the performance thresholds *centrally* on the OVO management server. This section and the sections that follow describe how to instruct the OSSPI to read values (default or modified by you) in message-source template conditions, use the information to define the alarm thresholds required by Coda, OV Performance, or GlancePlus and, where appropriate, tell the respective performance tool to read the updated definitions.

To set up performance thresholds centrally you need to carry out the following high-level tasks:

1. Set up the threshold monitors to configure your performance tool
2. Define conditions for the threshold monitors so that you can compare real values occurring in the environment you are monitoring with the thresholds you define.

For OV Performance, the OSSPI monitors the downloaded threshold monitors and automatically scans for changes. If any changes are discovered, the OSSPI inserts the *new* threshold monitor values into a temporary file, parses the file for syntax errors and, if no errors are found, appends it to `osspi_alarmdef`, which is in turn included in the central `alarmdef` file as illustrated below. The OSSPI then instructs OV Performance to reread the alarm definitions in the `alarmdef` file:

```
# edited by OSSPI --- BEGIN
include /var/opt/OV/osspi/conf/osspi_alarmdef
# edited by OSSPI --- END
```

The OSSPI writes the definitions for GlancePlus to a *separate* alarm syntax file, `syntax_gp` then restarts GlancePlus to use these new definitions.

NOTE

After modifying a template or any of its conditions, make sure that you re-distribute the templates to the node(s) that require it.

Configuring OV Performance and GlancePlus

The OSSPI allows you to use the OVO GUI to set up new (or modify existing) threshold monitors for OV Performance or GlancePlus. You will need to use the Add Threshold Monitor window or the Modify Threshold Monitor window illustrated in Figure 4-1. When adding or modifying monitor templates, the OSSPI expects you to follow the rules and naming conventions described in this section.

Figure 4-1 **The Modify Threshold Monitor Window**

The screenshot shows the 'Modify Threshold Monitor' window with the following configuration:

- Monitor Name:** OSSPI-MWA_Cpu_Load_1
- Description:** Cpu_Load
- Monitor:** Program
- Monitor Program or MIB ID:** /ossapi_null.sh OSSPI-MWA_Cpu_Load_1 'GBL_CPU_TOTAL_UTIL > 95 prob 90, GBL_PRI_QUE
- Polling Interval:** 365d
- On Node:** (empty)
- Threshold Type:** Maximum (selected)
- Message Generation:** with Reset (selected)
- Message Defaults:**
 - Severity:** unknown
 - Node:** (empty)
 - Application:** (empty)
 - Message Group:** (empty)
 - Object:** (empty)
 - Service Name:** OSSPI:cpu@@<\$MSG_NODE_NAME>
- Buttons:** Instructions..., Message Correlation..., Advanced Options..., OK, Cancel, Help

The information that follows helps you through the configuration process by describing what information needs to be entered and, where appropriate, in what format for each of the required fields in the Add Threshold Monitor or the Modify Threshold Monitor window.

Monitor Name A string that *must* begin with one of the following prefixes:

OSSPI-MWA_ for OV Performance monitors

	OSSPI-GP_ for GlancePlus monitors
Description	The name of the object to be monitored by OV Performance or GlancePlus, for example: CPU_Bottleneck
Monitor Program or MIB ID	<p>A string composed of the monitor program <code>osspi_null.sh</code> followed by a space and the arguments indicated using the order and syntax specified. Note that the monitor program <code>osspi_null.sh</code> is <i>required</i> by OVO:</p> <pre>osspi_null.sh <monitor_name> '<Rule_1>, <Rule_2>, <Rule_n>'</pre> <p><i>monitor_name</i> the <i>name</i> of the monitor as specified in the Monitor Name field followed by a space</p> <p><i>Rule n</i> threshold rules separated by a comma and a space <i>and</i> enclosed in single quotes, for example;</p> <pre>'<rule_1>, <rule_2>, ...'</pre> <p> where <i>rule_n</i> takes the following form:</p> <pre><METRIC> <CONDITION></pre> <p> For example:</p> <pre>GBL_CPU_TOTAL_UTIL > 95 prob 90</pre> <p>The rules compute a value which represents the <i>STATUS</i> of the monitored object. <i>STATUS</i> can then be compared with the thresholds defined in the monitor conditions.</p>
Polling Interval	Enter a large number, for example; 365 (days). The monitor is not required to run at any time: it is simply used to define conditions.
Threshold Type	Monitor <i>maximum</i> thresholds. The thresholds themselves are defined in the monitor conditions as described in “Using Threshold-Monitor Conditions to Set up OV Performance and GlancePlus” on page 74.
Message Generation	Set to: With Reset
Service Name	<p><i>Optional</i> field: enter the name of the service (and sub-service) to which the message is to be assigned—in the following format:</p> <pre>OSSPI:<service_name>@@<\$MSG_NODE_NAME></pre> <p>where:</p>

<i>service_name</i>	is the OSSPI <i>sub-service</i> name, for example; cpu
MSG_NODE_NAME	a variable resolved by OVO to the name of the managed node that generated the message

Object *Optional* field: if a component such as a file system, disk, or network adapter is present more than once on the managed node you want to monitor, use the Object field to specify a tag which indicates the component *type*. The OSSPI inserts the rules and conditions defined in the template into the `alarmdef` or `syntax.gp` file for *each* instance of the component detected during the discovery process and attaches the tag as a prefix to each rule. The following tags are currently supported:

Disk	system disk
FS	file system
NetworkAdapter	network adapter

Using Threshold-Monitor Conditions to Set up OV Performance and GlancePlus

If you are using the OVO Condition No. # window illustrated in Figure 4-2 on page 76 to set up new (or modify existing) conditions for OSSPI threshold monitors, remember to set the Message on Matched Condition option. Note also that OVO expects you to follow the rules and naming conventions described in this section when adding entries to the following fields:

Description	The name of the template or monitor whose conditions you want to set up or modify, for example; OSSPI-MWA_Cpu_load_1.1
Threshold	Enter the value used to compare with <i>STATUS</i> in order to determine whether or not to generate an alarm for the monitored object specified in the Description field of the Threshold Monitor window, as described in “Configuring OV Performance and GlancePlus” on page 72. Note that the thresholds defined in the conditions must appear in the list from first to last in <i>decreasing</i> order, with the last condition set to 0 (zero).
Reset	The value zero (0)

Duration	Enter the polling interval to be used by OV Performance or GlancePlus to check the <i>STATUS</i> of the monitored object. This value must be the same for <i>all</i> conditions associated with a single threshold monitor.
Message Text	Use this field to specify the text of the alarm message that is generated and sent to the OVO Message Browser if a threshold is crossed. No OVO variables may be used. Note also that the string “\$\$” in the Message Text field will be replaced by the value of <i>STATUS</i> , which is computed by the threshold-monitor rules you define, as described in “Monitor Program or MIB ID” on page 73.
Severity	For all conditions except the <i>last</i> condition, you can select any severity value from the drop-down menu <i>except</i> Normal or Unchanged. However, the <i>last</i> condition you define for a performance-related threshold monitor is used to determine the message OV Performance or GlancePlus sends as an end-of-alarm message and <i>must</i> have the severity Normal.

Figure 4-2 **The Condition Number Window**

Condition No. 1

Description

OSSPI-MWA_Cpu_Load_1.1

Condition

Object Pattern

Threshold: 99 Reset: 0 Duration: 1m

☐ - Suppress Matched Condition
☐ = Suppress Unmatched Condition
☒ + Message on Matched Condition

Advanced Options...

Set Attributes

Severity	Node	Application	Message Group	Object
critical				

Message Text

CPU load, bottleneck situation (Probability: \$\$\$).

Service Name

Message Type

Instructions... Message Correlation...

