

Open System Management Framework (OSMF)

for NT

Release 3.0

User's Guide

This guide provides information necessary to manage and maintain the 55451A open synchronization management framework (OSMF) hardware and software. The information in this manual applies to OSMF software having the software version number listed below.

SOFTWARE VERSION NUMBER: 3.0

For assistance, contact:

Symmetricom, Inc.
2300 Orchard Parkway
San Jose, CA 95131-1017

U.S.A. Call Center:
888-367-7966 (from inside U.S.A. only – toll free)
408-428-7907

U.K. Call Center:
+44.7000.111666 (Technical Assistance)
+44.7000.111888 (Sales)
+44.1604.586740

Fax: 408-428-7998

E-mail: ctac@symmetricom.com

Internet: <http://www.symmetricom.com>

Warning Symbols That May Be Used In This Book



Instruction manual symbol; the product will be marked with this symbol when it is necessary for the user to refer to the instruction manual.



Indicates hazardous voltages.



Indicates earth (ground) terminal.



or



Indicates terminal is connected to chassis when such connection is not apparent.



Indicates Alternating current.



Indicates Direct current.

Contents

1 Introduction and General Information

1.1 In This Guide	1-2
1.1.1.1 Naming Conventions Used in this Guide	1-2
1.2 User Classes	1-2
1.3 Management Domains	1-3
1.4 Description of the OSMF Software	1-4
1.4.1.1 Features of the OSMF Software - Version 3.0	1-4
1.5 Related Documentation	1-5

2 Working with Synchronization Maps

2.1 Overview	2-2
2.1.3.1 Synchronization Map Symbology	2-3
2.2 Status Representation	2-4
2.2.1.1 SSU and GPS Symbol Status Representation	2-4
2.2.1.2 Sync Trail Status Representation	2-4
2.3 Status Propagation	2-5
2.3.1.1 OVW Status Propagation	2-6
2.3.1.2 OSMF Status Propagation	2-7
2.4 Topology Updates in HP OpenView Sessions	2-7
2.5 User Classes	2-7
2.6 Management Domains	2-8
2.7 In This Chapter	2-8
2.7.1.1 Synchronization Sub-Map Creation	2-8
2.7.1.2 SSU/GPS Management	2-9
2.7.1.3 Setting the Date and Time on SSUs	2-9
2.8 Synchronization Sub-Map Creation	2-10
2.8.1.1 To Create a Network Object (Container) and Empty Sub-Map	2-10
2.8.1.2 To Add an SSU Symbol to the Map	2-12
2.8.1.3 To Add a GPS Symbol to the Map	2-13
2.8.1.4 To Add a Ghost SSU or GPS Symbol to the Map	2-14
2.8.1.5 To Add a Sync Trail Between Two Symbols	2-16
2.8.1.6 To Delete Container, SSU, and GPS Symbols	2-19
2.8.1.7 To Delete Sync Trail Symbols	2-20
2.9 SSU/GPS Management	2-22
2.9.1.1 To Initially Manage an SSU or GPS	2-22
2.9.1.2 To Un-Manage an SSU or GPS	2-25
2.9.1.3 To Re-Manage an SSU or GPS	2-26
2.10 Setting the Date and Time on SSUs	2-29
2.10.1.1 To Set the Date and Time on SSUs	2-29

3 Fault Management

3.1 Overview	3-2
3.1.1.1 Expired and Cleared Alarms	3-2
3.1.1.2 User Classes	3-3
3.1.1.3 Management Domains	3-3
3.2 In This Chapter	3-4
3.3 SSU Status Summary	3-5
3.3.1.1 To View the Status Summary of an SSU	3-7
3.4 Alarm Management	3-11
3.4.1.1 To View the Alarm Summary	3-14
3.4.1.2 To Acknowledge Alarms	3-15
3.4.1.3 To Set Audio Notification for Unacknowledged Alarms	3-16
3.4.1.4 To Sort Alarms for Display in the Alarm Viewer Dialog Box	3-17
3.4.1.5 To Display Only Certain Alarms Using the Filter Function	3-18
3.4.1.6 To View Details of a Specific Alarm	3-20
3.4.1.7 To Print an Alarm Report	3-21
3.5 Event Management	3-23
3.5.1.1 To View the Event History Log	3-25
3.5.1.2 To Sort Events for Display in the Event History Log Dialog Box	3-26
3.5.1.3 To Display Only Certain Events Using the Filter Function	3-27
3.5.1.4 To View Details of a Specific Event	3-29
3.6 Event Reports	3-31
3.6.1.1 Runtime Parameter Form dialog box	3-31
3.6.1.2 OSMF: Event History Log Previewer dialog box	3-34
3.6.1.3 To Create an Event Report	3-36
3.7 Transaction Log Reports	3-40
3.7.1.1 Runtime Parameter Form dialog box	3-41
3.7.1.2 Transaction Log Previewer dialog box	3-43
3.7.1.3 To Create a Transaction Log Report	3-45

4 Performance Management

4.1 Overview	4-2
4.1.2.1 Performance History Data	4-2
4.1.2.2 User Classes	4-2
4.1.2.3 Management Domains	4-3
4.2 In This Chapter	4-3
4.3 Performance Monitoring	4-4
4.3.2.1 Measurement Types	4-6
4.3.2.2 Plot Types	4-7
4.3.2.3 Performance Masks	4-8
4.3.2.4 To Display a Performance Measurement	4-9
4.3.2.5 To Print the Performance Monitor	4-11
4.4 Performance Reports	4-13

4.4.1.1 Runtime Parameter Form dialog box	4-13
4.4.1.2 Performance Report Previewer dialog box	4-15
4.4.1.3 To Create a Performance Report.....	4-17

