HP OpenView Operations for UNIX

Integration for Sun Management Center User's Guide

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1 OVO Integration Package for Sun Management Center

In This Chapter

This chapter provides general information on Sun Management Center (SunMC) functionality, and how this functionality is integrated into OVO.

The support matrix in this chapter (see Table 1-3) lists the Sun Solaris OS versions and OVO versions that include OVO/ SunMC integration.

About Sun Management Center

Sun Management Center software offers a single point of management for all Sun servers, desktops, storage systems, Sun Solaris operating environments, applications, and data center services.

Administrators performing remote system configuration, monitoring performance, or isolating hardware and software failures will find the following Sun Management Center features advantageous and easy to use:

❏ A single point of management, enabling administrative resources to be used more effectively.

❏ Active configuration management controls, providing a secure interface for remote dynamic reconfiguration capabilities and helping to ensure availability.

❏ A single event model, enabling information to be shared easily with multiple consoles or users with ease.

❏ Multiple system support, enabling administrators to monitor and manage all Solaris systems remotely.

❏ Predictive failure analysis, enabling administrators to predict potential failures before they occur.

❏ Health monitoring, along with suggested steps for problem resolution, resulting in simplified administration.

❏ Logical element grouping, enabling Sun systems to be grouped by geographical location, server role, administrative responsibility, etc.

❏ A comprehensive topology map, providing a high-level view of all the objects that are being managed, along with hierarchies.

❏ Automatic discovery of Sun systems, including IP address, subnet address, hostnames, and more.

❏ Event and alarm management, providing administrators with the information they need when they need it.

❏ Standard interfaces and protocols, enabling integration with third-party management tools.

❏ A Java technology interface, providing heterogeneous GUI support, a common look-and-feel for all Sun Management Center applications, and the flexibility to manage the enterprise from any platform using Java technology.

Alarms

Alarms in Sun Management Center have the same role as messages in OVO – they inform the administrator of possible system malfunctions, system failures, and actions to be taken.

The SunMC agents use rules to determine the status of the managed systems. Whenever the conditions as specified by the rule occur, the SunMC software automatically generates alarms, or performs actions as specified by the rule.

The following SunMC alarm attributes are mapped to the OVO message:

❏ Alarm Text

Provides the description of the alarm.

❏ Target Host

Provides a node name where the alarm has been generated.

❏ Alarm Severity

Provides a severity description.

- ERR - critical
- WRN - alert
- INF - caution

About OVO Integration for Sun Management Center

Sun Management Center offers instrumentation for monitoring Sun Solaris systems on different levels of operation. OVO integration for Sun Management Center (OVO/SunMC integration) covers the following functionality:

❏ **Event Forwarding (Mapper)**

Mapping the SunMC alarms to OVO messages and sending them to OVO management server.

❏ **Message Event Synchronization and Mapping**

Synchronization of SunMC alarm state and OVO messages state in both directions: SunMC to OVO and OVO to SunMC.

❏ **Desktop Integration**

Starting the `SunMC Console` and `SunMC Details Console` windows from the `OVO Application Bank`.

❏ Basic monitoring of the SunMC server and SunMC agent processes

Glossary of Terms

SunMC alarm	Information (generated in Sun Management Center) about a system malfunctions, system failures, and actions to be taken.
Mapper	A daemon that registers with the SunMC server to receive SunMC alarms.
SunMC alarm message	A SunMC alarm transformed into a OVO message form and displayed in OVO Message Browser.
SunMC MEI	The SunMC Message Event Interceptor (SunMC MEI) process is a registered OpenView process (daemon) running on the OVO management server. It intercepts acknowledged events on the OVO management server and forwards them to SunMC via the Mapper.

OVO2SunMC   Application responsible for forwarding commands about acknowledged messages to the Mapper.

RMI   Remote Method Invocation (RMI) protocol. The connection to SunMC server is established via the RMI protocol.

Event Forwarding

Event forwarding from the Sun Management Center (SunMC) server is processed by the **Mapper**.

The Mapper restructures the alarms into OVO messages, and sends them to the OVO agent running on the same node as the SunMC server. The Mapper can receive alarms from all nodes that are managed by the SunMC server (see Figure 1-1 on page 19). If communication is lost, the Mapper can automatically reconnect to the SunMC server.

The OVO/SunMC integration package provides a set of templates and OVO applications for configuring and controlling the Mapper and for intercepting messages sent by the Mapper.

Templates

The OVO/SunMC integration provides the following templates:

❏ Message template `SunMC_opcmsg(1|3)`- filters and restructures the incoming SunMC alarm messages to OVO message form.

❏ Logfile template `SunMC_errorLog` - monitors the Mapper error logfile and reports the messages related to the problems with the Mapper.

❏ Monitor templates:

`SunMC_Mapper_down` - periodically checks on the status of the Mapper.
`SunMC_Server_down` - checks if the SunMC server is running
`SunMC_Agent_down` - checks if the SunMC agent is running

For more information on uploaded templates, refer to "Uploaded Templates" on page 34.

Mapper Applications

The OVO/SunMC integration provides the following applications for configuring and controlling the Mapper: `Mapper Config`, `Mapper Disable`, `Mapper Enable`, `Find-RMIport`, `List-Nodes`, `Mapper Start`, `Mapper Status`, `Mapper Stop`, `OVO2SunMC`.

For more information on uploaded applications, refer to "Uploaded Application Groups and Applications" on page 34.

Mapper Configuration Files

The Mapper uses three configuration files:

❏ the setup file

The setup file `/var/opt/OV/conf/OpC/setup` contains the log-in information in an encrypted form. It is used to log in to the SunMC server and thus receive alarms. For more information, please refer to "To Configure and Activate the SunMC Integration" on page 43.

❏ the nodes configuration file

The nodes configuration file `/var/opt/OV/conf/OpC/sy-nodes.cfg` contains all the node names configured with the SunMC server. Alarms will be received from all the nodes listed in this file. For more information, please refer to the section "Nodes Configuration File" on page 47.

❏ the Mapper configuration file

The Mapper configuration file `/var/opt/OV/conf/OpC/symmap.conf` contains the information about the Mapper status and trace level settings. For more information, please refer to "Alarm Tracing" on page 81.

Message Event Synchronization and Mapping

The basic concept of message event synchronization is to synchronize the alarm state between SunMC and OVO.

SunMC to OVO synchronization

The synchronization takes place when a SunMC alarm state has changed (for example, from open to closed) on the SunMC server. Synchronization from SunMC to OVO is done by the SunMC_opcmsg (1|3) message template. For more information, please refer to Chapter 3, "Event Synchronization and Mapping," on page 53.

Figure 1-1   **SunMC to OVO Synchronization Flow**
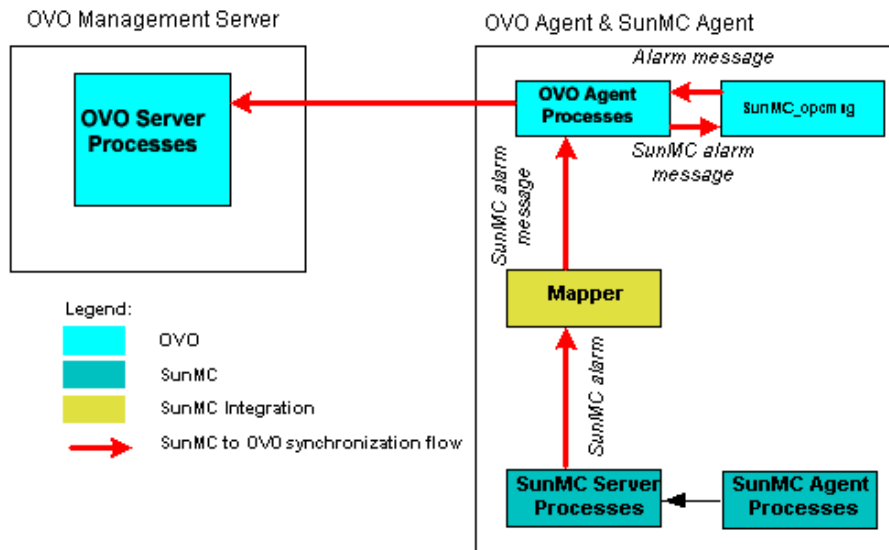
OVO to SunMC synchronization

The synchronization takes place when a OVO message state has changed. For example, a message has been acknowledged by a OVO operator. Synchronization from OVO to SunMC is done by the SunMC MEI (Message Event Interceptor) process. For more information, please refer to Chapter 3, "Event Synchronization and Mapping," on page 53.