Actions

☐ On Server Log Only (put directly into History Log)

	Node	Command	Anno.	Ackn.
Automatic			No	No
Operator initiated			No	No
<input type="checkbox"/> Forward to Trouble Ticket				No
<input type="checkbox"/> Notification				

OK Cancel Test Pattern Matching... Help

Configuring the OVO Embedded Performance Component

The OSSPI allows you to use the OVO GUI to set up new (or modify existing) threshold monitors for the OVO Embedded Performance Component (Coda). You will need to use the Add Threshold Monitor window or the Modify Threshold Monitor window illustrated in

Figure 4-3. When adding or modifying monitor templates to configure OVO Embedded Performance Component, the OSSPI expects you to follow the rules and naming conventions described in this section.

Figure 4-3 The Modify Threshold Monitor Window

The information that follows helps you through the configuration process by describing what information needs to be entered and, where appropriate, in what format for each of the required fields in the Add Threshold Monitor or the Modify Threshold Monitor window.

- Monitor Name** A string that must *begin* with one of the following prefixes:
OSSPI-CODA_ for all Coda monitors
- Description** The name of the object to be monitored by Coda, for example: CPU_Load
- Monitor Program or MIB ID** Select Program from the pull-down menu and, in the Monitor Program or MIB ID field, enter a string (without spaces) using the order and syntax specified in the following example, including the back-slashes (\):

`\\OVPERF\\CODA\\<OBJECT_TYPE>\\<METRIC>`

OVPERF this is the key for the OV performance component

CODA this is the datasource for the OVPERF key

OBJECT_TYPE replace with the type of object you want the OSSPI to use, for example: GLOBAL¹

METRIC replace with the short form of the metric source for <OBJECT_TYPE>, for example: GBL_CPU_TOTAL_UTIL.

Polling Interval The polling interval for the OVO Embedded Performance Component cannot be configured from the OVO management server. Enter: **5m**

Threshold Type Monitor *maximum* thresholds. The thresholds are defined in the monitor conditions as described in “Using Threshold-Monitor Conditions to Set up the OVO Embedded Performance Component” on page 78.

Message Generation Set to: With Reset

Service Name Optional field: enter the name of the service (and sub-service) to which the message is to be assigned—in the following format:

OSSPI:<service_name>@@<\$MSG_NODE_NAME>

service_name is the name of the OSSPI *sub-service*, for example: **cpu**

MSG_NODE_NAME is a variable resolved by OVO to the name of the managed node that generated the message

Using Threshold-Monitor Conditions to Set up the OVO Embedded Performance Component

If you are using the OVO Condition No. # window illustrated in Figure 4-2 on page 76 to set up new (or modify existing) conditions for OSSPI threshold monitors, remember to set the Message on Matched Condition option. Note also that OVO expects you to follow the rules

1. See the OVO documentation for information about OVO Embedded Performance Component metrics.

and naming conventions described in this section when adding entries to the fields described in this section and illustrated in Figure 4-4 on page 80.

Description	Enter the name of the OSSPI monitor for the OVO Embedded Performance Component that you want to set up or modify, for example: <code>OSSPI-CODA_Cpu_Load_1</code>
Threshold	Enter the value used to compare with <i>STATUS</i> in order to determine whether or not to generate an alarm for the monitored object (e.g. <code>Cpu_Load</code>) specified in the Description field of the Threshold Monitor window, as described in “Configuring the OVO Embedded Performance Component” on page 76. Note that the thresholds defined in the conditions must appear in the condition list from first to last in <i>decreasing</i> order, with the last condition set to 0 (zero).
Reset	The value zero (0)
Duration	Enter the polling interval to be used by the OVO Embedded Performance Component to check the <i>STATUS</i> of the monitored object. This value must be the same for <i>all</i> conditions associated with a single threshold monitor.
Message Text	Use this field to specify the text of the alarm message that is generated and sent to the OVO Message Browser if a threshold is crossed. Note that you <i>cannot</i> use OVO variables in this field.
Severity	For all conditions except the <i>last</i> condition, you can select any severity value from the drop-down menu <i>except</i> Normal or Unchanged. However, the <i>last</i> condition you define for a performance-related threshold monitor is used to determine the message which is sent as an end-of-alarm message and <i>must</i> have the severity Normal.

Figure 4-4 **The Condition Number Window**

Condition No. 1

Description

OSSPI-CD_Cpu_Load_1.1

Condition

Object Pattern

Threshold: 99 Reset: 0 Duration: 1m

☐ - Suppress Matched Condition Advanced Options...

☐ = Suppress Unmatched Condition

☒ + Message on Matched Condition

Set Attributes

Severity	Node	Application	Message Group	Object
critical				

Message Text

CPU load, bottleneck situation

Service Name

Message Type

Custom Attributes... Instructions... Message Correlation...

Actions

☐ On Server Log Only (put directly into History Log)

	Node	Command	Anno.	Ackn.
Automatic			No	No
Operator initiated			No	No

☐ Forward to Trouble Ticket No

☐ Notification

OK Cancel Test Pattern Matching... Help

Auto-Acknowledging OV Performance Messages and OV EPC Messages

By default, OV Performance and OV EPC messages are auto-acknowledged in the following manner:

New Message	Acknowledges				
	Critical	Major	Minor	Warning	Normal
Critical	X	X	X	X	X
Major	X	X	X	X	X
Warning	X	X	X	X	X
Normal	X	X	X	X	X

The pattern of acknowledgement follows the state-based browser concept where in only current state or severity of the monitored objects are visible in the browser message. For more information about the state-based browser concept, see the *HP OpenView ServiceNavigator Concepts and Configuration Guide*.

For example, a critical message is sent from node 1 to the OpenView management server about CPU utilization. When file system utilization reaches 89% on CPU on node 1, a warning message is sent. This warning message auto-acknowledges the previously sent critical message and all other (major, minor, warning or normal) messages that node 1 sent about CPU utilization.

Monitoring File Systems with the OSSPI

The generic file-system monitor provided with the Smart Plug-in for UNIX Operating Systems tracks the use of locally mounted and remote disks on any specified host. The file-system monitor is extremely flexible in order to be able to take into account the wide range of possible circumstances under which it can be used. The OSSPI file-system monitor can:

- obtain mount information from system files for all normally mounted disks (local disks as well as remotely mounted filesystems)
- restrict information to listed filesystems (command line) and/or file-system types
- report if file system(s) are overused both in terms of space and/or inodes. Any limits must be specified in a configuration file or in the template itself (in the case of `opcmon(1)` calls)

NOTE

The `Filesystem` template that appears in each operating-system-specific template group references the same *base* template, namely; `OSSPI-NP_Filesystem_1`. Consequently, any changes you make to any *one* of the file-system templates will appear in *all* the other file-system templates, too. If you have any requirements that are specific to a particular operating system's file-system monitor, you will have to create a monitor template for the specific operating system, using the generic file-system-monitor template `OSSPI-NP_Filesystem_1` as a model.

In the Monitor Program or MIB ID field of the Add/Modify Threshold Monitor window, the file-system monitor accepts any one of the following parameters:

`type=<fs_type>`

the *type* of filesystem to be monitored,
for example: `type = nfs`

`<fs_name>`

the *name* of the filesystem to be
monitored, for example: `/var`

If no file-system parameters are specified explicitly, the file-system monitor uses the contents of a configuration file generated by the OSSPI and located in the following directory on the managed node, `/var/opt/OV/bin/OpC/monitor/oss_pi_fsmon.cfg` or `/var/opt/OV/oss_pi/conf/fsmon_local.cfg`. These files contain a list of all the filesystems that you intend to monitor with the OSSPI's generic file-system monitor. The contents of the file-system monitor's configuration file must meet the syntax rules listed below and illustrated in Example 4-1 on page 84:

- the file-system's mount point, for example; `/var`
- thresholds for disk/inode usage that reflect the following OVO severity levels (warning, minor, major, critical, etc.). The threshold values for disk and inode are separated by a forward slash, for example; `85/90`
- the time at which the file-system monitor should run using the 24-hour clock, for example; `18-23` (for eight to eleven o'clock in the evening)
- the day (or days) of the week on which the monitor runs
- optionally, a value (yes/no) to indicate whether or not *auto-extend* is true

The OSSPI discovery process writes a set of standard file systems to a default configuration file. The standard file systems are: `/`, `/usr`, `/var`, `/opt`, and `/tmp`. These standard file systems are given pre-defined thresholds for disk space and inode usage (separated by a forward slash) for the severity statuses warning, minor, major, and critical in increasing order of severity as illustrated in Example 4-1. Note that if a file systems is visible only when a specific MC/SG package is running, the file system name has to be prefixed with the name of the MC/SG package enclosed in square brackets (`[]`), for example; `[pkg1]/pkg`.