5 Inventory Management

5.1 Overview	5-2
5.1.1.1 User Classes.....	5-2
5.1.1.2 Management Domains	5-3
5.2 In This Chapter	5-3
5.3 Managing the Inventory Database.....	5-4
5.3.1.1 To Modify the Inventory Database	5-7
5.3.1.2 To Sort Resource Entries for Display in the Inventory Dialog Box.....	5-10
5.3.1.3 To Display Only Certain Entries Using the Filter Function.....	5-11
5.4 Resource Associations	5-13
5.4.3.1 Output Card Inventory dialog box.....	5-13
5.4.3.2 Rack Inventory dialog box.....	5-16
5.4.3.3 To Create an Association Between a Resource and an SSU	5-18
5.4.3.4 To Remove an Association Between a Resource and an SSU	5-22
5.4.3.5 To Sort Entries for Display in the Output Card Inventory or Rack Inventory Dialog Box.....	5-23
5.4.3.6 To Display Only Certain Entries Using the Filter Function.....	5-24

6 Security Management

6.1 Overview	6-2
6.1.1.1 User Administration.....	6-2
6.1.1.2 User Classes.....	6-2
6.1.1.3 Management Domains	6-3
6.2 In This Chapter	6-4
6.3 SSU User Administration	6-5
6.3.1.1 To Create a User on an SSU	6-7
6.3.1.2 To Delete a User from an SSU.....	6-8
6.3.1.3 To Change an SSU User's Access Level and Password	6-9
6.3.1.4 To Inhibit an SSU User from Future Log-Ins	6-10
6.4 Management Domains	6-12
6.4.1.1 To Create or Modify the Management Domain for a User	6-14

7 Configuration Management

7.1 Overview	7-2
7.2 User Classes	7-2
7.3 Management Domains	7-3
7.4 In This Chapter	7-3
7.4.1.1 Managing the Current Configuration of SSUs	7-3
7.4.1.2 Managing Default Configurations.....	7-3

7.4.1.3 SSU Firmware Upgrades	7-3
7.4.1.4 Settings Categories	7-3
7.5 Managing the Current Configuration of SSUs	7-4
7.5.1.1 To View the Current Configuration Settings of an SSU	7-7
7.5.1.2 To Modify the Current Configuration Settings of an SSU	7-8
7.6 Managing Default Configurations.....	7-11
7.6.1.1 “Configuration Defaults: Create” dialog box.....	7-11
7.6.1.2 “View Defaults,” “Modify Defaults,” and “Delete Defaults” dialog boxes.....	7-13
7.6.1.3 “Default Configuration : View” and “Default Configuration : Modify” dialog boxes.....	7-15
7.6.1.4 To Create a Configuration Default	7-17
7.6.1.5 To View or Modify an Existing Configuration Default	7-18
7.6.1.6 To Delete an Existing Configuration Default	7-20
7.7 SSU Firmware Upgrades	7-22
7.7.1.1 The Firmware Download Process	7-22
7.7.1.2 Recovery from Firmware Download Process Failures	7-23
7.7.1.3 Recovery from Firmware Download Process Interruptions	7-23
7.7.1.4 “Firmware Download” dialog box	7-24
7.7.1.5 To Download Firmware	7-27
7.7.1.6 To Continue the Firmware Download Process After an Interruption .. 7-30	
7.8 Settings Categories	7-34
7.8.1.1 Network.....	7-34
7.8.1.2 Input Channels	7-35
7.8.1.3 Outputs	7-39
7.8.1.4 Event Actions.....	7-42
7.8.1.5 IMC Card	7-44
7.8.1.6 Thresholds	7-45
7.8.1.7 ITH Card.....	7-47
7.8.1.8 Commands	7-49

A User-Editable Field Parameters

A.1 In this Appendix	A-2
A.2 Network Element Management.....	A-4
A.2.1.1 OSMF:Manage	A-4
A.2.1.2 OSMF:Remanage	A-4
A.3 Fault Management.....	A-5
A.3.1.1 Network Element Status.....	A-5
A.3.1.2 OSMF:Alarm Viewer	A-5
A.3.1.3 OSMF Alarm Viewer:Preferences.....	A-5
A.3.1.4 OSMF:Alarm Viewer:Sorting Criteria.....	A-5
A.3.1.5 OSMF:Alarm Viewer:Filtering Criteria	A-5
A.3.1.6 OSMF:Alarm Viewer:Network Element Filter	A-5

A.3.1.7 OSMF:Alarm Viewer:Location Filter.....	A-6
A.3.1.8 OSMF:Alarm Viewer:Event Type Filter.....	A-6
A.3.1.9 OSMF:Alarm Details	A-6
A.3.1.10 OSMF:Event History Log	A-6
A.3.1.11 OSMF:Event History Log:Sorting Criteria	A-6
A.3.1.12 OSMF:Event History Log:Filtering Criteria	A-6
A.3.1.13 OSMF: Event History Log:Network Element Filter	A-6
A.3.1.14 OSMF: Event History Log:Location Filter	A-7
A.3.1.15 OSMF: Event History Log:Event Type Filter.....	A-7
A.3.1.16 OSMF:Event History Log Details	A-7
A.3.1.17 Runtime Parameter Form (event reports)	A-7
A.3.1.18 OSMF:Event History Log Previewer	A-7
A.4 Performance Management	A-8
A.4.1.1 OSMF:Performance Monitor	A-8
A.4.1.2 Runtime Parameter Form (performance reports)	A-8
A.4.1.3 OSMF:Performance Report (previewer)	A-8
A.5 Inventory Management	A-9
A.5.1.1 OSMF:Inventory	A-9
A.5.1.2 Details.....	A-9
A.5.1.3 Sorting Criteria.....	A-9
A.5.1.4 Filtering Criteria.....	A-9
A.5.1.5 Output Card Inventory.....	A-9
A.5.1.6 Sorting Criteria.....	A-10
A.5.1.7 Filtering Criteria.....	A-10
A.5.1.8 Rack Inventory	A-10
A.5.1.9 Sorting Criteria.....	A-10
A.5.1.10 Filtering Criteria.....	A-11
A.6 Security Management.....	A-12
A.6.1.1 OSMF: Management Domains	A-12
A.6.1.2 Select User.....	A-12
A.7 Configuration Management	A-13
A.7.1.1 OSMF:Configuration:Modify [Network]	A-13
A.7.1.2 OSMF:Configuration:Modify [Input Channels]	A-13
A.7.1.3 OSMF:Configuration:Modify [Outputs].....	A-14
A.7.1.4 OSMF:Configuration:Modify [Event Actions]	A-14
A.7.1.5 OSMF:Configuration:Modify [IMC Card].....	A-14
A.7.1.6 OSMF:Configuration:Modify [Thresholds].....	A-14
A.7.1.7 OSMF:Configuration:Modify [ITH Card]	A-15
A.7.1.8 OSMF:Configuration:Modify [Commands].....	A-15