Figure 1-2   **OVO to SunMC Synchronization Flow**
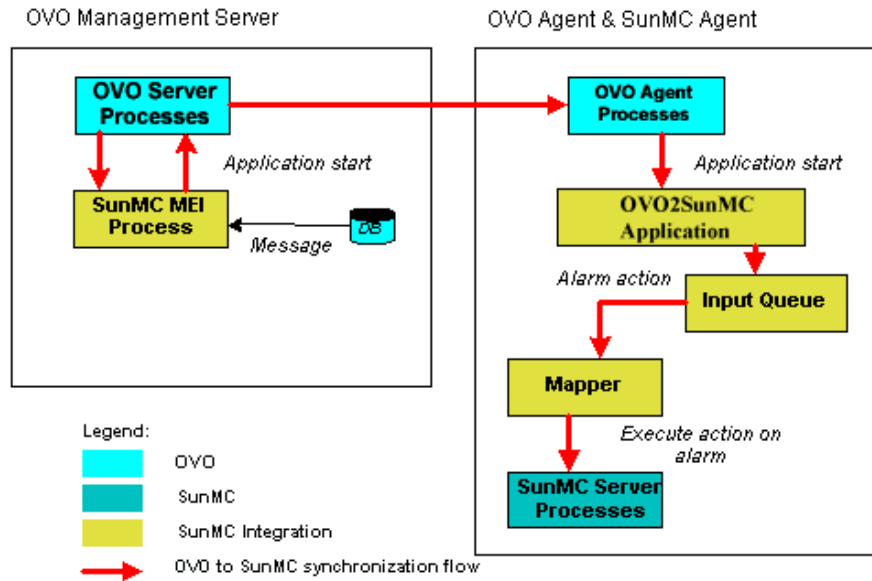
OVO/SunMC Applications

OVO/SunMC integration provides a set of applications that are uploaded to the OVO Application Bank. The applications are grouped into the following application groups: SunMC, Mapper, and SunMC MEI. For the purpose of better understanding, this section describes applications according to their usage and function. For more information on these applications, refer to "Uploaded Application Groups and Applications" on page 34.

❏ **Mapper Applications**

Mapper applications are uploaded to the OVO Application Group: Mapper and are used for controlling and managing the Mapper. Mapper applications are: Mapper Config, Mapper Disable, Mapper Enable, Find-RMIport, List-Nodes, Mapper Start, Mapper Status, Mapper Stop, OVO2SunMC.

❏ **SunMC MEI Applications**

SunMC MEI applications are uploaded to the OVO Application Group: SunMC MEI and are used for controlling and managing the SunMC MEI process. SunMC MEI applications are: Start MEI, Stop MEI and Check MEI.

❏ **Desktop Integration Applications**

Desktop integration applications are uploaded to the OVO Application Group: SunMC and are used to launch the SunMC Console or the SunMC Details Console windows from the OVO Application Bank window. Refer to Table 1-2 on page 23 for requirements that must be met in order to be able to launch the SunMC applications.

Desktop integration applications are:

- SunMC_Local, SunMC_Remote, SunMC_NT
  to launch the SunMC Console window

- SunMC_Details_Local, SunMC_Details_Remote, SunMC_Details_NT
  to launch the SunMC Details Console window

Table 1-1   **OVO/SunMC Applications - Supported Features**

	Application	Supported from
Mapper Applications	`Mapper Config`, `Mapper Disable`, `Mapper Enable`, `Find-RMIport`, `List-Nodes`, `Mapper Start`, `Mapper Status`, `Mapper Stop`	OVO Motif GUI (Solaris or HP-UX management server)
SunMC MEI Applications	`Start MEI`, `Stop MEI`, `Check MEI`	OVO Motif GUI (Solaris or HP-UX management server)
Desktop Integration Application	`SunMC_Local` `SunMC_Details_Local`	OVO for Sun Solaris Motif GUI OVO JAVA GUI running on a Solaris system
	`SunMC_Remote` `SunMC_Details_Remote`	OVO Motif GUI (Solaris or HP-UX management server) OVO JAVA GUI on any UNIX system
	`SunMC_NT` `SunMC_Details_NT`	OVO JAVA GUI running on Windows NT

Table 1-2   **Desktop Integration Applications - Requirements**

Application	Managed Node	Requirements
SunMC_Local SunMC_Remote	Sun Solaris	• installed SunMC Console • installed OVO agent
SunMC_Details_Local SunMC_Details_Remote	Sun Solaris	• installed SunMC Console • installed OVO agent • installed OVO/SunMC subagent
SunMC_NT	Windows NT	• installed SunMC Console for Windows • installed OVO agent • installed OVO/SunMC subagent
SunMC_Details_NT	Windows NT	• installed SunMC Console for Windows • installed OVO agent • installed OVO/SunMC subagent

Supported Platforms

❏ **SunMC software**

OVO/SunMC integration A.03.50, supports the following versions of SunMC software:

SunMC 2.1.1, 3.0, and 3.5

❏ **OVO software**

Table 1-3 on page 24 shows the supported platforms along with the supported software versions for the OVO.

Table 1-3   **Platform Support Matrix**

Platforms	Software Versions
OVO management server on Sun Solaris	OVO 7.0 or later
OVO management server on HP-UX	OVO 7.0 or later
OVO Sun Solaris managed nodes	Solaris 2.7, 8, 9
OVO Windows managed nodes	Windows NT 4.0 and Windows 2000

HTTPS-Agent software is available in OVO 8.0 for highly secure communication between OVO management server and the managed nodes. OVO/SunMC integration version A.03.50 supports both DCE and HTTPS agent types.

❏ **Supported character codesets**

The following codesets are supported on Sun Solaris platforms:

Table 1-4　　　**Supported Character Codesets**

Platform	Character Sets - English	Character Sets - Japanese
Sun Solaris	ISO8859-1	EUC-JIS
	ASCII	PCK (SJIS)

2 Installing and Configuring the OVO/SunMC Integration

In This Chapter

This chapter describes how to install and configure the integration package on the OVO management server as well as how to install and configure the integration on OVO managed nodes. Make sure that all the prerequisites listed in this chapter are checked before installing the integration package.

Once the integration package is installed on the management server, you can distribute its components to any Solaris managed node that has a SunMC Server or Console installed, or to any Windows managed node that has a SunMC Console for Windows installed.

This chapter also describes the procedure of de-installing the integration package from the management server and the managed nodes.

Installing the Integration Package on a OVO Management Server

Prerequisites

In order to deploy and use the OVO/SunMC Integration, the following must be installed, configured, and running on the OVO Management Server:

❏ OVO software must be installed and running on your HP-UX or Solaris management server.

NOTE   If you are running OVO on Solaris management server, it is recommended that you have the OVO server software and the SunMC server software installed on two different Solaris systems.

❏ Root access to a OVO management server is required to deploy the OVO/SunMC integration package.
❏ OVO Administrator privileges are required to install the OVO/SunMC integration package, and to install and configure OVO managed nodes.

Installation Procedure

With OVO 8, the SunMC Integration software is distributed with the Smart Plug-ins (SPI) CD-ROM.

The steps to install the software on OVO Management Server System are:

Task 1: Mounting the CD-ROM

To mount the CD-ROM on HP-UX, do the following:

1. Login as user `root`.

2. Set the umask of user root by entering:
   `umask 027`

3. Create a directory to mount the CD-ROM:
   `mkdir /<mount_point>`

   For example: **mkdir /cdrom**

4. Insert the CD-ROM into the disk drive and mount it as user `root` by entering:
   `mount **-r -F** cdfs /dev/<cdrom_drive_name> /<mount_point>`

   For example, for a local CD-ROM, you might enter:
   mount -r -F cdfs /dev/dsk/c0t2d0 /cdrom

   You can also run SAM and mount the CD-ROM to a specific path in the Disks and File Systems window.

To mount the CD-ROM on Solaris, do the following:

1. Insert the CD-ROM into the disk drive

The CD-ROM is automatically mounted (and unmounted) on Solaris systems.

Task 2: Installing the Integration Software

1. Login as user `root` with the OVO administrator's privileges.

2. Run the following command:
   On HP-UX:
   **swinstall -s /<mount_point>/OV_DEPOT/11.0HPUX.sdtape
   OVOSymInt**

On Solaris:

swinstall -s /*<mount_point>*/OV_DEPOT/SOLARIS.sdtape
OVOSymInt

NOTE	Filesets remain the same for all SPIs as written in the installation instructions of each SPI. Only the depot name and location where the depot is located may change. Specify the following depot when entering the software install command: 11.0HPUX.sdtape or SOLARIS.sdtape.
	If the product name is not specified, (OVOSymInt OVO Sun Management Center Integration), you will have to select the name from the product list and then proceed with the installation.

The above steps complete the installation and also configures it for the OVO installation.

Unmounting the CD-ROM

1. Run the command:
   unmount /*<mount_point>*

2. Remove the CD-ROM from the disk drive.

To Install the SD Depot Tape File

Follow these steps if you are installing the Sun MC Integration software package(OVOSymInt) seperately.

1. Login as user root with the OVO administrator's privileges.

2. Copy the software package to a temporary directory on the OVO management server and uncompress it. For example:

   ```
   cp OVOSYM-sun.sdtape.Z /tmp/OVOSYM-sun.sdtape.Z

   cd /tmp

   uncompress OVOSYM-sun.sdtape.Z
   ```

3. Install the software. Depending on your platform, perform one of the following steps:

   - for Solaris OVO Server:
     ```
     swinstall -s 'pwd'/OVOSYM-sun.sdtape OVOSymInt
     ```

   - for HP-UX 11.x OVO Server:
     ```
     swinstall -s 'pwd'/OVOSYM-11.sdtape OVOSymInt
     ```

   This uploads the SunMC integration software into appropriate OVO directories. The installation also uploads the OVO configuration with templates, commands, monitors and application definitions. It registers the SunMC Message Event Interceptor (SunMC MEI) process as an OpenView process and automatically starts it.

   Once you installed the OVO/SunMC integration on your management server, proceed with assigning the SunMC message group to the appropriate OVO operator.