Example 4-1 Sample Configuration File for the OSSPI Filesystem Monitor

```
fsmon_local.cfg

## File-system Monitor file generated by the OSSPI
#
#FS      Warn  Min   Maj   Crit   Time  WeekdaExtend
#
/         80/80 90/90 95/95 97/97 0-24   0,1,2,3,4,5,6  n
/usr      90/90 95/95 97/97 98/98 6-20   1,2,3,4,5      n
/var      70/70 85/85 90/90 95/95 0-24   0,1,2,3,4,5,6  y
/opt      90/90 95/95 97/97 98/98 18-6   1,3,5          n
/tmp      60/50 70     80/   /90    12-13 0,6            n
[pgk1]/pkg 40     70     80     90
```

NOTE

In Linux, `fsmon` is a Perl script. If you use Regular Expression in `fsmon.cfg` in a Linux environment, make sure that the regular expression is Perl compliant.

Service IDs

The OSSPI file-system monitor automatically attaches service IDs to the `opcmon` and `opcmsg` calls it sends. The service ID sent by the OSSPI takes the following form:

```
OSSPI:fs:<fsname>@@<hostname>
```

where:

<i>fsname</i>	is the name of the file system you want the OSSPI file-system monitor to check
<i>hostname</i>	is the fully qualified <i>domain</i> name or, for an MC/SG package, the fully qualified <i>package</i> name of the host on which the file-system is mounted.

Monitoring Processes with the OSSPI

The processes and process groups which you want to monitor with the OSSPI have to be defined in a specific configuration file, the format and contents of which are described in detail in this section. The process monitor can be executed either by means of this configuration file or on the command line with specific parameters.

Using Procmon.cfg

A default configuration file located on the managed node, `/var/opt/OV/ossapi/conf/procmon.cfg`, is generated when Discovery application is run on the node. However, individual entries in the configuration file (including even single processes in a process group) can be overwritten at any time or extended by means of an additional, local configuration file, `procmon_local.cfg`.

NOTE

Use the Proc edit global and Proc edit local applications in the UN*X_Admin Application group to edit the process monitor configuration file.

Figure 4-5 Default Template created by OSSPI to monitor ntp Processes

The screenshot shows the 'Modify Threshold Monitor' dialog box. The 'Monitor Name' is 'OSSPI-ntpproc' and the 'Description' is 'ntp Processed'. The 'Monitor' is 'Program' and the 'Monitor Program or MIB ID' is 'ossapi_procmon.sh OSSPI-ntpproc_1 ntp'. The 'Polling Interval' is '10m' and it is 'On Node'. The 'Threshold Type' is 'Maximum'. The 'Message Generation' is 'with Reset'. The 'Message Defaults' table shows 'Severity' as 'unknown', 'Node' as 'HP_OSSPI', 'Application' as 'OSSPI-Services', and 'Object' as 'ntp'. The 'Service Name' is empty. There are buttons for 'Instructions...', 'Message Correlation...', 'Advanced Options...', 'OK', 'Cancel', and 'Help'.

Monitor Name	Description
OSSPI-ntpproc	ntp Processed

Monitor	Monitor Program or MIB ID
Program	ossapi_procmon.sh OSSPI-ntpproc_1 ntp

Threshold Type	Message Generation
Maximum	with Reset

Message Defaults			
Severity: unknown	Node: HP_OSSPI	Application: OSSPI-Services	Object: ntp
Service Name:			

Example 4-2 Excerpt from an OSSPI Process-Monitor Configuration File

```
#Process-Monitor Configuration file

#Col1          Col2   Col3   Col4   Col5
[ntp]
ntpd           *       1
@start=/etc/init.d/ntpd stop;/etc/init.d/ntpd start

[cron]
cron           *       1
@start=/etc/init.d/crond stop;/etc/init.d/crond start

[syslog]
syslogd        *       -m 0   1
klogd          -2      1
@start=/etc/init.d/syslog stop;/etc/init.d/syslog start

[snmp]
snmpd          *       6-20   1,2,3,4,5
@start=/etc/init.d/snmpd stop;/etc/init.d/snmpd start

[portmap]
portmap        *       6-20   0,1,2,3,4,5,6   1-
@start=/etc/init.d/portmap stop;/etc/init.d/portmap start

[mail]
sendmail       *       1-
@start=/etc/init.d/sendmail stop;/etc/init.d/sendmail start

[print]
lpd            *       1
@start=/etc/init.d/lpd stop;/etc/init.d/lpd start

[SAPprocs-1]
proc1          *       3
proc2          *       3
@user=user1,user2,user3

[SAPprocs-2]
proc1          *       1
@user=scott,tiger
```

Figure 4-6 Example to Monitor SAP Process Groups using Regex Specification for the Section Names

Copy Threshold Monitor

Monitor Name: OSSPI-SAP-procs_1 Description: SAP Processes

Monitor: Program Monitor Program or MIB ID: osspi_procmon.sh OSSPI-SAP-procs_1 'SAPprocs.*'

Polling Interval: 10m On Node

Threshold Type: Maximum Minimum

Message Generation: with Reset without Reset Continuous

Message Defaults:

Severity	Node	Application	Message Group	Object
unknown		HP OSSPI	OSSPI-Services	ntd
Service Name				

Instructions... Message Correlation... Advanced Options...

OK Cancel Help

NOTE

In `procmon.cfg`, `procmon_local.cfg`, blank lines are used as separators between process group sections. Therefore, do not add blank lines within a process group section.

Use the OSSPI's `Proc*` applications to edit `procmon.cfg`, `procmon_local.cfg` instead of editing the file manually.

Example 4-2 on page 86 shows how the contents of the process configuration file generated by the OSSPI Discovery application are divided into blocks representing process groups or MC/ServiceGuard packages. The name of the process group or MC/ServiceGuard package must be enclosed in square brackets, for example; `[nfssvr]` or `[Package_Name]`. This name is used in the OSSPI service tree. Note that the *actual* name of the MC/SG package `[orapkg1]` must *also* be present—in square brackets and separated from `[Package_Name]` by spaces or **TAB** characters.

The individual processes and MC/SG packages which you want the OSSPI to monitor must be included in the configuration file on a single line (and in columns separated by at least one **TAB** character) according to the syntax rules illustrated in Example 4-2 and Table 4-1 and described in detail in the sections that follow.

Table 4-1 The Contents and Format of the procmon File

Column 1	Column 2	Column 3	Column 4	Column 5	Report Type
<i>Name</i>					opcmon
<i>Name</i>	<i>arguments</i>				opcmon
<i>Name</i>	<i>arguments</i>	<i>bounds</i>	<i>day of week</i>		opcmsg
<i>Name</i>	<i>arguments</i>	<i>time</i>	<i>day of week</i>		opcmon
<i>Name</i>	<i>arguments</i>	<i>time</i>		<i>bounds</i>	opcmsg
<i>Special</i>					opcmsg
<i>Special</i>	<i>arguments</i>	<i>time</i>			opcmsg
<i>Special</i>	<i>arguments</i>	<i>time</i>	<i>day of week</i>		opcmsg
<i>Special</i> (<i>@start=<cmd></i>)	[<i><name></i> [,]				

The OSSPI process monitor parses its configuration file every time it starts in order to detect any changes and, if present, put them into effect immediately. The monitor reports:

- any syntax errors in the configuration file
- which program(s) of a group and which group(s) are affected
- if instance limits are out of bounds
- if instance limits are out of bounds for particular users and if @ user specification is present for the process group in `procmon.cfg`

If *bounds* are specified, missing processes are reported via `opcmsg` calls. If *bounds* are *not* present, an `opcmon` call is executed with an object name constructed according to the following format:

`<process_group_name>~<process_name>` (user name not specified)

`<process_group_name>~<process_name>~<user_name>` (user name specified)

where *process_name* can also be the process pid or the file name (containing process names or pids) from column one of the `procmon` file.