1.1 In This Guide

1.1.1 The 55451A User's Guide provides complete information necessary to manage the elements of a synchronization network using the open system management framework software, which is referred to throughout this manual as the OSMF software. The following topics are included:

- Creating and modifying the network topology map, also known as the network map.
- Fault management - viewing alarms and other events, acknowledging alarms, viewing the log of user/software transactions, and creating formatted event reports and transaction log reports.
- Performance management - viewing input channel performance measurements, and creating formatted performance reports.
- Inventory management - creating and managing a master inventory of the hardware resources available in the network.
- Security management - managing SSU users and creating management domains for users.
- Configuration management - viewing and modifying the current configuration of SSUs, creating and storing default configurations, which can later be downloaded to SSUs, and downloading firmware upgrades to SSUs.

1.1.1.1 Naming Conventions Used in this Guide

This guide uses several names to refer to the same objects. The usage of multiple terms for the same object helps define the relationship between objects in different situations. To establish naming conventions, the objects and their corresponding names are listed in the following table:

Object	Names Used for the Object
55451A open synchronization management framework software	OSMF software for Windows NT, OSMF software, OSMF
Personal Computer hardware	OSMF Management Server, OSMF Management Client, OSMF Management Console, OSMF workstation, OSMF computer, OSMF system, management system, element manager
55400A synchronization supply unit	SSU, NSU, network element, network object
55300A primary reference source	PRS, GPS, network element, network object

1.2 User Classes

1.2.1 To control access to and protect the integrity of the system, three *user classes* are defined for the OSMF system. A user class defines the level of capability that a user is granted when using the system. In the OSMF system, all potential users of the system are assigned to one of three user classes: the "User" class (svusr), the "Administrator" class (svadm), and the "Security" class (svsec).

NOTES

The current version of the OSMF software supports up to five simultaneous user sessions.

The OSMF software supports only one user of the “Security” class (svsec). This user, which has the user name of “svroot,” is created when the OSMF software is installed.

The following table explains the general capabilities granted to users of each user class. The individual chapters in this guide explain in more detail exactly which tasks can be performed by users of given user classes:

User Class	Capabilities (General)
User	Users in this user class can view the network map as well as view the synchronization management information in the Alarm Viewer, Event History Log, Performance Monitor, Inventory, and configuration dialog boxes. Users in this class can also create and print event and performance reports.
Administrator	Users in this user class have all of the capabilities of the “User” class, and can additionally modify the inventory database and current configuration of SSUs, and create or delete sync trails.
Security	Users in this user class have all of the capabilities of the “User” and “Administrator” classes, and can modify the network topology, manage default SSU configurations and manage or unmanage SSUs, view the transaction log and produce transaction log reports, download firmware upgrades to SSUs, set the date and time on SSUs, create users on SSUs, and configure management domains for users.

In addition, the Security-class user can restrict users of the “User” and “Administrator” classes to perform the tasks that fall within their level of capability only on an individual network element, location, or network basis. This is the concept of *management domains*.

1.3 Management Domains

NOTE

Management Domains are available only in the Deluxe Edition of the OSMF software. In the Standard Edition of the OSMF software, any valid OSMF user can perform management activities on any SSU, as long as the given management activity is within the level of capability dictated by the user’s user class.

1.3.1 A *management domain* specifies which SSUs a given user has permission to access. Management domains are set up and administered by the Security-class user. For more detailed information on management domains, refer to the chapter entitled *Security Management* in this guide.

1.4 Description of the OSMF Software

1.4.1 The OSMF software provides an easy-to-use graphical user interface (GUI) for the management of SSUs that make up the synchronization network. SSUs are managed via a network connection between the management system and each SSU. Once this connection is established, the OSMF software can be used to modify the topology of the synchronization network, and manage the configuration of the individual SSUs in the network. Version 3.0 of the OSMF software also provides limited capacity to manage primary reference sources (GPSs) in the network.