To Assign the SunMC Message Group

As the `SunMC` message group is *not* assigned to any OVO operator, you have to proceed installation process with assigning the SunMC message group to appropriate OVO operator. In order to see and manage the SunMC alarm messages in OVO, you are required to assign the `SunMC` message group to appropriate operator manually.

1. Open the `User Bank` window and from the menu bar select `Actions: User -> Modify...`. The `Modify User` window opens.

2. In the `Modify User` window click the `[Responsibilities]` button. The `Responsibilities for Operator` window opens.

3. Click on the buttons corresponding to the message group you want to assign, in this case **SunMC**.

4. Click `[Close]` to close the `Responsibilities for Operator` window and return to the `Modify User` window.

5. In the `Modify User` window, click `[OK]` to accept the choices you made.

Installed Components

During the installation process, the following templates, applications, monitors, and the message group are uploaded to the management server:

Uploaded Templates

The following templates are added to the newly uploaded template group named SunMC.

❏ SunMC_opcmsg(1|3) - message template

This template is used for filtering and restructuring the incoming SunMC alarm messages to OVO message form.

❏ SunMC_errorLog - logfile template

This template monitors the Mapper error logfile and reports the messages related to problems with the Mapper.

❏ SunMC_Mapper_down - monitor template

This template checks to see if the status of the Mapper every five minutes. If the Mapper is not up and running, and it has not been disabled manually, it will be automatically restarted.

❏ SunMC_Add-on - template subgroup that consists of the following two templates:

• SunMC_Server_down - monitor template

This template checks if the SunMC server is running. If the server is down, a OVO message is generated with an operator-initiated action to stop the Mapper (if it is running).

• SunMC_Agent_down - monitor template

This template checks to see if the SunMC agent is running.

Uploaded Application Groups and Applications

After successful installation, the following applications are uploaded to the OVO management server and are added to the OVO Application Bank, SunMC application group. The applications are further grouped into two application subgroups: Mapper and SunMC MEI. Note that before running any of the applications, you must select one or more nodes in the OVO Node Bank.

❑ **Application Group: SunMC**

This application group consists of applications used to invoke the SunMC Console or SunMC Details Console windows through OVO.

- SunMC_Local

  Starts the SunMC Console window locally from a OVO Solaris system.

- SunMC_Remote

  Starts the SunMC Console window remotely from a OVO HP-UX or Solaris system.

- SunMC_NT

  Starts the SunMC Console window locally from a OVO Windows system.

- SunMC_Details_Local

  Starts the SunMC Details Console window locally from a OVO Solaris system.

- SunMC_Details_Remote

  Starts the SunMC Details Console window remotely from a OVO HP-UX or Solaris system.

- SunMC_Details_NT

  Starts the SunMC Details Console window locally from a OVO Windows system.

The SunMC_Local, SunMC_Remote, SunMC_NT, SunMC_Details_Local, SunMC_Details_Remote, and SunMC_Details_NT applications are described in detail in Chapter 4, "SunMC Desktop Integration," on page 71.

❏ **Application Group: Mapper**

The Mapper application group is a subgroup of the SunMC application group. This application subgroup consists of applications used to configure and control the Mapper and its behavior.

- Mapper Config

  Mapper Config is used to run the OVO/SunMC configuration (change username, password, and SunMC server RMI port number). The nodes configuration file (if it does not exist already) is created.

- Mapper Disable

  Stops the Mapper and disables its automatic restart.

- Mapper Enable

  Enables the Mapper and starts it.

- Find-RMIport

  Checks and reports on the SunMC Server RMI port number.

- List-Nodes

  This application lists all the nodes that are defined on the SunMC Server. The output can be redirected or copied to the /var/opt/OV/conf/OpC/sy-nodes.cfg file. For more information refer to the section "Nodes Configuration File" on page 47.

- Mapper Start

  Starts the Mapper on selected node(s).

- Mapper Status

  Checks if the Mapper is enabled, configured, and running.

- Mapper Stop

  Stops the Mapper on selected node(s).

- OVO2SunMC

  Forwards commands about acknowledged messages to the
  Mapper, which then sends the acknowledged events to SunMC.

IMPORTANT   The OVO2SunMC application is started automatically by the SunMC
                      MEI process and must not be executed by an operator or user.

❏ **Application Group: SunMC MEI**

  The SunMC MEI application group is a subgroup of the SunMC
  application group. This application subgroup consists of applications
  used to control and manage the SunMC MEI process.

- Start MEI

  Starts the SunMC MEI process.

- Stop MEI

  Stops the SunMC MEI process.

- Check MEI

  Checks to see if the SunMC MEI process is running.

Uploaded Files

Following files and executables for Solaris managed nodes are uploaded
to the OVO management server during the process of installation:

Monitors and Location Information

```
sy-erchk.sh
sy-agt.sh
sy-rstrt.sh
sy-srvr.sh
```

Default monitor location on DCE nodes:
`/var/opt/OV/share/databases/OpC/mgd_node/customer/\`
`sun/sparc/solaris/monitor`

Default monitor location on HTTPS nodes:
`/var/opt/OV/share/databases/OpC/mgd_node/customer/\`
`sun/sparc/solaris7/monitor`

Uploaded Message Group

The message group `SunMC` is added to a list of default OVO message groups in the `Message Group Bank` window.

Installing and Configuring the Integration on Managed Nodes

Once the OVO/SunMC integration software is installed on the OVO management server, you can distribute the software components and configuration to the managed node(s).

The installation, setup, and configuration must be done in the following way:

1. Install the SunMC subagent package on the managed node. See "To Install the SunMC Subagent Package on Solaris Managed Nodes" on page 41 for Solaris managed nodes and "To Install the SunMC Subagent Package on Windows Managed Nodes" on page 44 for Windows managed nodes.

NOTE
If you want to use only the Desktop Integration part (launching the SunMC Console and SunMC Details Console windows from OVO), you need to install only the SunMC subagent package on the managed node.

2. Assign and distribute software components (templates and monitors) to the selected managed nodes. See "To Distribute Templates and Monitors" on page 42.

3. Configure and activate the SunMC integration. See "To Configure and Activate the SunMC Integration" on page 43.

Prerequisites on the Managed Nodes

Software

❏ Sun Solaris version 2.7, 8, or 9.

❏ On the OVO Windows managed node, the SunMC Console for Windows has to be installed.

❏ SunMC 2.1.1, 3.0, or 3.5 must be configured and running. Note that any number of SunMC agents can be configured as well.

❏ OVO agent must be installed and running on the node where the SunMC Server is running.

Information

❏ A root user name and password of the managed node is required. This password is required to execute the `Mapper Config` application.

❏ A valid SunMC user name and password are required. A SunMC user name is a valid UNIX user name on the system on which the SunMC is running. SunMC user names along with their SunMC-related permissions are stored in the `/var/opt/SUNWsymon/cfg/esusers` file.

NOTE
OVO/SunMC integration does not support non-root agent on the OVO node.

NOTE
The SunMC users belong to one of the following SunMC UNIX user groups: `esops`, `esadm` or `esdomadm`. In order to configure and use the OVO/SunMC integration, the SunMC user must belong to `esops` or `esadm` group. Only the `esops` and `esadm` users have appropriate permissions.

❏ Provide a valid SunMC server RMI port number. Usually the value is 2099. If the connection to SunMC server fails, you must check for the valid RMI port number. To do that, run the `Find-RMIport` application in `Application Group: Mapper` window.

Installing the SunMC Subagent Package

Once the software is loaded on the OVO management server and the configuration is uploaded, you have to install the SunMC subagent software on the managed node, assign and distribute software components (templates and monitors) and configure and activate the SunMC integration.

TIP　　　　You can distribute the integration to any Solaris node on which a SunMC Server or Console is running or to any Windows node on which the SunMC Console for Windows is installed. Note that on Windows managed nodes, you only need to install the subagent package.

To Install the SunMC Subagent Package on Solaris Managed Nodes

1. Start the OVO administrator GUI.

2. Install the OVO agent software on the managed node where you want to run SunMC.

3. In the `OVO Node Bank`, select the node where you want to install OVO/SunMC integration.

4. From the menu bar, select the following:

   `Actions: Subagents -> Install/Update…`

   The `Install/Update Subagent Software` window opens.

5. In the `Install/Update Subagent Software` window, select `SunMC integration` and the nodes on which you want to install or update the agent.

6. Click [`Preview`] to see which software packages will be installed on each node.

7. Click [`OK`] to install the software package.

To Distribute Templates and Monitors

NOTE   You can distribute templates and monitors only to those Solaris managed nodes that have the SunMC server software installed and running.

1. Start the OVO administrator GUI.

2. In the `OVO Node Bank` window, select the node(s) where you want to distribute templates and monitors to.

3. From the menu bar, select the following:

   `Actions: Agents -> Assign Templates`

   The `Assign Templates` window opens.

4. Open the `Message Source Templates` window, select the `SunMC` template group and assign templates to the selected node(s).

   If you want to monitor only the SunMC server and SunMC agent processes and you do not want to run the Mapper, assign only the `SunMC_Add-on` template subgroup to the managed node.

NOTE   For information on how to distribute templates and monitors to the selected nodes refer to the *OVO Installation Guide for the Management Server*.