Name/Special

Contains the name of the process to be monitored or a special command. The process name can be entered explicitly or derived in any one of the following ways:

`<process_name>`

the name of the process as it appears in the process table

`@pid=<pid_number>`

where *pid_number* is the process id number

`@file=/etc/<pidfile>`

where *pidfile* is the name of a file containing the pid(s) line by line

`@exec=/opt/SW/<getpid>`

where *getpid* is the name of a file which, when executed, writes the process id(s) to STDOUT

`@start=/opt/<exec>`

where *<exec>* is the name of a file to be executed (using any arguments in column two of Table 4-1) if a defined condition is not met. One @start token per [block] per user

`@user=[<name>[, ...]`

where *<name>* is the name of a user to be executed (using any arguments in column one of Table 4-1)

Arguments

You can use arguments to distinguish between multiple processes running in parallel. If no arguments are present, an asterisk (*) is required.

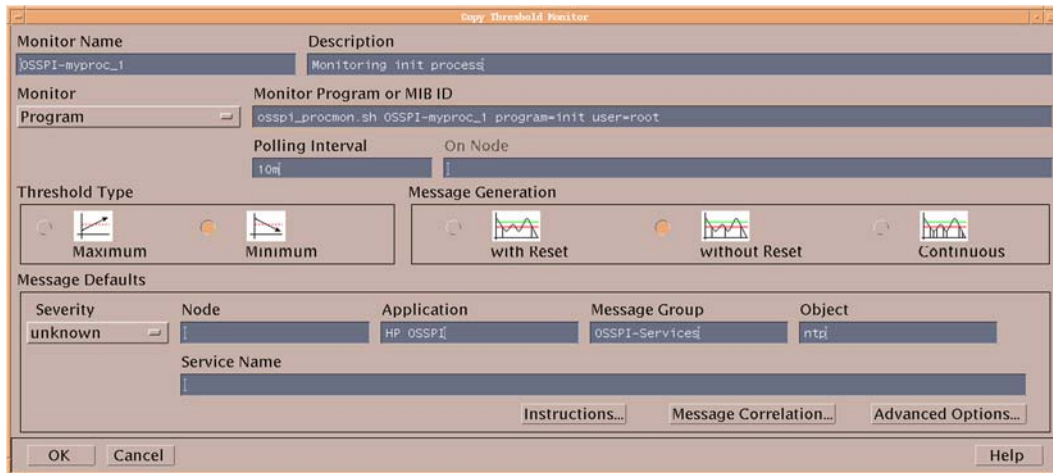
Time	The time period (using the 24-hour clock) in which a failure must be reported if it occurs, for example; 6-22 6 AM to 10 PM 22-6 10 PM to 6 AM the following morning
Day of Week	A list of numbers representing the days of the week (separated by commas) on which failures should be reported, where: 0,1,2,3,4,5,6 Sunday, Mon., Tues., Wed., Thurs., Fri., Saturday
Bounds	The number of instances of a <i>named</i> processes in any one of the following formats: n an <i>exact</i> number, n -n a <i>maximum</i> of n n- a <i>minimum</i> of n 1-4 a <i>range</i> : one to four

Using Command Line

The process *name* or any *special* terms permitted in column 1 (one) of procmon configuration file are also permitted in the Monitor Program or MIB ID field of the Add/Modify Threshold window, but must take the following formats:

```
program=<program_name> [arg=<arg>] [user=<name>[, ...]]  
pid=<pid>  
file=<pidfile>  
exec=<exec_file>
```

Figure 4-7 Example for Monitoring init Process



Service IDs

The OSSPI process monitor automatically attaches service IDs to the `opcmon` and `opcmsg` calls it sends. The service ID sent by the OSSPI takes the following form:

```
OSSPI:os:svc:<sectionname>:procs@@<hostname>
```

where:

sectionname is the name of the section to be processed, that is; the name in the `procmon` file enclosed in square brackets, for example; `[dns]` or `[Package_Name]`, as illustrated in Example 4-2 on page 86.

hostname is the fully qualified *domain* name or, for an MC/SG package, the fully qualified *package* name where the processes to be monitored are running.

Note that if the MC/SG package is *not* in a DNS domain, the package information defined in `/etc/resolv.conf` is appended to the package name.

If `/etc/resolv.conf` is not available, the fully qualified domain for the MC/SG package name takes the following form:

```
<Name_of_Package>.hp-ossapi
```

Service Discovery

The OSSPI discovery process is an OVO application which is installed by the OSSPI and runs on the OVO management server. The service graph generated by the OSSPI is a snap shot of the services on the managed nodes at the time at which the OSSPI *Discovery* application is run. Changes to the service configuration of a managed node do not appear automatically in the OSSPI service tree, the *Discovery* application has to be run again in order to update the contents of the Operating System SPI service tree in the OV Service Navigator. However, you can use OVO to configure an operator-initiated action which uses the `opcservice(1)` command to inform you as soon as the OSSPI's service configuration file has been modified.

The mechanism the OSSPI uses to gather the service information displayed in Figure 2-11 on page 49 is a simple one: a *discovery server* on the OVO management server uses the list of managed nodes as parameters to trigger a *discovery client* on each of the OVO managed nodes listed. The discovery clients on the various OVO managed nodes use **discovery modules** that are installed during the installation of the OSSPI agent software (or indeed by any other OVO SPI) to gather information about the services present on the managed nodes. The discovery server writes error messages to the following file:

`/var/opt/OV/share/ossapi/log/discovery.log`. For more information about error logs, see ““Error Logging”” on page 100.

The service configuration files compiled by the discovery process are written to the directory `$OSSPI_SVR_VAR_CFG_DIR` on the management server using the following file-naming conventions:

`/var/opt/OV/share/ossapi/conf/${NODENAME}.disc.xml`

where *NODENAME* is the name of the node on which the discovery application has been run. For more information about how the format of the discovery file changes according to the version of OVO that is installed, see “The Discovery Modules” on page 92.

The Discovery Modules

The discovery modules used by the OSSPI reside together with the other SPI components on the OVO managed node. Once started by the discovery server, the discovery client locates and reads the **Module**

Registry (`ossapi_discreg.conf`) on the managed node in order to find out which OS services have to be discovered and which modules are responsible for each service.

The information that is discovered by the discovery modules is written to service-configuration files in a format that can be used by the OV Service Navigator to display the services as a tree in the OV Service Navigator GUI. The default format required for is XML.

Each discovery module is responsible for retrieving information from *one* service component. The module stores its findings in a dedicated configuration file. These files are detailed in the following lists:

**HP-UX, Linux,
Solaris, and Tru64**

Hard Disk:¹ `/var/opt/OV/ossapi/conf/harddisk.cfg`
Network IF: `/var/opt/OV/ossapi/conf/netif.cfg`
File System: `/var/opt/OV/ossapi/conf/fsmon_local.cfg`
Processes: `/var/opt/OV/ossapi/conf/procmon.cfg`
Disk Defects:² `/var/opt/OV/ossapi/conf/ossapi_defect.cfg.long`
 `/var/opt/OV/ossapi/conf/ossapi_defect.cfg.short`
Solstice DiskSuite: `/var/opt/OV/ossapi/conf/sds.cfg`
Veritas Volume Manager:³
 `/var/opt/OV/ossapi/conf/ossapi_veritas.cfg`

AIX

Hard Disk: `/var/lpp/OV/ossapi/conf/harddisk.cfg`
Network IF: `/var/lpp/OV/ossapi/conf/netif.cfg`
File System: `/var/lpp/OV/ossapi/conf/fsmon_local.cfg`
Processes: `/var/lpp/OV/ossapi/conf/procmon.cfg`

The discovery modules are started successively by the discovery client, which logs error messages in `discerr.log`. For more information about problems and errors, see Chapter 5, “Troubleshooting the OSSPI,” on page 99.