1.4.1.1 Features of the OSMF Software - Version 3.0

Standard Edition - The following features are included in the standard edition of version 3.0 of the OSMF software for Windows NT:

- Support for up to four Management Consoles (also referred to as Management Clients).
- Network communications with SSUs using either the TCP/IP network protocol or the X.25 network protocol.
- Single-screen graphical representation of the synchronization network topology, with color coding to indicate the severity of alarms originating at SSU nodes within the network.
- Limited capacity to manage primary reference sources (GPSs) in the network. GPSs can be symbolically represented on the topology maps, with color coding to indicate the severity of alarms originating from them. Alarms emanating from GPS nodes will also be viewable in the Alarm Viewer. The total number of network elements (GPSs *and* SSUs) that can be managed by the OSMF software is 50.
- Display of synchronization trails that represent the connectivity between network elements. If a problem exists with the signal path represented by the sync trail symbol, the color of the symbol will change to indicate the nature of the problem.
- The ability to manage multiple system users in three different user classes, which determine the level of capability that each user has when using the system.
- A Network Element Status display, which can be used to remotely view the status of selected panel indicators on the various boards of a specified SSU.
- An Alarm Viewer, which provides alarm/event sorting and filtering capabilities and the ability to obtain more detail on alarms or events emanating from SSUs.
- Alarm auto-synchronization tasks that ensure that the list of alarms displayed in the Alarm Viewer dialog box match the outstanding alarms in the SSUs.
- The ability to collect and graphically display performance data for a variety of SSU input channel measurement types, including the ability to set masks and measurement thresholds.
- The ability to produce formatted event reports and performance reports that can be printed on a system printer.
- Inventory management, that allows for the management of a master database of the various hardware resources available in the network.
- The ability to modify the configuration of any SSU that is actively being managed by the software.

- A heartbeat task, which provides automatic, periodic checking of the connectivity to all managed SSUs.
- An auto-alignment task which ensures that the SSU configuration information contained in the OSMF database is aligned with the actual configuration of the SSUs.
- An event forwarder, which allows Element Manager integration with upper-layer management systems.
- On-line help, which affords easy access to task, feature, and troubleshooting information via an on-screen display.

Deluxe Edition - The following *additional* features are included in the deluxe edition of version 3.0 of the OSMF software for Windows NT:

- A choice of either OpenView Windows (OVW) or OSMF status propagation rules to indicate changes in status of network elements at the lower levels of the containment hierarchy.
- Management domains, which specify the network elements that a given user can access.
- A transaction log, which includes a record of transactions between users and the system, as well as certain internal system transactions. The Security-class user has the ability to view the transaction log and produce formatted transaction log reports that can be printed on a printer.
- The ability to create SSU users, and set the date and time on SSUs, remotely from the OSMF system.
- The ability to create and store one or more default SSU configurations. These default configurations, which are stored in the database, can then be downloaded to SSUs when the SSUs are managed or remanaged.
- The ability to download the configuration of a previously managed SSU to another SSU when that SSU is managed or remanaged.
- The ability to download firmware code from the OSMF system to the EPROMs within targeted SSUs.

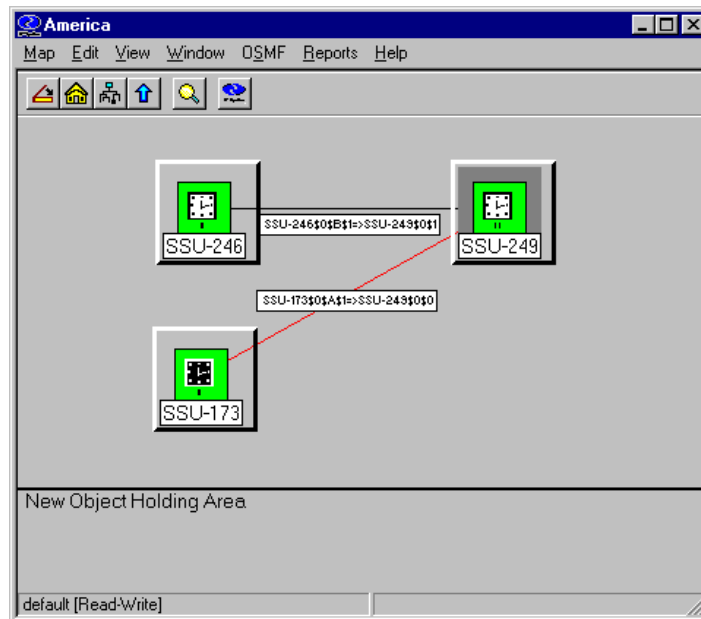
1.5 Related Documentation

1.5.1 In some cases, procedures in this guide might refer you to procedures or other information contained in documentation that includes SSU documentation (*55400 User's Manual* and *55400 Programming Manual*) and HP OpenView documentation.

2.1 Overview

2.1.1 The 55451A open synchronization management framework software (OSMF software) integrates synchronization management applications with HP OpenView Windows to provide a visual representation of the topology of the synchronization network. The topology is represented by HP OpenView as a *synchronization map*, which can consist of one or more *sub-maps*. There can be several layers of sub-maps, each representing an arbitrary portion of the synchronization network.

2.1.2 As an example, the upper-level synchronization map might be representative of the entire network of SSU and GPS hardware supporting a telecommunications network, with each sub-map representing the hardware providing service in a given geographical region. The following shows a simplified example of a synchronization sub-map.



2.1.3 As seen in the above example, synchronization maps and sub-maps are built using various symbols to represent elements of the network.

2.1.3.1 Synchronization Map Symbology

The OSMF software uses several basic types of symbols to represent the network topology:



At the highest level, a synchronization map or sub-map is represented in the HP OpenView display as a parent symbol, or *container*. Containers can be of two types: Location containers or Network containers. Double clicking on the container symbol for a map or sub-map explodes it into the sub-map, which might consist of child container symbols which themselves represent sub-maps, and network element symbols representing actual synchronization hardware.

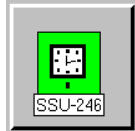


The following shows a typical containment hierarchy (“nb” is name binding):

Network (nb=location-id)→Location (nb=location-id)→SSU (nb=ssu-id) / GPS (nb=gps-id)



The *GPS symbol* is used in a sub-map to represent an 55300A Primary Reference Source (this symbol is sometimes referred to also as the *host GPS symbol*). The color of this symbol will vary to represent its current management status, or the severity level of the most urgent alarm being generated by the unit it represents. Refer to *Status Representation*, below.