5. Through the `OVO Node Bank: Actions: Agents -> Install/Update SW & config` window, distribute the assigned configuration to the selected node(s). Distribute Templates and Monitors.

To Configure and Activate the SunMC Integration

NOTE   You can configure and activate the integration only on those Solaris managed nodes that have the SunMC server software installed and running.

1. Open the `Application Group: Mapper` window.

2. Modify the `Mapper Config` application and fill out the password field for the root access to the node where the Mapper is installed.

3. Open the `OVO Node Bank` and select the destination nodes for the Mapper.

   Destination nodes are nodes where a SunMC Server is installed.

4. In the `Application Group: Mapper` window execute the `Mapper Config` application.

5. Enter a valid SunMC user name, password, and the RMI port number used by the SunMC server.

   The log-in information must be provided in order to enable the connection between the Mapper and the SunMC server. The log-in information is saved to a `/var/opt/OV/conf/OpC/setup` file in an encrypted form. The file is used to provide log-in information at every subsequent Mapper startup.

NOTE   Note that configuring the SunMC integration can take some time but is complete when the following is displayed in the `Application Output` window: `DONE`.

After having performed these configuration steps, the file `sy-nodes.cfg` is created and the Mapper is started automatically. The Mapper is now registered to receive alarms from all nodes recognized by SunMC. Note that in order to receive alarms from nodes listed in the `sy-nodes.cfg` file, these nodes must be added to `OVO Node Bank` and to appropriate `OVO Node Group`.

To Install the SunMC Subagent Package on Windows Managed Nodes

The OVO/SunMC integration supports the following features on Windows managed nodes: running the SunMC Console and the SunMC Details Console on a Windows managed node through OVO.

1. Start the OVO administrator GUI.

2. Install the OVO agent software on the Windows managed node where you want to run the SunMC Console.

3. In the `OVO Node Bank`, select the node where you want to install SunMC subagent package.

4. From the menu bar, select the following:

   `Actions: Subagents -> Install/Update…`

   The `Install/Update Subagent Software` window opens.

5. In the `Install/Update Subagent Software` window, select `SunMC integration` and the nodes on which you want to install the subagent.

6. Click [`Preview`] to see which software packages will be installed on each node.

7. Click [`OK`] to install the software package.

The OVO/SunMC installation procedure detects the type of managed node (Sun Solaris or Windows managed node) and installs appropriate components. When a Windows managed node is detected, only the components for running the SunMC Console and SunMC Details Console are installed. See "Files and Directories" on page 45 for more information.

Files and Directories

❑ **Solaris managed nodes**

The following files are installed to the
`/opt/OV/OpC/integration/sunmc/bin` directory on the managed node:

```
getmsg
libsymmap.so
sy-cfg
findMapper
pingMapper
sy-bean.sh
sy-dis.sh
sy-frmi.sh
sy-list.sh
sy-msg.sh
sy-start.sh
sy-en.sh
sy-stop.sh
sy-machk.sh
sy-conf.sh
setenv
SYMINT.jar
```

After the Mapper is configured, the following files are created and
installed to the `/var/opt/OV/conf/OpC` directory:

```
symmap.conf
sy-nodes.cfg
setup
sy-agent_type
```

For details on how to configure the Mapper, please refer to the section "To
Configure and Activate the SunMC Integration" on page 43.

The following files are installed to the `/var/opt/OV/bin/OpC/monitor`
directory on a DCE node and to the
`/var/opt/OV/bin/instrumentation` directory on a HTTPS node:

```
sy-agt.sh
sy-erchk.sh
sy-srvr.sh
sy-rstrt.sh
```

❏ **Windows managed nodes**

The following files are installed on the Windows node:

```
<OVAGENTDIR>\bin\OpC\integration\sunmc\SYMINT.jar
<OVOAGT_CMDDIR>\sy-bean.vbs
<OVOAGT_CMDDIR>\ovosymint_cscript.bat
```

Note that there are no monitors installed to the Windows managed nodes.

For more information on scripts and their usage, please refer to "Script Usage" on page 84.

Nodes Configuration File

The Mapper can receive alarms only from those SunMC agent nodes that are listed in the `sy-nodes.cfg` configuration file. Make sure that the configuration file includes those nodes you want to receive alarms from.

IMPORTANT   In order to receive alarms from the nodes listed in the `sy-nodes.cfg` file, these nodes must be added to `OVO Node Bank` and to appropriate `OVO Node Group`.

The configuration file is saved to the following pathname:

`/var/opt/OV/conf/OpC/sy-nodes.cfg`

❏   The syntax of the `sy-nodes.cfg` file is as follows:

    <nodename> <label>

Please note that only the first word (string) of each line is taken into account. All the text after the first white space (in each line) is considered as a comment and will be ignored.

Example:

    node1.hp.com node1
    node2.hp.com node2

❏   If the configuration file does not exist, a default node configuration file is automatically created when executing one of the following applications:

`Mapper Config`
`List-Nodes` - provided that you redirect the output to the `sy-nodes.cfg` file

The default configuration file created by these applications includes any nodes that are known to the SunMC server at the time when the file is created.

If the configuration file already exists, a default configuration file is not created, and the existing file is used by the Mapper.

TIP   The default node configuration file includes any nodes that are
known to the SunMC server, regardless of whether those nodes are
being actively monitored or not. Therefore, it is possible that you do
not get alarms from all the nodes listed in the default configuration
file. For more information, refer to *SunMC Software User's Guide.*

❏ You can edit the `sy-nodes.cfg` file manually. If you are adding a
node name to the list, make sure you enter it at the beginning of the
line.

❏ If you have added a new node to the SunMC server, you must
update/edit the configuration file in order to receive alarms from that
node.

You can update the configuration file in any of the following ways:

- manually add a node to the `sy-nodes.cfg` file
- remove the `/var/opt/OV/conf/OpC/sy-nodes.cfg` file and then
  execute the `Mapper Config` application, which automatically
  creates a configuration file
- run the `List-Nodes` application and redirect the output to the
  `/var/opt/OV/conf/OpC/sy-nodes.cfg` file

❏ If the `sy-nodes.cfg` file includes nodes that you do not want to
receive alarms from, you will have to manually delete these entries
from the file.

❏ If the `sy-nodes.cfg` file includes nodes that have not been added to
OVO node bank, you will not receive alarms from those nodes. For
more information, refer to *OVO Administrator's Reference Guide.*

❏ Whenever the Mapper is automatically restarted (via the
`SunMC_Mapper_down` template) and that no `sy-nodes.cfg` file exists
(because it has for example been manually removed), no
`sy-nodes.cfg` file is created.

IMPORTANT   After you have created the nodes configuration file, and whenever the file
is updated, you must stop the Mapper and then restart it in order for
changes to be effective.

De-installing OVO/SunMC Integration Software

De-installing on Managed Nodes

De-installation on managed node is done in two steps:

❏ Removing the SunMC templates from the selected node.

❏ Removing the OVO/SunMC integration software components from the selected node.

To Remove the SunMC Templates

In order to remove the OVO/SunMC integration from the managed node, you must first de-assign (remove) the SunMC template group and templates from the selected node(s).

1. Start the OVO Console and log in as OVO administrator (opc_adm).

2. In the OVO Node Bank window, select the node(s) from which you want to de-install OVO/SunMC integration.

3. From the menu bar, select the following:

   Actions: Agents -> Assign Templates

   The Define Configuration window opens.

4. Select the node with SunMC template group assigned and click [Remove selected].

5. To actually make the changes effective, you must update the configuration by executing the following:

   Actions: Agents -> Install/Update SW & config

To Remove the SunMC Software Components

1. Start the OVO Console and log in as a OVO administrator (opc_adm).

2. In the OVO Node Bank window, select the node from which you want to de-install SunMC.

3. From the menu bar, select the following:

   Actions Subagents -> Deinstall…

4. In the Deinstall Subagents window, select SunMC integration.

5. Click [OK] to de-install the software.

This stops the Mapper, unregisters it from the OVO agent, and removes all OVO/SunMC integration related files from the managed node.

De-installing on Windows Managed Nodes

On Windows managed nodes, only the SunMC_NT and SunMC_Details_NT applications are installed. To de-install the integration from the Windows managed node, perform the following steps:

1. Start the OVO Console and log in as a OVO administrator (opc_adm).

2. In the OVO Node Bank window, select the node from which you want to de-install SunMC.

3. From the menu bar, select the following:

   Actions Subagents -> Deinstall…

4. In the Deinstall Subagents window, select SunMC integration.

5. Click [OK] to de-install the software.

This removes all OVO/SunMC integration related files from the managed node.

De-installing from a OVO Management Server

To de-install the OVO/SunMC integration software from a OVO
management server, perform the following steps:

1. Run the following command on the OVO management server:
   `swremove OVOSymInt`

2. You must additionally remove some components from the OVO GUI
   manually.

   a.   Log in to the OVO GUI as opc_adm

   b.   Remove the following components:

   - SunMC template group together with its content
   - SunMC application group
   - SunMC message group

3 Event Synchronization and Mapping

In This Chapter

This chapter describes the OVO/SunMC integration.