1. On a Linux managed node, `harddisk.cfg` is only created if SCSI disks are present. If the Linux managed node only has IDE disks, `harddisk.cfg` is not created.
2. Disk defects are not supported on Linux or Tru64.
3. The Veritas Volume Manager does not discover unassociated objects and rvg volumes.

Monitoring OS-Service Configuration Files

The OSSPI_<Operating System>_cfgmon templates provide a simple and convenient way to modify the operating-system configuration files which you want to monitor with the OSSPI.

There is a template for each of the following operating systems:

- OSSPI_AIX_cfgmon for AIX
- OSSPI_HP-UX_cfgmon for HP-UX
- OSSPI_Linux_cfgmon for Linux
- OSSPI_SOL_cfgmon for Solaris
- OSSPI_True64_cfgmon for Tru64

The OSSPI monitors the following HP-UX files for changes:

- /etc/inetd.conf
- /etc/inittab
- /etc/fstab
- /etc/profile
- /etc/passwd
- /var/spool
- /var/adm/inetd.sec

NOTE

The list of files monitored by default on IBM AIX, Linux, and Sun Solaris is similar to the HP-UX list above but adjusted to reflect the names of the platform-specific path and configuration files.

If you feel that the demands and requirements of your particular environment are not adequately covered by the configuration files specified in the default list, you can expand or reduce the list by simply adding to (or deleting from) it, as necessary. To modify the contents of the default list in the OSSPI_HP-UX_cfgmon template, make a copy of the original template and modify the list of OS configuration files in the *new* file as follows:

1. Start the OVO GUI and open the Message Source Template window
2. Locate and select the OSSPI_HPUX_cfgmon template
3. Click the [Modify...] button to display the Modify Threshold Monitor window illustrated in Figure 4-1 on page 72
4. Save the changes you have made and redistribute the templates to the appropriate managed nodes

Figure 4-8 **Modifying OS Configuration Files**

Modify Threshold Monitor

Monitor Name: OSSPI-HPUX-cfgmon_1 Description: Monitors changes on configuration files.

Monitor: Program Monitor Program or MIB ID: ossapi_cfgmon.sh OSSPI-HPUX-cfgmon_1 /etc/inetd.conf /etc/inittab /var/adm/inetd.

Polling Interval: 30m On Node:

Threshold Type: ☒ Maximum ☐ Minimum

Message Generation: ☒ with Reset ☐ without Reset ☐ Continuous

Message Defaults:

Severity	Node	Application	Message Group	Object
normal		HP OSSPI	OSSPI-Services	

Service Name:

Instructions... Message Correlation... Advanced Options...

OK Cancel Help

Configuring Standard Templates

OSSPI sets default threshold values and polling intervals for all the monitor templates it provides. This section describes how to use the OVO GUI to modify these default values in the existing OSSPI templates or set up thresholds and polling intervals in new templates to suit the particular requirements of your environment. Note that if you modify existing or create new templates, you have to re-distribute the templates to the managed nodes in order to apply the modifications. The two areas of a standard OSSPI template which you are most likely to want to modify or define from new are:

- Thresholds
- Polling Intervals

Modifying Thresholds

The default thresholds defined in the OSSPI monitor templates strike a sensible balance between the need to know about critical problems in your environment and network overheads. If the default values do not suit the specific requirements of your particular environment, you can change the type of threshold as well as the defined threshold values quickly and easily by using the `Modify Threshold Monitor` window illustrated in Figure 4-1 on page 72. To open the `Modify Threshold Monitor` window:

1. Open the `Message Source Templates` window
2. Locate the template you want to modify by expanding the appropriate template groups
3. If you want to modify the *type* of threshold (maximum or minimum), select the template you want to modify and click the `[Modify...]` button. Change the threshold type in the `Modify Threshold Monitor` window which appears.
4. If you want to change the threshold *value*, select the template you want to modify and click the `[Conditions...]` button. The `Message and Suppress Conditions` window appears displaying a list of conditions associated with the template.

Select a condition and click the [Modify...] button. Change the threshold value defined in the Threshold field.

5. Click [OK] to save the changes.
6. Redistribute the templates to the managed nodes.

Modifying Threshold Polling Intervals

The default polling intervals defined in the OSSPI's monitor templates are designed to keep you informed about in a timely fashion about critical problems in your environment. You can change the polling intervals quickly and easily by in the Polling Interval field of the Modify Threshold Monitor window illustrated in Figure 4-1 on page 72. To open the Modify Threshold Monitor window:

1. Open the Message Source Templates window
2. Locate the template you want to modify by expanding the appropriate template groups
3. Select the template you want to modify and click the [Modify...] button. The Modify Threshold Monitor window appears.
4. Enter a new value in the Polling Interval field.
5. Click [OK] to save the changes.
6. Redistribute the templates to the managed nodes.

Modifying Polling Intervals for Monitoring File System Utilization (GlancePlus and OVPA)

The OSSPI allows you modify the default polling intervals for a number of GlancePlus and OV Performance templates by including in the file `/etc/opt/OV/ossapi/conf/ossapi.cfg` one of the variables listed in Table 4-2 and specifying a new value for the variable which is different to the default values indicated.

Note that polling intervals for the file-system templates need to be defined in `ossapi.cfg` if they are different from the *default* settings. You cannot set conditions in the file-system templates themselves.

Table 4-2

Keywords in the `ossapi.conf` File

Keyword	Description	Default Polling Interval
GP_RUN_INTERVAL	interval (in seconds) for GlancePlus to check for and, if necessary, update metrics	30s
GP_FS_CHECK_INTERVAL	string containing an interval specification for sampling of the data gathered by GlancePlus concerning the utilization of filesystem space	1m ^a
MW_FS_CHECK_INTERVAL	string containing an interval specification for sampling of the data gathered by OV Performance concerning the utilization of filesystem space	5m ^a

a. Note that the scope for defining this interval could be limited by the tool itself. Please check the product-specific documentation for details.

5 Troubleshooting the OSSPI

This section describes how to go about troubleshooting the OSSPI and provides tips and tricks that are designed to help you complete the problem-solving process.

In this Section

This chapter contains information designed to help you carry out both every-day, search-and-find operations as well as more detailed troubleshooting of the OSSPI. The chapter is divided into the following sections:

“File Locations”	where the OSSPI stores information, for example; configuration, run time, logs, and so on
“Error Logging”	messages to OSSPI log files concerning configuration errors
“Tracing”	information generated by the OSSPI scripts and executables when they startup and stop and when they are running
“Message Conditions”	links between message conditions and the messages the conditions generate.

File Locations

During the initial installation of the Smart Plug-in for UNIX Operating Systems software, a number of important files are copied to the OVO management server. Similarly, when you install the OSSPI on the OVO managed node, the agent software (including the templates, actions, commands, and monitors) is copied to defined directory locations on the managed node.

The following lists shows how the installation process creates a number of different directories on the OVO management server and the managed node according to the type of file that is installed—binary, run-time, executable, and so on.

The OVO Management Server

If you need to locate a particular type of file on the OVO management server, use the following list:

File Type...	OSSPI File Location...
Binaries	/opt/OV/osspi/bin/
Documentation	/opt/OV/osspi/doc/
Logs/Discovery	/var/opt/OV/share/osspi/log/
OV Service Navigator/Discovery Output	
	/var/opt/OV/share/osspi/conf/
Temp/Runtime	/var/opt/OV/share/osspi/tmp/
OVO integration	/var/opt/OV/share/tmp/OpC_appl/

The OV Service Navigator/Discovery Output files also contain information about errors that occur during the service-discovery process, for example, if a node is down or not responding.