The *SSU symbol* is used in a sub-map to represent an 55400A SSU (this symbol is sometimes referred to also as the *host SSU symbol*). The color of this symbol will vary to represent its current management status, or the severity level of the most urgent alarm being generated by the SSU it represents (refer to *Status Representation*, below). There are three different SSU symbols, the difference being the number I, II, or III within the symbol to indicate the stratum level of the SSU it is meant to represent. Note that the OSMF software does not differentiate between these symbols; they are included for visual representation only.



The *ghost symbol* is used when a copy of an SSU or GPS symbol is desired, as on a different submap (ghost SSU and GPS symbols are shown here). The color of the ghost symbol will reflect the color of the SSU or GPS symbol it represents (also referred to as the *host symbol*). When sync trail connections between symbols on different sub-maps are made, a ghost symbol is automatically inserted into the sub-map where the destination of the link is located. There are three different ghost SSU symbols, the difference being the number I, II, or III within the symbol to indicate the stratum level of the SSU it is meant to represent.





Sync trail symbols can be used to represent a signal path from the output of one SSU to the input of another SSU, or the output of a GPS to the input of an SSU.

If a problem exists with the signal path represented by the sync trail symbol, the color of the symbol will change to indicate the nature of the problem (the sync trail status is determined by the status of the destination of the sync trail; refer to *Sync Trail Status*, below).

2.2 Status Representation

2.2.1 The color of the various map symbols will change to reflect changes in status within the network. The following sections explain how the status of SSU, GPS, and sync trail symbols are represented.

2.2.1.1 SSU and GPS Symbol Status Representation

The color of SSU and GPS symbols change to indicate the current management status of the hardware they represent, or the severity level of the most urgent alarm being generated by the hardware. The following table shows the status represented by the color of the symbols:

Color	Status
Red	At least one critical alarm is active for the represented SSU or GPS. Major and minor alarms might also be active.
Orange	At least one major alarm is active for the represented SSU or GPS. Minor alarms might also be active.
Yellow	At least one minor alarm is active for the represented SSU or GPS.
Green	No alarms are active for the represented SSU or GPS.
Tan (Off-White)	The OSMF software is not currently managing the SSU or GPS represented by this symbol.
Blue	The OSMF software is managing but is currently not able to communicate with the SSU or GPS represented by this symbol.
Grey-Blue	A firmware download operation is in process. NOTE Firmware download is available only in the Deluxe Edition of the OSMF software.
Dark Brown	The SSU is currently under realignment.

2.2.1.2 Sync Trail Status Representation

In the current version of the OSMF software, if a problem exists with the signal path represented by a sync trail symbol, the color of the sync trail symbol will change to indicate that a problem exists.

A sync trail symbol will be one of four colors, depending on the status of the link, as follows:

Symbol Color	Link Status
Black	Fully Functional (normal) <i>or</i> Unknown
Red	Critical (or input channel disabled)
Orange	Major
Yellow	Minor

Status Critical, Major, or Minor

The link status is derived based on the INDISQ alarm message emanating from the SSU that is the destination of the sync trail. The color of the sync trail symbol will be reflected as follows:

- If the SSU that is the destination of the link generates an INDISQ (input disqualified) alarm due to a problem with the destination input channel, *AND* the alarm *is not* the result of the input being disabled, the severity rating reported is MINOR, and the link status will be minor (provided that the severity rating for the INDISQ event is set to MINOR).
- If the SSU input that is the destination of the link is disabled, the link status will be critical. In this case the status of the source and destination SSUs could be normal (green).

NOTE

The severity level of the INDISQ event is, by default, set to MINOR, which is an alarm condition. The severity level for this command, however, is user-configurable and can be set to a non-alarm condition (NON ALARM or NONE) if desired. Since sync trail status is derived in part from an alarmed INDISQ condition, the severity level of the INDISQ event should never be user-configured to a non-alarm condition if sync trail status representation is desired.

Status Unknown

A link status of unknown will result if the SSU that is the destination point of the link is unmanaged, or the system detects that it is unavailable.

2.3 Status Propagation

2.3.1 In the current version of the OSMF software, either OpenView Windows (OVW) or OSMF status propagation rules can be used to indicate a change in status of the network elements at the lower levels of the containment hierarchy. Status propagation is chosen from the “Propagation” menu, which is part of the “Administration” menu (the “Administration” menu is part of the “OSMF” menu).

NOTE

The choice of either OpenView Windows (OVW) or OSMF status propagation rules is available only in the Deluxe Edition of the OSMF software. If the Deluxe Edition of software is not enabled, only OSMF status propagation is available by default.

Status propagation can only be changed by the Security-class user (user name “svroot”).

The following sections explain the two choices for status propagation.

2.3.1.1 OVW Status Propagation

NOTE

OVW status propagation is available only in the Deluxe Edition of the OSMF software.

When OVW status propagation is chosen, status is propagated from child to parent symbols using the *OVW default compound status scheme*. When compound status is used, status propagation occurs only when a symbol is given one of the six operational status conditions (unknown, normal, warning, minor/marginal, major, or critical). The administrative status conditions (unmanaged, testing, restricted, and disabled) are not propagated.

From the perspective of a compound status scheme, a symbol is either unknown, normal, or abnormal.

- *unknown* - a symbol's current status has not yet been determined by an application.
- *normal* - a symbol is functioning as intended and responding appropriately when contacted by an application.
- *abnormal* - a symbol is given one of the four abnormal status conditions (warning, minor/marginal, major, or critical), and is either potentially or currently having problems.

The mapping of the compound status categories to the operational status is described in the following table:

This compound status	maps to this operational status condition.
Unknown	Unknown
Normal	Normal
Abnormal ¹	Warning, or Minor/Marginal, or Major, or Critical

¹ Network elements can only have a severity rating of Minor, Major, or Critical.