After the OVO/SunMC integration software is installed, you can use its concepts and functionality. The integration provides:

❏ applications for controlling the Mapper and the SunMC Message Event Interceptor (SunMC MEI) process

❏ templates for managing, forwarding, and mapping SunMC alarms and OVO messages

Mapper

The Mapper is a daemon that registers with the SunMC server to receive SunMC alarms. The Mapper restructures the alarms into OVO messages, and sends them to the OVO agent running on the same node as the SunMC server. The Mapper can receive alarms from any node managed by the SunMC server. If the connection is lost, the Mapper can automatically reconnect to the SunMC server.

The Mapper provides the following applications and templates.

❏ OVO applications for controlling the Mapper are:
`Mapper Config`, `Mapper Disable`, `Mapper Enable`, `Find-RMIport`, `List-Nodes`, `Mapper Start`, `Mapper Status`, `Mapper Stop`.

❏ Templates
`SunMC_opcmsg(1|3)`, `SunMC_errorLog`, `SunMC_Mapper_down`, and `SunMC_Add-on`. Note that the `SunMC_Add-on` template is a subgroup template.

Sun Management Center Alarm Conversion to OVO Messages (Mapping)

Data received from the SunMC server are converted into standard OVO message form. For more information, see "Message Event Synchronization and Mapping" on page 61.

OVO Message Structure - Attributes

❏ Severity

This field displays the OVO severity level. Please refer to Table 3-1 on page 56 for information on how SunMC alert severity attributes are mapped to OVO severity attributes.

❏ Application

This field displays "*Sun Management Center*" at all times.

❏ Object

The object field is set to display the alarm state of a SunMC alarm. If the alarm is open, the object field displays the value "*Alarm*".

❏ Message Text

The message text received from SunMC is forwarded to OVO and is displayed in this field.

❏ Message Group

This field displays "*SunMC*" at all times and identifies that the message is a SunMC alarm.

❏ Node

This field displays the node name that generated the alarm.

Table 3-1   **Severity Mapping**

SunMC Alert Severity Level	OVO Severity Level
Down	Critical (Crit)
Critical	Critical (Crit)
Alert	Major (Maj)
Caution	Warning (Warn)
Off/Disabled	Unknown (?)

How Does the Mapper Work

Logging in to Sun Management Center Server

NOTE   The log-in information is required only at first log-on. The information is saved to `/var/opt/OV/conf/OpC/setup` file in an encrypted form, and is used at every subsequent Mapper startup.

To connect to the Sun Management Center server and to start the Mapper, you must provide the following log-in information:

❏ SunMC user name and password

A SunMC user name is a valid UNIX user name on the system on which the SunMC is running. SunMC user names along with their SunMC-related permissions are stored in the `/var/opt/SUNWsymon/cfg/esusers` file.

NOTE   The SunMC users belong to one of the following SunMC UNIX user groups: `esops`, `esadm` or `esdomadm`. In order to configure and use the OVO/SunMC integration, the SunMC user must belong to `esops` or `esadm` group. Only the `esops` and `esadm` users have appropriate permissions.

❏ RMI port number

Provide a SunMC server RMI port number. Usually the value is 2099. If the connection to SunMC server fails, you must check for the valid RMI port number. To do that, run the `Find-RMIport` application in the `Application Group: Mapper` window.

Stopping and Starting the Mapper

Mapper is a daemon process started automatically along with the subagent processes. However, you may want to stop or start the Mapper on some occasions. This section describes the ways of stopping and starting the Mapper.

❑ **Stopping**

The Mapper can be stopped in one of the following ways:

- Execute the `Mapper Stop application`.

  Select the node where the Mapper is installed and execute the `Mapper Stop` application in the `Application Group: Mapper` window.

- Execute the `sy-stop.sh` script on the managed node:

  /opt/OV/OpC/integration/sunmc/bin/sy-stop.sh

❑ **Starting**

After the Mapper has stopped, either due to a failure, or with the `Mapper Stop` application, it can be restarted in one of the following ways:

Manually

- Execute the Mapper Start application.

  Select the node where the Mapper is installed and execute `Mapper Start` application in the `Application Group: Mapper` window.

NOTE　　It is recommended to start the Mapper with the `Mapper Start` application. This enables you to observe the application output in the `Output of Application` dialog window. The application output may provide you with some useful information when a Mapper startup for example fails.

- Execute the `sy-start.sh` script on the managed node:
  /opt/OV/OpC/integration/sunmc/bin/sy-start.sh

Automatically

The `SunMC_Mapper_down` monitor template (provided by the Mapper) periodically (every five minutes) checks to see if the Mapper is running. If the Mapper is not running, it is restarted automatically.

Note that if the Mapper is disabled (manually, by using the `Mapper Disable` application), you must do the following to enable automatic restart:

1. Select a node where the Mapper is installed.

2. Execute the `Mapper Enable` application in the `Application Group: Mapper` window.

Receiving Alarms

OVO can receive all SunMC alarms generated on the SunMC server, regardless of the alarm state (e.g., open, closed, fixed, deleted,...). By default, alarms are received from all the nodes that are known to the SunMC server at the time of the Mapper configuration. Therefore, it is important to keep the node configuration up to date.
For example, if a node has been added to SunMC, the configuration file `sy-nodes.cfg` needs to be updated and the Mapper needs to be restarted.
You may edit the file manually, or you may run the `List-Nodes` application from the `Application Group: Mapper` window and redirect the output into the `/var/opt/OV/conf/OpC/sy-nodes.cfg` file. See "Nodes Configuration File" on page 47 for more information.

Automatic SunMC Server Reconnection

When the Mapper loses connection to the SunMC server, a OVO message is sent and the Mapper tries to re-establish the lost connection. The Mapper will try to reconnect to the server every 60 seconds and will stop only after successful reconnection.

Whenever the connection is lost, the sent OVO message is matched by the condition in the SunMC_opcmsg (1|3) message template and an operator-initiated action to disable (and thus stop) the Mapper is appended to the message. If you execute this operator-initiated action, you will disable and thus stop the Mapper.

When starting the SunMC server in order to receive alarms, you will have to enable the Mapper manually by executing the Mapper Enable application.

Message Event Synchronization and Mapping

Message event synchronization is accomplished by using the Mapper, the `SunMC_opcmsg(1|3)` template, and by the `SunMC Message Event Interceptor (SunMC MEI)` process.

The message synchronization runs in both directions:

- **OVO to SunMC** - accomplished by the SunMC MEI process

- **SunMC to OVO** - accomplished by the `SunMC_opcmsg(1|3)` template and the message correlation mechanism.

The synchronization and mapping process takes place when an alarm on the SunMC server changes state (from opened to closed, fixed, deleted,...), or when a OVO message with the SunMC message group attribute is acknowledged by a OVO operator in the `OVO Message Browser`.

The Concept of Event Synchronization and Mapping

❑ **SunMC to OVO**

The Mapper intercepts SunMC alarms and restructures them to OVO messages and the message is then sent to the OVO agent. The `SunMC_opcmsg(1|3)` template then filters the messages, checks the conditions, and sets message attributes including the **Message Key** and **Message Key Relation**.

On the OVO management server, message key correlation is used for the synchronization. A OVO message representing an open SunMC alarm is forwarded to the `OVO Message Browser`. State changes on SunMC alarms (for example, when a SunMC alarm goes into a closed state, or when the alarm is acknowledged) also trigger the OVO message. In this case, the OVO message has a Message Key Relation mechanism that acknowledges the OVO message representing the open alarm state.

For more information on message conditions, attributes, and the message template, refer to "Message Template SunMC_opcmsg(1 | 3)" on page 64.

Table 3-2   **SunMC to OVO Mapping**

SunMC Alarm Events	Action on OVO Message
Open	Alarm message with alarm text appears in Active Message Browser
Acknowledge	Acknowledge alarm message
Close/Fix	Acknowledge alarm message
Delete	Acknowledge alarm message

❏   **OVO to SunMC**

OVO to SunMC synchronization is achieved by the SunMC MEI process. The SunMC MEI process intercepts acknowledged events on the OVO management server. According to the message attributes, the SunMC MEI process determines if a message that originated from SunMC is affected. If so, the OVO2SunMC application is started. The application start parameter **ALARMACK= <alarmID>** is forwarded to the Mapper, which then executes the acknowledge action of the corresponding alarm in Sun Management Center.

For more information on the SunMC MEI process, refer to "SunMC Message Event Interceptor (MEI) Process" on page 67.

Table 3-3   **OVO to SunMC Mapping**

OVO Message Events	Action on SunMC Alarm
Acknowledge	Acknowledge alarm

NOTE   You may encounter that the alarm state in SunMC and the alarm message state in OVO do not match. This is generally not a problem of SunMC or OVO, but it is a result of the software design and occurs in the following circumstances:

•   The status of alarm events is not synchronized when the Mapper is restarted.

This can be experienced when a SunMC alarm is acknowledged, closed, or deleted on the SunMC server during a Mapper downtime. When the Mapper is restarted, initially only open alarms are forwarded to OVO. You will encounter a situation when the alarm state in OVO remains open whereas the alarm has actually been acknowledged, closed or deleted in SunMC.

- SunMC sends alarms (alarm events) to OVO in certain time intervals (for example, 1-10 seconds). It may happen that an open state SunMC alarm is, for example, closed even before it has been forwarded to OVO.

- If the SunMC MEI process is not running, acknowledged events from OVO are lost and not forwarded to SunMC.

Message Template SunMC_opcmsg(1|3)

This template is used for filtering and restructuring the incoming SunMC alarms to OVO message form.