The OVO Managed Nodes

The following list shows the directory locations for the files the OSSPI installs on a OVO managed node. These are the standard locations for OVO commands, actions, and monitors.

AIX	File Type...	OSSPI File Location...
	Binaries	/var/lpp/OV/OpC/
	Configuration	/var/lpp/OV/osspi/conf/
	Trace/Config	/etc/lpp/OV/osspi/conf/
	Logs	/var/lpp/OV/osspi/log/
	Temp/Runtime	/var/lpp/OV/osspi/tmp/
HP-UX, Linux, Solaris, and Tru64	File Type...	OSSPI File Location...
	Binaries	/var/opt/OV/bin/OpC/
	Configuration	/var/opt/OV/osspi/conf/
	Trace/Config	/etc/opt/OV/osspi/conf/
	Logs	/var/opt/OV/osspi/log/
	Temp/Runtime	/var/opt/OV/osspi/tmp/

Error Logging

The OSSPI scripts and executables write messages to a log file which resides in:

AIX: /var/lpp/OV/ossapi/log/ossapi.log

HP-UX: /var/opt/OV/ossapi/log/ossapi.log

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

Solaris: /var/opt/OV/ossapi/log/ossapi.log

Tru64: /var/opt/OV/ossapi/log/ossapi.log

For the most part, these messages concern configuration errors. However, the messages can also contain information about abnormal conditions which have occurred during program execution.

NOTE

The OSSPI also monitors the size of the `ossapi.log` log file and, if necessary, cleans it up at regular intervals in order to save disk space.

The entries generated in the `ossapi.log` log file take the (ASCII) format illustrated in the following example and in Example 5-1 and described in detail in Table 5-1:

```
<mm/dd/yyyy> <hh:mm:ss> [<severity>]\ OSSPI(<program_name>-<pid>): <error_text>
```

Table 5-1 lists the possible entries in the `ossapi.log` file and describes what the entries mean.

Table 5-1 Fields in the ossapi.log File

Field Name	Description
<mm/dd/yyyy>	Creation date of logfile entry
<hh:mm:ss>	Creation time of logfile entry
<severity>	Severity level: ERROR, WARNING, INFO
<program_name>	Name of the executable or script
<pid>	Process ID of the executable or script

Table 5-1 **Fields in the osspi.log File (Continued)**

Field Name	Description
<code><error_text></code>	Detailed information regarding the logfile entry

Example 5-1 uses a small part of the `osspi.log` file to illustrate what kind of information the OSSPI writes to the `osspi.log` file.

Example 5-1 **Excerpt from the osspi.log file**

```
09/29/2000 13:59:09 [INFO] OSSPI(osspi_discclient.sh-14071): Discovery was
started on this node.
09/29/2000 13:59:43 [INFO] OSSPI(osspi_discclient.sh-14071): Discovery ended on
this node.
10/05/2000 10:24:02 [ERROR] OSSPI(osspi_fsutil.sh-7459): addfs: replace tags FS
and Limits with filesystem name and limits and start again
10/05/2000 10:24:14 [ERROR] OSSPI(osspi_fsutil.sh-7469): addfs: replace tag FS
with filesystem name and start again
10/05/2000 10:31:52 [ERROR] OSSPI(osspi_procutil.sh-7986): unknown option -show
10/05/2000 10:32:04 [ERROR] OSSPI(osspi_procutil.sh-7994): unknown option -show
10/10/2000 13:52:41 [INFO] OSSPI(osspi_discclient.sh-29592): Discovery was
started on this node.
10/10/2000 13:53:14 [INFO] OSSPI(osspi_discclient.sh-29592): Discovery ended on
this node.
10/25/2000 14:37:50 [INFO] OSSPI(osspi_discclient.sh-1956): Discovery was
started on this node.
10/25/2000 14:38:24 [INFO] OSSPI(osspi_discclient.sh-1956): Discovery ended on
this node.
10/25/2000 14:45:31 [INFO] OSSPI(osspi_discclient.sh-4897): Discovery was
started on this node.
10/25/2000 14:46:07 [INFO] OSSPI(osspi_discclient.sh-4897): Discovery ended on
this node.
```

Tracing

If tracing is enabled, all tracing information generated by the OSSPI scripts and executables is written to the following file:

AIX:	<code>/var/lpp/OV/ossapi/log/ossapi.trc</code>
HP-UX	<code>/var/opt/OV/ossapi/log/ossapi.trc</code>
Linux	<code>/var/opt/OV/ossapi/log/ossapi.trc</code>
Solaris	<code>/var/opt/OV/ossapi/log/ossapi.trc</code>
Tru64	<code>/var/opt/OV/ossapi/log/ossapi.trc</code>

You can enable tracing by setting a flag in the configuration file:

AIX	<code>/etc/lpp/OV/ossapi/conf/ossapi.cfg</code>
HP-UX	<code>/etc/opt/OV/ossapi/conf/ossapi.cfg</code>
Linux	<code>/etc/opt/OV/ossapi/conf/ossapi.cfg</code>
Solaris	<code>/etc/opt/OV/ossapi/conf/ossapi.cfg</code>
Tru64	<code>/etc/opt/OV/ossapi/conf/ossapi.cfg</code>

To save disk space and simplify searching, the OSSPI limits the size of the `ossapi.trc` trace file to 0.5MB. Once the 0.5MB file-size limit is reached, the OSSPI backs up and compresses the file to `ossapi_#.trc.gz`, where # is a number from 0-3. This means that there is only ever a maximum of 5 (five) trace files in existence—the current trace file with no number (since it is neither compressed nor tarred) and then four compressed and tarred trace files numbered from 0-3. The number 0 (zero) indicates the most recently saved trace file and 3 (three) the oldest. If even more space is required to store trace information, OSSPI deletes the file `ossapi_3.trc.gz`, moves 0->1, 1->2, and 2->3, and writes `ossapi_0.trc.gz` again. Note that trace level 9 (nine) generates a great deal of information.

NOTE

The OSSPI only allows tracing to be set on OVO managed nodes. If you want to trace the OSSPI on the OVO management server, the OVO management server must also be a managed node.

Table 5-2 illustrates which flags you can set in the `osspi.trc` and what the flags do.

Table 5-2 **Trace Levels and Objects**

Variable	Range of values	Description
TRACE_LEVEL	0-9	Trace information level. The higher the value the more information is generated and written. Default = 0 (off)
TRACE_OBJ	OSSPI scripts and executables	Definition of objects for which trace information should be written to the trace file.

The entries written to the trace file `osspi.trc` take a similar form to the entries in the log files, namely;

```
<mm/dd/yyyy> <hh:mm:ss> OSSPI(<program_name>-<pid>): <text>
```

Table 5-1 on page 103 lists the possible entries in the `osspi.trc` file and describes what they mean.

Table 5-3 **Fields in the `osspi.trc` File**

Field Name	Description
<mm/dd/yyyy>	Creation date of logfile entry
<hh:mm:ss>	Creation time of logfile entry
<program_name>	Name of the executable or script
<pid>	Process ID of the executable or script
<text>	Detailed information regarding the trace-file entry

Example 5-2 shows the last twenty lines or so of the `osspi.trc` file and uses a real-life environment to illustrates what kind of information can be collected when tracing is switched on.