Status is then propagated according to the algorithms described in the following table.

Condition of Symbols in Child Submaps	Status of Symbols of Parent Object
No symbols are normal and no symbols are abnormal.	Unknown
All symbols are normal.	Normal
One symbol is abnormal, and all other symbols are normal.	Warning
More than one symbol is abnormal and more than one symbol is normal.	Minor/Marginal
One symbol is normal, but all other symbols are abnormal.	Major
All symbols are abnormal.	Critical

2.3.1.2 OSMF Status Propagation

When OSMF status propagation is chosen, status is propagated from child to parent symbols using the status of objects as stored in the database. The object statuses that have an effect on the parent symbol status are *unknown/unavailable*, *normal*, *minor*, *major*, or *critical*; the administrative object status condition *unmanaged* is not propagated. The following three scenarios summarize the OSMF status propagation rules:

- If a sub-map contains child symbols that are all managed and available, the parent container will assume the status exhibited by the child symbol with the most urgent alarm condition.
- If a sub-map contains child symbols, one or more of which becomes unavailable, the parent container will assume a status of critical, due to the critical nature of managed hardware that is unavailable.
- If a sub-map contains child symbols and the child symbol with the most urgent alarm condition is set to unmanaged, the parent container will assume the most urgent status exhibited by the remaining managed child symbols.

2.4 Topology Updates in HP OpenView Sessions

2.4.1 Only the Security-class user (“svroot”) has a Read-Write map. In case any topology changes are made on the “svroot” session map, other system users will not see the changes until their maps are refreshed (by choosing the “Refresh” menu item in the “Map” menu).

Sync trails are created by making modifications to the SSU’s configuration, therefore, they can be created by Administrator-class users in addition to the Security-class user. For these sync trails to appear on the HP OpenView map, however, the “svroot” session must be running. If this session is not running, it will need to be started, then the other Administrator-class and User-class users will need to refresh their HP OpenView sessions once the sync trail appears on the “svroot” session map.

It is recommended that the “svroot” session be running at all times, or at least during topology changes.

2.5 User Classes

2.5.1 To control access to and protect the integrity of the system, three *user classes* are defined for the OSMF system. A user class defines the level of capability that a user is granted when using the system. In the OSMF system, all potential users of the system are assigned to one of three user classes: the “User” class (svusr), the “Administrator” class (svadm), and the “Security” class (svsec).

NOTES

The current version of the OSMF software supports up to five simultaneous user sessions.

The OSMF software supports only one user of the “Security” class (svsec). This user, which has the user name of “svroot,” is created when the OSMF software is installed.

The following table explains the general capabilities granted to users of each user class. User classes that have permission to perform a given procedure in this chapter are listed at the beginning of each procedure:

User Class	Capabilities (General)
User	Users in this user class can view the network map as well as view the synchronization management information in the Alarm Viewer, Event History Log, Performance Monitor, Inventory, and configuration dialog boxes. Users in this class can also create and print event and performance reports.
Administrator	Users in this user class have all of the capabilities of the “User” class, and can additionally modify the inventory database and current configuration of SSUs, and create or delete sync trails.
Security	Users in this user class have all of the capabilities of the “User” and “Administrator” classes, and can modify the network topology, manage default SSU configurations and manage or unmanage SSUs, view the transaction log and produce transaction log reports, download firmware upgrades to SSUs, set the date and time on SSUs, create users on SSUs, and configure management domains for users.

In addition, the Security-class user can restrict users of the “User” and “Administrator” classes to perform the tasks that fall within their level of capability only on an individual network element, location, or network basis. This is the concept of *management domains*.

2.6 Management Domains

NOTE

Management Domains are available only in the Deluxe Edition of the OSMF software. In the Standard Edition of the OSMF software, any valid OSMF user can perform management activities on any SSU, as long as the given management activity is within the level of capability dictated by the user’s user class.

2.6.1 A *management domain* specifies which SSUs a given user has permission to access. Management domains are set up and administered by the Security-class user. For more detailed information on management domains, refer to the chapter entitled *Security Management* in this guide.

2.7 In This Chapter

2.7.1 The remainder of this chapter is divided into three sections:

2.7.1.1 Synchronization Sub-Map Creation

The procedures in this section explain how to create network topology sub-maps, and then add symbols to the maps that represent the network elements that comprise the network.

2.7.1.2 SSU/GPS Management

Once the symbols representing network elements are added to the sub-maps, the security-class user must manage them before the OSMF software will interact with them. The procedures in this section explain how manage, unmanage, and remanage the network elements represented by the symbols on the maps.

2.7.1.3 Setting the Date and Time on SSUs

NOTE

The SSU Set Date and Time feature is available only in the Deluxe Edition of the OSMF software.

This functionality allows the security-class user to remotely set the time and date on selected SSUs from the OSMF workstation.

2.8 Synchronization Sub-Map Creation

2.8.1 The OSMF software represents the network topology as one or more synchronization sub-maps which represent an arbitrary portion of the synchronization network. The basic steps involved in creating these sub-maps are as follows:

- One or more empty sub-maps are created. These empty sub-maps typically represent arbitrary, manageable portions of the network, such as geographic regions.
- SSU and GPS symbols are added to the sub-maps, as necessary.
- If desired, sync trail symbols are added to indicate signal flow between network elements (sync trails are added using the configuration management user interface).
- Sync trail links are added by the OSMF software between network elements on different sub-maps using ghost symbols.

The procedures in this section explain these operations in detail.

NOTE

Once the network topology maps are created, the OSMF software must actively manage the network hardware before network management can take place. Management procedures are included in the section entitled *SSU/GPS Management* in this chapter.