The message template SunMC_opcmsg (1|3) filters messages based on the conditions as shown in Table 3-4.

Besides these, an optional attribute ALARM_ID is provided. The attribute is set to <AlarmID> and is used to generate the Message Key.

Table 3-4   **SunMC_opcmsg (1|3) Message Conditions**

Attribute	Condition	Description
Message Group	SunMC	The condition is set to SunMC at all times.
Message Object	OPEN	Condition for matching open alarms.
	ACK	Condition for matching acknowledged, closed, or deleted alarms.
	CONN CONN_OK	Conditions for internal purpose of checking the Mapper.

NOTE   The Message Group and Message Object conditions should not be modified. Any modifications can result in SunMC to OVO synchronization failure.

The messages which match the above conditions are restructured and the message attributes are then set as shown in Table 3-5.

Table 3-5   OVO Message Attributes

Message Attributes	Attribute Setting
Message Group	SunMC **Description:** Attribute setting for SunMC alarm message.
Object	Alarm **Description:** Attribute setting for open alarms.
	Sync Event **Description:** Attribute setting for acknowledged, closed, or deleted alarms.
	Connection **Description:** Attribute setting for a lost connection to SunMC server.
Message Key	`<$OPTION(ALARM_ID)>:<$NODE_NAME>:SunMC_OPEN` for open alarms
	`<$OPTION(ALARM_ID)>:<$NODE_NAME>:SunMC_CLOSED` for acknowledged, closed or deleted alarms **Description:** `<$OPTION(ALARM_ID)>`contains the alarm ID from the incoming event. `<$NODE_NAME>` contains the node name which caused an alarm.
Message Key Relation	`^<$OPTION(ALARM_ID)>:<$NODE_NAME>:SunMC_OPEN$` **Description:** Attribute setting for the purpose of matching acknowledged events.

Message key correlation is used to accomplish the synchronization of alarm states from SunMC to OVO. If the Message Key and the Message Key Relation attributes match, the message is acknowledged in the OVO Message Browser.

NOTE   The Message Group, Message Key and Message Key Relation are the key attribute settings that should not be modified. These settings are crucial for OVO to SunMC synchronization to work correctly.

SunMC Message Event Interceptor (MEI) Process

The SunMC MEI process is a registered OpenView process (daemon) running on the OVO management server. It connects to the management server through the MEI (Message Event Interceptor) and the OVO database.

The SunMC MEI process does the following:

❏ Intercepts acknowledged message events in OVO

❏ Starts the OVO2SunMC application

❏ Forwards acknowledged events to the Mapper, which then executes the acknowledge alarm action on the SunMC server

Starting and Stopping the SunMC MEI Process

SunMC MEI process is a registered OpenView process started automatically when OpenView processes are started with ovstart. This section describes the ways of starting and stopping the SunMC MEI process.

Starting

You can start the SunMC MEI process in any of the following ways:

❏ Execute the Start MEI application.

Select the node where the integration is installed and execute Start MEI application in the Application Group: SunMC MEI window.

❏ Start the process with ovstart:

/opt/OV/bin/ovstart sunmc_mei

❏ Run the following command:

/opt/OV/bin/OpC/sy-mei -start

NOTE	It is recommended to start the SunMC MEI process with `ovstart`. If SunMC MEI process is started from the command line with the `-start` option, the process will run outside OpenView process set, and the `/opt/OV/bin/ovstatus` utility will report that SunMC MEI process is not running.

Stopping

SunMC MEI process is stopped automatically when OpenView processes are stopped. However, you can stop the SunMC MEI process in any of the following ways:

❏ Execute the `Stop MEI` application.

Select the node where the integration is installed and execute `Stop MEI` application in the `Application Group: SunMC MEI` window.

❏ Stop the process with `ovstop`

/opt/OV/bin/ovstop sunmc_mei

❏ Run the following command:

/opt/OV/bin/OpC/sy-mei -stop

Checking the Status

You can check to see if SunMC MEI process is running in any of the following ways:

❏ Execute the `Check MEI` application.

Select the node where the integration is installed and execute `Check MEI` application in the `Application Group: SunMC MEI` window.

❏ Check on the status of the process with `ovstatus`:

/opt/OV/bin/ovstatus sunmc_mei

❏ Run the following command:

/opt/OV/bin/OpC/sy-mei -status

Alarm Tracing

For the purpose of simplifying troubleshooting, alarm tracing is implemented for the Mapper and for the SunMC MEI process.

For more information on Alarm Tracing, refer to Chapter 5, "Troubleshooting," on page 79.

4 SunMC Desktop Integration

In This Chapter

This chapter provides general information on SunMC desktop integration applications.

Concept

Desktop Integration gives you the possibility to run the `SunMC Console` and/or the `SunMC Details Console` window from the OVO Java or Motif GUI. For this purpose, `SunMC Console` and `SunMC Details` OVO applications are provided.

These applications can be started locally or remotely. The applications are added to the `OVO Applications - SunMC` group and can be executed in the same way as any other application.

SunMC Console

You may start the `SunMC Console` window locally from any OVO managed node where a SunMC Console is installed, or remotely from another OVO managed node.

❑ **Remotely**

You can run the `SunMC Console` window remotely from any Solaris system that is managed by OVO. The node must have the OVO agent and the SunMC Console software installed. For this purpose, the following application is provided:

`SunMC_Remote`

To run this application you will have to select a node in the `OVO Application Bank` and then run the `SunMC_Remote` application on the selected remote node.
This application is intended for HP-UX or Solaris systems.

❑ **Locally**

You can run the SunMC Console window locally, that is, from the node where your OVO GUI is running. The node must have the SunMC Console software installed.

Depending on the operating system of the node, one of the following OVO applications can be executed to start the SunMC Console window:

SunMC_Local

To run this application the SunMC Console software and the OVO Motif or Java GUI have to be installed on the same OVO node. This application can be started only on a OVO Solaris system and is used to run the SunMC Console window locally.

SunMC_NT

This application is used to run the SunMC Console window locally on Windows NT node from the OVO Java GUI.

Set the SUNMC_ROOT environment variable to the SunMC's console folder on the Windows node. If this variable is not set, the integration software will start from its default location.

NOTE   If you use SunMC software version 2.x, look at the section "SunMC Console for Windows Problems" on page 98 to find the workaround for starting SunMC Console for Windows with Java GUI.

SunMC Details Console

To start the SunMC Details Console window the following parameters have to be known:

❏   a valid SunMC username

❏   a valid SunMC password

❏   a valid SunMC server name

❏   a valid SunMC node labelname and hostname

   Note that you do not need to know the exact label node name. You can get a list of valid labelnames from the SunMC server and then choose the appropriate node from the list.

❏   a valid SunMC server RMI port number

    Usually the value is 2099.

You can start the SunMC Details Console window remotely or locally in the following ways:

❏   **Remotely**

   You can run the SunMC Details Console window remotely from any Solaris system that is managed by OVO. The node must have the OVO agent and SunMC Console software installed. For this purpose, the following application is provided:

   SunMC_Details_Remote

   In the OVO Node Bank window choose a node that has the OVO agent as well as the SunMC console software installed, and start the application from the OVO Application Bank. After the SunMC Details login console window is invoked, proceed as described in section "SunMC Details Console" on page 75.

❏ **Locally**

You can run the `SunMC Details Console` window locally, that is, from the node where your OVO GUI is running. The node must have the SunMC Console software installed.

Depending on the operating system of the node, one of the following OVO applications can be executed to start the `SunMC Details Console` window:

`SunMC_Details_Local`

You can start the application from a local node on which the OVO GUI is running. The node must have the OVO agent as well as the SunMC Console software installed. Whenever the `SunMC_Details_Local` application is started, the `SunMC Details login console` window is invoked. After the `SunMC Details login console` window is invoked, proceed as described in the section "SunMC Details Console" on page 75.

TIP

You can enter the node labelname directly into the `SunMC Login` window and thus start the `SunMC Details Console` instantly.

`SunMC_Details_NT`

Start the application on a local node where Windows NT Java OVO GUI is running. The node must have the OVO agent as well as the SunMC Console for Windows installed and running. Whenever the `SunMC_Details_NT` application is started, the `SunMC Details login console` window is invoked. After the `SunMC Details login console` window is invoked, proceed as described in the section "SunMC Details Console" on page 75.

Set the `SUNMC_ROOT` environment variable to the SunMC's console folder on the Windows node. If this variable is not set, the integration software will start from its default location.

NOTE	If you use SunMC software version 2.x, look at the section "SunMC Console for Windows Problems" on page 98 to find the workaround for starting SunMC Details Console for Windows with Java GUI.

The SunMC Details Login Console Window

Whenever one of the SunMC Details console applications is started, the SunMC Details login console window is invoked.