Example 5-2 Excerpt from the osspi.trc file

```

10/25/2000 14:46:18 OSSPI(ossapi_cfgmon.sh-5891): /etc/fstab is unchanged.
10/25/2000 14:46:18 OSSPI(ossapi_cfgmon.sh-5891): /etc/profile is unchanged.
10/25/2000 14:46:18 OSSPI(ossapi_printmon.sh-5702): - checking object
'/var/spool/lp/qstatus:lp:lp:-rw-r--r--' ...
10/25/2000 14:46:18 OSSPI(ossapi_cfgmon.sh-5891): /etc/passwd is unchanged.
10/25/2000 14:46:18 OSSPI(ossapi_cfgmon.sh-5891): /var/spool/cron/crontab.root is
unchanged.
10/25/2000 14:46:19 OSSPI(ossapi_printmon.sh-5702): - checking object
'/var/spool/lp/pstatus:lp:lp:-rw-r--r--' ...
10/25/2000 14:46:19 OSSPI(ossapi_cfgmon.sh-5891): /etc/syslog.conf is unchanged.
10/25/2000 14:46:19 OSSPI(ossapi_printmon.sh-5702): - checking object
'/var/spool/lp/seqfile:lp:lp:-rw-r--r--' ...
10/25/2000 14:46:23 OSSPI(ossapi_mountmon.sh-6091): / is Ok
10/25/2000 14:46:23 OSSPI(ossapi_mountmon.sh-6091): /stand is Ok
10/25/2000 14:46:24 OSSPI(ossapi_mountmon.sh-6091): /opt is Ok
10/25/2000 14:46:26 OSSPI(ossapi_mountmon.sh-6091): /tmp is Ok
10/25/2000 14:46:26 OSSPI(ossapi_mountmon.sh-6091): /u01 is Ok
10/25/2000 14:46:27 OSSPI(ossapi_mountmon.sh-6091): /home is Ok
10/25/2000 14:46:28 OSSPI(ossapi_mountmon.sh-6091): /usr is Ok
10/25/2000 14:46:29 OSSPI(ossapi_mountmon.sh-6091): /var is Ok
10/25/2000 14:46:29 OSSPI(ossapi_mountmon.sh-6091): reports notmounted: /opt/gnu
10/25/2000 14:46:29 OSSPI(ossapi_mountmon.sh-6091): reports notmounted: /opt/xgnu
10/25/2000 14:46:40 OSSPI(ossapi_procmon.sh-6310): processing config files
10/25/2000 14:46:40 OSSPI(ossapi_printmon.sh-6303): Start queue check on HP-UX...
10/25/2000 14:46:40 OSSPI(ossapi_printmon.sh-6307): Starting enable check on
HP-UX...[n.i.]
10/25/2000 14:46:40 OSSPI(ossapi_printmon.sh-6303): - found 0 request(s) for
printer PDRequest
10/25/2000 14:46:40 OSSPI(ossapi_procmon.sh-6310): processing section snmp
10/25/2000 14:46:40 OSSPI(ossapi_procmon.sh-6309): processing config files
10/25/2000 14:46:40 OSSPI(ossapi_procmon.sh-6310): looking for process snmpdm
10/25/2000 14:46:41 OSSPI(ossapi_procmon.sh-6309): No such process group (mail)
found

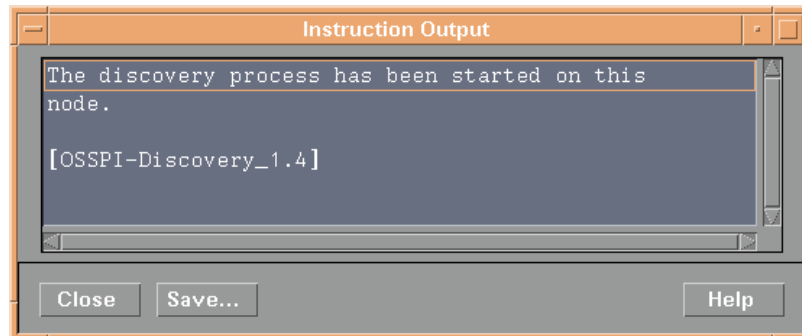
```

Message Conditions

Each message generated by an OSSPI template includes information which indicates exactly which template and which template condition was responsible for generating the message.

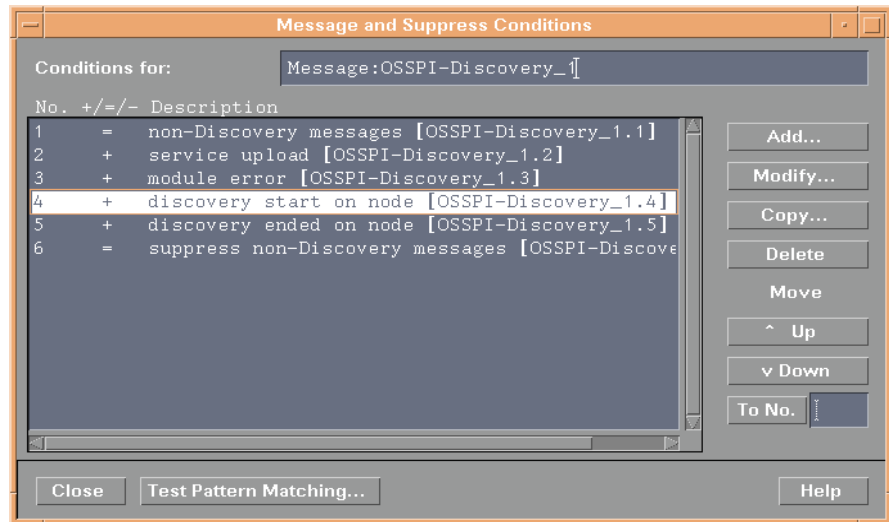
Select the message in which you are interested and click the [Instructions...] button in the Message Details window to display the Instruction Output window illustrated in Figure 5-1. The instruction output displays the name of the template enclosed in square brackets; [OSSPI-Discovery_1.4]. The number before the dot (.) is the template version number: the number after the dot is the template condition which was responsible for generating the message. In this example, the message which appeared in the Message Browser was generated by condition number *four* of (version *one*) of the OSSPI-Discovery template.

Figure 5-1 **The Instruction Output Window**



In the Message Source Template window, find and select the template indicated in the instruction output (OSSPI_Discovery_1.4 in this example) click the [Conditions...] button and scroll down the list of conditions displayed and locate the condition indicated—four (.4) in this example—as shown in Figure 5-2 on page 109.

Figure 5-2 **The Message and Suppress Conditions Window**



A General OSSPI Tips

OSSPI Coda Filesystem Monitoring

Nodes running OVPA/Glance 4.0 experience a problem with the default OSSPI coda file system monitor templates (OSSPI-CD_FileSystem_X), which use the name *FS* instead of *FILESYSTEM* to monitor file system utilization.

Symptom: When this problem occurs, you might see any of the following messages:

- Initialization of policy OSSPI-CD_FileSystem_X failed.
(OpC30-727)
- Cannot find object 'FS' in coda object list.(OpC30-761)
- Evaluation of policy OSSPI-CD_FileSystem_X stopped.
(OpC30-715)

Solution: The OSSPI template calls Coda from the monitor template as follows:

```
OVPERF\\CODA\\FS\\FS_SPACE_UTIL
```

To resolve this problem, make the above change in the monitor program box of the particular template and force-deploy the modified template to the specified node.

OVPA 4 installed on a Linux box works only if the above call is made in the monitor program box of the template as follows:

```
OVPERF\\CODA\\FILESYSTEM\\FS_SPACE_UTIL
```

NOTE

The above changes have not been incorporated into OSSPI 2.5. Customers running OVPA 4.0 on their managed nodes will experience problems due to Coda 8 shipping with OVPA 4.0. In such a scenario, the OV agent does not overwrite the existing coda package, but uses the coda 8 sub-agent itself.

Editing the Global Filesystem Monitor Configuration File

The OSSPI global file system monitor configuration file, `osspi_fsmon.cfg`, is present on the management server at the location
`/var/opt/OV/share/databases/OpC/mgd_node/customer/<vendor>/<platform>/<OS>/monitor/osspi_fsmon.cfg.Z` files (for example, `.../sun/sparc/solaris/osspi_fsmon.cfg.Z`)

The file has to be edited on the management server for the particular changes to be global and also be persistent across deployments and redeployments, to all OSSPI-monitored nodes in the network the `osspi_fsmon.cfg` files for the respective platforms.