2.8.1.1 To Create a Network Object (Container) and Empty Sub-Map

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

When an OSMF software operator session is started, the HP OpenView “Root” map is displayed. This root map will contain any sub-map container symbols (network objects) already created. The following procedure explains how to create a new container symbol, then explode it into an empty sub-map.

NOTE

When creating sub-maps, you might want to adhere to a suggested containment hierarchy. A typical containment hierarchy is: Network→Location→SSU/GPS.

- 1 Choose the **Add Object...** menu item from the “Edit” menu to invoke the “Add Object Palette” dialog box.
- 2 Click on the appropriate symbol class (Network or Location) from the palette of symbol classes in the upper portion of the dialog box.

Synchronization Sub-Map Creation

When the symbol class is chosen, the palette of available symbol subclasses for that class appears in the lower portion of the dialog box. For example, if you choose the Location symbol class, the palette of available Location symbol subclasses appears in the lower portion of the dialog box.

- 3 Using the left mouse button, drag the appropriate subclass symbol onto the opened map and release it in the desired position. This will be the container symbol for the sub-map.

When the symbol is released, the “Add Object” dialog box appears.

- 4 Enter the necessary information into the “Add Object” dialog box:
 - a. Enter the desired name for the sub-map into the “Label” field of the dialog box.
 - b. Click on the “Selection Name” field and enter the name of the selection name if it is different from the label.

NOTES

The selection name must not include single quotes ('), dollar signs (\$) or exclamation points (!). If the label and selection name are to be the same, then the label also must not include these characters. It is suggested that only alphanumeric characters, the underscore (_) and dash (-) be used.

Ensure that the selection name used is unique within the network topology. If it is not, a warning box will appear. If the warning box appears, cancel the operation and select another, unique selection name.

- c. Enter comments (if any) into the “Comments” field.
- d. Click **OK**.

CAUTION

Never change the selection name (in the Edit→Object Properties menu) once the object has been created as this can cause functional problems with the OSMF software. Also, never change the behavior of the container symbol from the way in which it had been configured (explodable or executable) as this can cause functional problems with the OSMF software. For Network and Location symbols, the behavior is set to “explodable.”

- 5 Close the “Add Object Palette” dialog box.
- 6 Double click on the newly-created container symbol.

The New Submap Wizard pops up stating that the object has no child sub-map.

- 7 In the New Submap Wizard, select the “Create the submap with its default properties” radio button, then **NEXT >** to create the blank sub-map with default settings, or select the “Modify the default submap properties” radio button, then **NEXT >** to modify the properties of the submap. This allows you to change, for example, the background graphics for a Location sub-map.

In either case, the sub-map ultimately created will be empty. You can now begin building the network topology in this window.

NOTE

If the sub-map creation operation was successful, the color of the container symbol will be green. If the color is dark blue, the container symbol might not be valid within the OSMF system. A symbol that is valid within the OSMF system has its “isNetwork” or “isLocation” capability field set to True.

If the container symbol is invalid, select another symbol sub-class for which the “isNetwork” or “isLocation” capability field is set to True. All Location sub-class symbols are valid, and the following Network sub-class symbols are valid: **Generic**, **IP Network**, **Internet**, **Network**, and **WAN (Wide Area Network)**.

2.8.1.2 To Add an SSU Symbol to the Map

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

The following procedure adds a labeled SSU symbol to the synchronization map. At the completion of this procedure, the SSU symbol will be tan in color, indicating that it is in the *unmanaged* state. This indicates that the OSMF software is not managing the SSU represented by the symbol. In order to manage the SSU, refer to the procedure *To Initially Manage an SSU or GPS* in this chapter.

- 1 In the sub-map window where the SSU symbol is to be added, choose the **Add Object...** menu item from the “Edit” menu to invoke the “Add Object Palette” dialog box.
- 2 Click on class “NSU” from the palette of symbol classes in the dialog box. Symbol classes are in the upper portion of the dialog box.

When the SSU symbol class is chosen, the palette of available SSU symbol subclasses appears in the lower portion of the dialog box.

- 3 Using the left mouse button, drag the appropriate subclass symbol (“55400A,” “55400B,” or “55400C”) onto the map and release it in the desired position. Note that the difference between the three symbols is the number I, II, or III, which indicates the stratum level of the SSU the symbol represents.

When the symbol is released, the Add Object dialog box appears. The color of the symbol at this time is dark blue.

- 4 Enter the necessary information into the “Add Object” dialog box:
 - a. Enter the desired name for the SSU into the “Label” field of the dialog box.
 - b. Click on the “Selection Name” field and enter the selection name if it is different from the label.

NOTES

The selection name must not include single quotes ('), dollar signs (\$) or exclamation points (!). If the label and selection name are to be the same, then the label also must not include these characters. It is suggested that only alphanumeric characters, the underscore (_) and dash (-) be used.

Ensure that the selection name used is unique within the network topology. If it is not, a warning box will appear. If the warning box appears, cancel the operation and select another, unique selection name.

c. Enter comments (if any) into the “Comments” field.

d. Click **OK**.

The SSU symbol will now be correctly labeled and its background color will change from blue to tan (off-white), indicating that it is now in the unmanaged state.

CAUTION

Never change the behavior of any symbol from the way in which it has been configured (explodable or executable) as this can cause functional problems with the OSMF software. For SSU symbols, the behavior is set to “executable.” Also, never change the selection name. To modify the selection name, delete and then add the object with the new selection name.

5 Close the “Add Object Palette” dialog box.

2.8.1.3 To Add a GPS Symbol to the Map

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

The following procedure adds a labeled GPS symbol to the synchronization map. At the completion of this procedure, the GPS symbol will be tan in color, indicating that it is in the *unmanaged* state. This indicates that the OSMF software is not managing the Primary Reference Source represented by the symbol. In order to manage the GPS, refer to the procedure *To Initially Manage an SSU or GPS* in this chapter.