Figure 4-1 SunMC Login Window
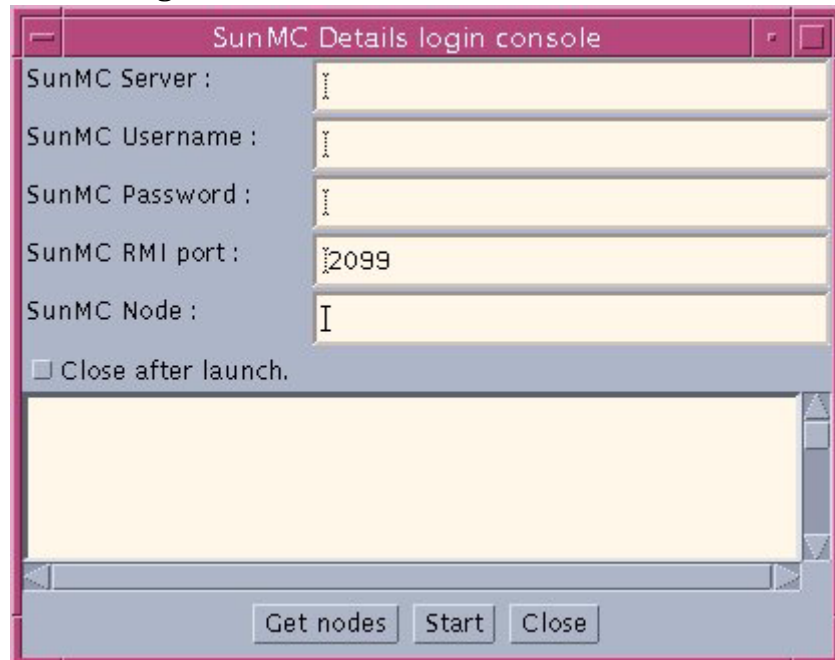
To get a list of valid nodes you will have to perform the following steps:

1. Fill in all the fields and press the [Start] button. If you do not know the exact SunMC node name, fill in all the known fields and then press the [Get nodes] button. From the list of valid nodes, choose the appropriate node and press [Start].

2. After successfully logging on to the SunMC server, you will get a list of nodes along with their label and host names. To start the SunMC Details window, you will have to choose a node from the list and press the [Start] button.

   You may also enter the label and host node name directly to the SunMC Details login console window and thus start the SunMC Details window instantly.

5   Troubleshooting

In This Chapter

In this chapter you will find some advice on how to troubleshoot your SunMC integration.

Alarm Tracing

For the purpose of simplifying troubleshooting, alarm tracing is implemented for the Mapper, the List-Nodes application, and for the SunMC MEI process. Alarm tracing is available only on the Java side.

Mapper

SunMC alarms are traced according to the configured level, and are logged to the /var/opt/OV/tmp/OpC/symtrace.log file.

Alarms are traced on three levels. For the List-Nodes application the same information is displayed with trace level 1 as with trace level 2, while for the Mapper the following information (depending on the trace level) is logged.

❏ Level 1

  • Information about received SunMC alarms and generated OVO messages
  • Details about Mapper to SunMC server Node registration

❏ Level 2

  • Information about SunMC alarms and OVO messages including detailed attribute information
  • Details about Mapper to SunMC server Node registration

❏ Level 0

  Alarm tracing is turned off.

The default trace level is 0. You can change the preconfigured trace level by editing the **TRACE_LEVEL** *<0/1/2>* line in the /var/opt/OV/conf/OpC/symmap.conf file.

IMPORTANT   Each time you modify the trace level, you must stop the Mapper and then restart it in order to make the changes effective.

To find an example excerpt of the symtrace.log file including an explanation of its entries, see "How to Interpret the symtrace.log File" on page 90.

SunMC MEI Process

Trace information for the SunMC MEI process is logged to the following file:

/var/opt/OV/share/tmp/OpC/mgmt_sv/sy-mei_trace

Tracing is enabled whenever the SunMC MEI process is started with the -trace option (/opt/OV/bin/OpC/sy-mei -trace).

| NOTE | When SunMC MEI process is started automatically, tracing is not enabled. To enable tracing, the running SunMC MEI process must first be stopped and then started manually with the trace option /opt/OV/bin/OpC/sy-mei -trace |

Errors and Error Logging

❏ **Mapper**

All internal Mapper errors are logged to the following file:

`/var/opt/OV/log/OpC/symerr.log`

Note that Mapper error logging is a built-in OVO/SunMC integration feature and cannot be disabled.

❏ **SunMC MEI Process**

All internal SunMC MEI process errors are logged to the following file:

`/var/opt/OV/log/OpC/mgmt_sv/sy-mei_error`

Error logging is turned *ON* by default at all times and cannot be disabled.

Error Log File Size

The OVO/SunMC integration includes a logfile template named `SunMC_errorLog`. This template scans the logfile of OVO/SunMC integration for entries, and generates OVO messages from those entries. Before checking the logfile contents, the `sy-erchk.sh` is executed. The script accepts a parameter that specifies the maximum logfile size in kilobytes. By default the parameter is set to 1000 (Kb), so the default maximum size is approximately 1MB. You can modify the maximum size by changing the parameter in the Modify Logfile window of OVO.

In case the specified file size is exceeded, the current file is renamed to `*.old`. Note that any existing `*.old` files are overwritten.

Script Usage

A -h (help) parameter is available for all the scripts used within SunMC integration. To get a description as well as the usage of a script you will have to run, for example:

sy-bean.sh -h

Below is a list of SunMC integration scripts:

❏ sy-bean.sh

This script launches the SunMC Details login window. It is called by the SunMC_Details_Local and the SunMC_Details_Remote applications.

❏ sy-conf.sh

This script runs the OVO/SunMC configuration utility. It is called by the Mapper Config application.

❏ sy-dis.sh

This script disables the Mapper. It is called by the Mapper Disable application.

❏ sy-en.sh

This script enables the Mapper. It is called by the Mapper Enable application.

❏ sy-frmi.sh

This script checks the SunMC RMI port number. It is called by the Find-RMIport application.

❏ sy-list.sh

This script prints a list of nodes configured on the SunMC server. It is called by the List-Nodes application.

❏ sy-machk.sh

This script checks the status of the Mapper. The status of the Mapper can either be configured, not configured, running, not running, enabled, or disabled. It is called by the Mapper Status application.

❏ sy-msg.sh

This script runs the getmsg utility that extracts the localized string from the Java resource bundle.

❑ `sy-start.sh`

This script starts the Mapper. It is executed by the `Mapper Start` application.

❑ `sy-stop.sh`

This script stops the Mapper. It is called by the `Mapper Stop` application.

Troubleshooting Hints

Mapper

Table 5-1   **Error message**

Error Message	Mapper: Error occurred reading setup file
Cause	incorrect setup configuration or no setup file
Solution	Rerun Mapper Config OVO Application and check for SunMC server RMI port number. The default setting is 2099. You can check the RMI port number by running Find-RMIport in the Application Group: Mapper window.

Table 5-2   **Error message**

Error Message	Mapper: Could not run mapper on node [localHost], RMIport: [rmiPort]
Cause	SunMC server is not up and running
Solution	• Check the RMI port number and rerun the Mapper Config application in Application Group: Mapper window. • Start SunMC server by executing **/opt/SUNWsymon/sbin/\\ es-start -A**

Table 5-3   **Error message**

Error Message	"Mapper already running!"
Cause	Mapper is already running
Solution	• Only one instance of Mapper at a time can be running. Check if the Mapper is already up and running. • If the Mapper is running, and you want to restart it, you must first stop it by using the `Mapper Stop` application. • Remove `/var/opt/OV/tmp/\ OpC/symmap.lck` file.

Table 5-4   **Error message**

Error Message	"Mapper already running!"
Cause	Starting the Mapper immediately after the `Mapper Stop` application has been executed, reports an error: Mapper is already running.
Solution	• The Mapper is stopped by sending it the SIGTERM signal. It depends on the load of the system how fast the signal is delivered. As long as the process exists, the start command will report that the Mapper is still running. If your system load is too high, wait for some time before restarting the Mapper. • Remove the `/var/opt/OV/tmp/OpC/symmap.lck` file, and then restart the Mapper.

Table 5-5   **Error message**

Error Message	Mapper: Could not resolve local host: [localHost]
Cause	could not resolve local host
Solution	• Check if the computer is connected to network. • Check if the host is defined in the /etc/hosts file.

SunMC MEI Process

Table 5-6 **Error message**

Error Message	"SunMC MEI process already running!"
Cause	One instance of SunMC MEI process is already up and running.
Solution	• Try to stop the SunMC MEI process by using the Stop MEI application and then restart it. • There may be a problem with the /var/opt/OV/share/tmp/OpC/\mgmt_sv/sy-mei_lock file. Remove the lock file and restart the SunMC MEI process.

Table 5-7 **Error message**

Error Message	SunMC MEI: Could not stop the SunMC MEI process
Cause	The MEI process can not be stopped.
Solution	Stop the process in one of the following ways: • Remove the /var/opt/OV/share/tmp/OpC/\mgmt_sv/sy-mei_lock file. • Read sy-mei process ID and terminate the process. **ps -ef|grep sy-mei** **kill <PID>**

How to Interpret the symtrace.log File

Keep in mind that for starting the Mapper, the following prerequisites must be met:

❏ SunMC must be running.

❏ The following files must exist on the managed node for the Mapper to be configured properly:

   • `/var/opt/OV/conf/OpC/symmap.conf`

   • `/var/opt/OV/conf/OpC/setup`

❏ Node configuration file must exist on the managed node at `/var/opt/OV/conf/OpC/sy-nodes.cfg`

❏ The Mapper must be enabled.

❏ The Mapper must not already be running. Only one instance of the Mapper can be running at a time.