You may modify the `osspi_fsmon.cfg` files before deploying or distributing them to all managed nodes in the network, including the management server node as explained in the steps below:

1. Uncompress the file `osspi_fsmon.cfg.Z` file. Open the uncompressed file in vi or any other UNIX-based editor to ensure that CRLF characters do not get added to the file.
2. Add new fs monitor entries in the following format:

```
<mount_point><TAB><Warning_Threshold><TAB><Minor_threshold><TAB><Major_Threshold><TAB><Critical_Threshold>
```

Do not enter spaces to delimit the columns. Instead, use tabs.

3. Save and close the file. Compress the file again, and force-deploy monitors to all the nodes.

IMPORTANT

When the `osspi_cleanup_srv.sh` script is run during the OSSPI product upgrade, all the `osspi_fsmon.cfg.Z` files will be deleted. Ensure that backups of all these files, where modifications have been made, are taken before running `osspi_cleanup_srv.sh`. These files are not overwritten during the post-installation configuration phase of the OSSPI package. Upon OSSPI upgrade, these files may be restored back to their original locations.

fsmon_local.cfg not Supported with OVEPC Template

The OSSPI-CD file system template does not use values specified in the `fsmon_local.cfg` file on the node. Thresholds for file systems may be modified by altering the conditions. However, all file systems will have the same thresholds.

All the other file system monitor templates (GP, MW, and NP) use the `fsmon_local.cfg` file for thresholds.

Supported Versions of MWA/OVPA

The following versions of OVPA are supported due to change in behavior of the FS_SPACE_UTIL metric:

- AIX - C.03.80.00
- DEC - C.03.60 & C.03.61
- HPUX - C.03.70.00
- Solaris - C.03.75.00
- Linux - C.04.00.00

To support these versions of MWA/OVPA, `ossapi_alarm_mw.sh` creates alarmdefs for FS_SPACE_UTIL alarm rules in the following format:

```
Example: alias FS0="/usr{FILESYSTEM}"
```

In the previous versions, alarmdefs, created by `ossapi_alarm_mw.sh`, was in the following format:

```
Example: alias FS0="/dev/dsk/c0t0d0s0{FILESYSTEM}"
```

The A.02.50 version of UNIX OS SPI now supports only the mentioned versions of OVPA. HP recommends that customers move to above versions of OVPA for utilizing and alarming on the above metric.

Discovery Time-out due to Blaster Worm

If discovery displays error messages, such as the following, ensure that the DCE patches for Blaster worm are applied on the nodes:

```
#####  
2003/08/15 16:45:35  
Discovery started.  
Nodes:hpjsdbp.hp.com  
waiting...  
ERROR: Timeout: There was a problem with at least one of the nodes.  
hpjsdtsh.hp.com waiting...  
ERROR: Timeout: There was a problem with at least one of the nodes.  
power.hp.com waiting...  
ERROR: Timeout: There was a problem with at least one of the nodes.  
ultral.hp.com waiting...  
ERROR: Timeout: There was a problem with at least one of the nodes.  
hpjsdb80.hp.com waiting...  
ERROR: Timeout: There was a problem with at least one of the nodes.  
hpjsdb77.hp.com waiting...  
ERROR: Timeout: There was a problem with at least one of the nodes.  
....  
#####
```

View the technical notes at the following locations and install the relevant DCE patches:

- Patches from Entegrity for DCE for Tru64
<<http://support.entropy.com/private/patches/dce/rpcattacks.shtml>>
- Patches from HP for DCE for HP-UX/Linux/Solaris
<<http://support.openview.hp.com/blaster.jsp>>

Using the Add Process Group Application

You can add process groups to the Osspi process monitor config file (`procmon.cfg`) in two ways:

NOTE

The above application will always be run with customized settings set by the user.

- Right-click the application icon and open the Customized Startup window. For more information on Customizing OSSPI Application, see Figure 2-4 on page 22. Then, add a process directly in the yet-to-be-created process group by specifying the following (remove existing text):

```
ossapi_procmon.sh [-global|-local] -addprc <section>  
<process> ["<args>"] [<time>] [<wkdays>] [<bounds>]
```

Repeat the above step for each process that needs to be added. If the section is already present, no new section will be created.

- Create a file with the entire section specification on the particular managed node. Ensure that the columns in the file are delimited by tabs. Right-click the Add Process Group application icon and open the Customized Startup window. In the subsequent screen, specify the complete path of the file instead of the default `FILE` argument.

About Unix OS SPI MWA(OVPA)/GP Templates

All OSSPI-MWA(OVPA)/OSSPI-GP templates can be modified as explained:

- Values specified as arguments to the `ossapi_null.sh` script.

Example:

```
ossapi_null.sh OSSPI-MWA_Cpu_Load_1 'GBL_CPU_TOTAL_UTIL >
95 prob 90, GBL_PRI_QUEUE > 3 prob 5, GBL_PRI_QUEUE > 4
prob 5'
```

may be modified as

```
ossapi_null.sh OSSPI-MWA_Cpu_Load_1 'GBL_CPU_TOTAL_UTIL >
70 prob 98, GBL_PRI_QUEUE > 4 prob 1, GBL_PRI_QUEUE > 6
prob 1'
```

- Thresholds specified in the conditions to the OSSPI-MWA_* and OSSPI-GP_* templates.

Thresholds specified in the conditions may be modified except for the Filesystem utilization monitor templates OSSPI-GP_FileSystem, OSSPI-MWA_FileSystem, to suit site needs. For filesystem utilization monitoring, thresholds need to be set or modified in the `fsmon_local.cfg` file present on the node.

- Reset duration specified in the conditions to the OSSPI-MWA_* and OSSPI-GP_* templates.

Reset duration may be modified and these will reflect in the `ossapi_alarmdef/syntax_gp` files as *wait period*, before when GP/OVPA will not alarm even though a certain threshold may be reached.

The above changes will be reflected in the `ossapi_alarmdef` or `syntax_gp` file that is created once the modified template is deployed to the node.

You will not need to modify the following fields due to the reasons listed:

- Setting message keys for message correlation

Message key correlation is achieved through message interceptor template `OSSPI-opcmsg_X`. The conditions for intercepting OVPA or OVPM alarms, may contain the message key as well as acknowledge message key pattern, for the message key correlation in the following manner

- Message Key =
`<$MSG_NODE_NAME>:<$MSG_GRP>:<$MSG_OBJECT>:<$MSG_SEV>`
- Pattern to match =
`<$MSG_NODE_NAME>:<$MSG_GRP>:<$MSG_OBJECT>:[Critical:Major:Minor:Warning:Normal]`

The following are the conditions for the `OSSPI-opcmsg` interface template that may be modified as specified above -

- MC/SG OV Performance Manager alarms (REPEAT/END conditions) [`OSSPI-opcmsg...`]
- MC/SG OV Performance Manager alarms (START conditions) [`OSSPI-opcmsg...`]
- OV Performance Manager alarms (REPEAT/END conditions) [`OSSPI-opcmsg...`]
- OV Performance Manager alarms (START conditions) [`OSSPI-opcmsg...`]
- Setting messages to log to history browser, will not work, since the alarms are dispatched from Glance/OVPA - and not from the monitor template. Use `OSSPI-opcmsg` template to suppress alarms.
- There is no concept of a polling interval where the OVPA/GP templates run. This is the reason the polling interval is set to 365d. For example, even if the polling interval is changed to K seconds, the `oss_pi_null.sh` script will be run every K seconds or so, wherein an `opcmon` call is made setting template name to zero and no changes will get effected in the `oss_pi_alarmdef`. The only scenario where changes are effected to a new `oss_pi_alarmdef` file, is when templates are deployed to the node. So, retain the polling interval as 365d, the default setting.

General OSSPI Tips

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