Example - symtrace.log

Bellow is an excerpt from the `/var/opt/OV/tmp/OpC/symtrace.log` file, showing entries concerning starting the Mapper. Whenever a problem occurs, the tracing stops. Therefore, you can usually locate your problem by examining the last printed entries.

```
[Mon Mar 19 13:21:46 CET 2001] :Mapper : Got local host name :
node1.bbn.hp.com
[Mon Mar 19 13:21:47 CET 2001] :Mapper : Loaded library :
symmap
[Mon Mar 19 13:21:47 CET 2001] :Mapper : Successfully read
setup file.
[Mon Mar 19 13:21:47 CET 2001] :Mapper : Starting HeartBeat
thread.
[Mon Mar 19 13:21:47 CET 2001] :Mapper : Trying to run mapper.
[Mon Mar 19 13:21:48 CET 2001] :Mapper : Trying to establish
connection to the SunMC server.
[Mon Mar 19 13:21:58 CET 2001] :Mapper : Connection
established.
[Mon Mar 19 13:21:58 CET 2001] :Mapper : Message Receiver
started
[Mon Mar 19 13:22:00 CET 2001] :Mapper : Reading nodes from the
/var/opt/OV/conf/OpC/sy-nodes.cfg file.
[Mon Mar 19 13:22:00 CET 2001] :Mapper : Hostname entry
[node1.bbn.hp.com] in the /var/opt/OV/conf/OpC/sy-nodes.cfg
```

```
file checks OK.
[Mon Mar 19 13:22:03 CET 2001] :Mapper : Request number 1.
Requesting alarms from the following nodes [ node1].
[Mon Mar 19 13:22:03 CET 2001] :Mapper : Mapper successfully
started.
[Mon Mar 19 13:22:07 CET 2001] :Mapper : Alarm callback
received with vector size [100]
[Mon Mar 19 13:22:07 CET 2001] :Mapper : All alarms except
opened will be suppressed.
```

Troubleshooting hints - symtrace.log

Below is an explanation of possible messages appearing in the
symtrace.log file.

```
Mapper : Got local host name : <local hostname>
```

The Mapper gets hostname of local host.

```
Mapper : Could not resolve local host :
```

There might be some system problem. Check the hostname with
"**hostname**" or "**nslookup *<local host>***".

If this does not work, restart the system.

```
Mapper : Loaded library : symmap
```

The Mapper has loaded the library with native Java C functions.

```
Mapper : Could not load libsymmap.so library.
```

Check if /opt/OV/OpC/integration/sunmc/bin/libsymmap.so
exists. If it does not exist, reinstall the SunMC integration on
managed node.

Stop OVO agent with option kill ("**opcagt -kill**" on DCE node and
"**ovc -kill**" on HTTPS node) and start it after that with the option
start ("**opcagt -start**" on DCE node and "**ovc -start**" on HTTPS
node).

```
Mapper : Successfully read setup file.
```

Setup file has been successfully read.

```
Mapper : Error occurred reading setup file. Please (re)run
Mapper Config OVO Application.
```

Reconfigure the Mapper with `Mapper Config` application. If this does
not work, reinstall SunMC integration on managed node.

```
Mapper : Starting HeartBeat thread.
```

Thread for heartbeat is being started.

```
Mapper : Trying to run mapper.
```

The Mapper connects to SunMC and receives the alarms.

```
Mapper : Trying to establish connection to the SunMC
server.
```

Establishing the connection to SunMC using setup data (username,
password, RMI).

If exception occurs, the possible reasons are:

- Setup data is not configured properly. Reconfigure the Mapper
  with `Mapper Config` application. Before configuration, check for
  proper username, password and RMI port.

- SunMC is not working properly. Restart the SunMC server.

```
Mapper : Connection established.
```

Connection to SunMC has been established.

```
Mapper : Message Receiver started
```

Thread for receiving acknowledged events is started.

```
Mapper : Reading nodes from the
/var/opt/OV/conf/OpC/sy-nodes.cfg file.
```

Reading node configuration file.

```
Mapper : Hostname entry [node1.bbn.hp.com] in the
/var/opt/OV/conf/OpC/sy-nodes.cfg file checks OK.
```

Checking if node node1.bbn.hp.com actually exists.

```
Mapper : Request number 1. Requesting alarms from the
following nodes [node1].
```

Submitting alarm request to SunMC. There can be several alarm requests.

If an error occurs, it means that the connection is not established properly. Restart the Mapper and SunMC.

```
Mapper : Mapper successfully started.
```

The Mapper has been successfully started.

```
Mapper : Alarm callback received with vector size [100]
```

 Alarms have been received.

NOTE   The following message is only displayed as the first response after each alarm request is issued.

```
Mapper : All alarms except opened will be suppressed.
```

This message is only shown after an alarm request is issued.

Other Possible Problems

Mapper Startup Failure

If the Mapper fails to start, one of the possible causes is that the SunMC server is not running. To solve the problem, perform the following steps:

1. Log on to the node where SunMC server and the Mapper are installed.

2. Stop the SunMC server, enter:

   /opt/SUNWsymon/sbin/es-stop -S

3. Start the SunMC server, enter:

   /opt/SUNWsymon/sbin/es-start -S

This should restart some or all SunMC server processes. After the SunMC server is successfully restarted, you will have to restart the Mapper.

For further information refer to the *Sun Management Center User's Guide*.

Alarms not Forwarded

A problem that may occur, is that there are SunMC nodes with alarms that are not forwarded to OVO.

To solve the problem, check the following:

❏ Check the /var/opt/OV/conf/OpC/sy-nodes.cfg configuration file. The nodes you want to receive alarms from must be specified in the sy-nodes.cfg configuration file.

❏ Make sure the node you want to receive alarms from has SunMC software running and is managed by the appropriate SunMC server. The appropriate SunMC server is the server where Mapper is installed or running.

SNMP Port Conflicts

If the OVO server, OVO agent, SunMC server, and SunMC agent are running on the same node, you may experience a OVO agent's and SunMC agent's SNMP port number conflict.

To solve the problem, perform the following steps:

❏ Instruct the SunMC agent to use a different port number, for example port number 1161. To do so you will have to:

1. Stop all SunMC services, enter:

   /opt/SUNWsymon/sbin/es-stop -A

2. Run the sm_setup_agent.sh script, enter:

   /opt/SUNWsymon/sbin/sm_setup_agent.sh

   The script will discover the conflict and will ask you to provide a new port number (for example 1161).

3. Start all the services, enter:

   /opt/SUNWsymon/sbin/es-start -A

❏ Instruct the SunMC server that the specific agent now uses a new port number. To do so you will have to:

1. Login to the SunMC console.

2. Select the node with the changed port number.

3. Click on the node (right mouse button) and select from the pop-up menu [Modify].

4. Change the port number, for example port number 1161.

After performing these steps the communication between the SunMC server and its SunMC agent should work as expected.

OVO Configuration Application Not Responding

If the OVO configuration application, while creating the nodes configuration file (sy-nodes.cfg), fails to respond for more than five minutes, you will have to create the sy-nodes.cfg file manually (as described in the section "Nodes Configuration File" on page 47) or the Mapper will fail to execute.

Messages Do Not Appear in OVO Message Browser

If the Mapper is working properly and messages are forwarded to OVO agent, but they do not appear in the Active or History Message Browser, perform the following steps:

❏ Check if the SunMC message group is assigned to appropriate OVO operator or administrator. Refer to section "To Assign the SunMC Message Group" on page 33 for more information.

❏ Check if SunMC template group is assigned and distributed to OVO agent on managed node. Redistribute templates if necessary.

❏ Check if the SunMC node is added to OVO Node Bank and OVO NodeOVO Group.

❏ Generate OVO message on the managed node:
**opcmsg a="Sun Management Center" o=OPEN msg_grp=SunMC \
msg_t=Test -option ALARM_ID=1**

  • If no message appears in the Message Browser, then something is wrong with OVO agent or templates.

  • If a message appears in the Message Browser with Object attribute set to OPEN, the SunMC templates are not properly distributed to the OVO agent, or are not working properly (they could have been changed).

  • If a message appears in the Message Browser and Object attribute is set to Alarm, something is wrong with the Mapper. Restart OVO agent and the Mapper.

Alarm States in SunMC and OVO Do Not Match

You may encounter that the alarm state in SunMC and alarm message state in OVO do not match.

❏ The status of alarm events is not synchronized when a Mapper is restarted.

The problem occurs when the SunMC alarm is acknowledged, closed, or deleted on the SunMC server at the time when the Mapper is *not* running. When the Mapper is restarted, only open alarms are forwarded to OVO. You will encounter a situation when the alarm state in OVO remains open whereas the alarm has actually been acknowledged, closed, or deleted in SunMC.

❏ SunMC sends alarms (alarm events) to OVO in certain time intervals (for example 1-10 seconds). It may happen that an open state SunMC alarm is, for example, closed even before it has been forwarded to OVO. In such cases, only the closed state alarm will be forwarded to OVO.

SunMC Console for Windows Problems

SunMC Console Version 3.0 for Windows Cannot Be Started

When starting the SunMC_NT application, the SunMC Console may not be started. The problem occurs if you have SunMC 3.0 installed.

To solve this problem, perform the following steps:

1. Edit the \Program Files\SunMC3.0\Console\es-console.bat file.

2. Remove all lines beginning with rem and all other lines except those representing a command.

3. Start SunMC_NT application.

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