- 1 In the sub-map window where the GPS symbol is to be added, choose the **Add Object...** menu item from the “Edit” menu to invoke the “Add Object Palette” dialog box.
- 2 Click on class “GPS” from the palette of symbol classes in the dialog box. Symbol classes are in the upper portion of the dialog box.

When the GPS symbol class is chosen, the palette of available GPS symbol subclasses appears in the lower portion of the dialog box.

- 3 Using the left mouse button, drag the “55300A” subclass symbol onto the map and release it in the desired position.

When the symbol is released, the Add Object dialog box appears. The color of the symbol at this time is dark blue.

- 4 Enter the necessary information into the “Add Object” dialog box:
 - a. Enter the desired name for the GPS symbol into the “Label” field of the dialog box.
 - b. Click on the “Selection Name” field and enter the selection name if it is different from the label.

NOTES

The selection name must not include single quotes ('), dollar signs (\$) or exclamation points (!). If the label and selection name are to be the same, then the label also must not include these characters. It is suggested that only alphanumeric characters, the underscore (_) and dash (-) be used.

Ensure that the selection name used is unique within the network topology. If it is not, a warning box will appear. If the warning box appears, cancel the operation and select another, unique selection name.

- c. Enter comments (if any) into the “Comments” field.
- d. Click **OK**.

The GPS symbol will now be correctly labeled and its background color will change from blue to tan (off-white), indicating that it is now in the unmanaged state.

CAUTION

Never change the behavior of any symbol from the way in which it has been configured (explodable or executable) as this can cause functional problems with the OSMF software. For GPS symbols, the behavior is set to “executable.” Also, never change the selection name. To modify the selection name, delete and then add the object with the new selection name.

- 5 Close the “Add Object Palette” dialog box.

2.8.1.4 To Add a Ghost SSU or GPS Symbol to the Map

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

A ghost symbol is used when a copy of an SSU or GPS host symbol is desired, as on another submap (the host symbol is the original symbol created to represent the SSU or GPS). The color of the ghost symbol will reflect the color of the SSU or GPS symbol it represents.

NOTE

When sync trail connections between symbols on different sub-maps are made, a ghost symbol is automatically inserted into the sub-map where the destination of the link is located.

- 1 Choose the **Add Object...** menu item from the “Edit” menu to invoke the “Add Object Palette” dialog box.
- 2 Click on class “NSU” or “GPS” as appropriate from the palette of symbol classes in the dialog box. Symbol classes are in the upper portion of the dialog box.

When the symbol class is chosen, the palette of available symbol subclasses appears in the lower portion of the dialog box.

- 3 Using the left mouse button, drag the appropriate ghost subclass symbol onto the destination sub-map and release it in the desired position. Note that ghost subclass symbols have a lower-case letter at the end of the model number (55400a or 55300a).

NOTE

Ensure that you select one of the ghost subclass symbols to drag onto the map. Although you might be able to select other symbols, or the “Generic” symbol, OSMF software functional problems might occur if you do.

When the symbol is released, the “Add Object” dialog box appears.

- 4 Enter the necessary information into the “Add Object” dialog box:
 - a. Enter the name of the SSU or GPS that the ghost symbol is to represent into the “Label” field of the dialog box.

For example, if you are creating a ghost SSU symbol on sub-map “Central” to represent SSU-230 on sub-map “North,” enter SSU-230 as the label for the ghost symbol.
 - b. Click on the “Selection Name” field and enter the selection name if it is different from the label. Note that the selection name entered here *must* match the selection name of the symbol that the ghost symbol is to represent.

NOTE

The selection name must not include single quotes ('), dollar signs (\$) or exclamation points (!).

- c. Enter comments (if any) into the “Comments” field.
- d. Click **OK**.
- e. Click **OK** in the warning box that appears (the warning box states that the selection name already exists).

The ghost symbol will now contain the label of the symbol that it represents. Its color will also change to reflect the status color of the SSU or GPS symbol it represents.

CAUTION Never change the behavior of any symbol from the way in which it has been configured (explodable or executable) as this can cause functional problems with the OSMF software. For ghost symbols, the behavior is set to “executable.”

NOTE If the selection name entered for the ghost symbol does not match the selection name of the host symbol it represents (or any SSU or GPS symbol, for that matter), a message box stating so will appear. Upon clicking **OK** in this message box, the ghost symbol disappears. Add the symbol again, ensuring that its selection name matches the selection name of the host symbol.

- 5 Close the “Add Object Palette” dialog box.

2.8.1.5 To Add a Sync Trail Between Two Symbols

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

Sync trails are used to represent a signal path from the output of one SSU to the input of another SSU, or the output of a GPS to the input of an SSU. If a problem exists with the signal path represented by the sync trail symbol, the color of the symbol will change to indicate the nature of the problem.

The procedure in this section explains how to create a sync trail symbol on the map. Note that the following must also be considered for the link to be successfully created.

- The output port that will be the source of the link must be enabled and properly configured to be compatible with the input channel that will be the destination of the link (refer to the “Outputs” section of the *Configuration Management* chapter in this manual for a description of the SSU output port settings).
- Likewise, the input channel that will be the destination of the link must be enabled and properly configured to be compatible with the output port that will be the source of the link (refer to the “Input Channels” section of the *Configuration Management* chapter for a description of the input channel settings).

NOTE If the destination input channel is disabled, the sync trail color will be red, even though the color of the SSU symbols at both ends of the link are green.

- Threshold and ITH card settings should be modified as necessary on the SSU that will be the destination of the link (refer to the “Thresholds” and “ITH Card” sections of the *Configuration Management* chapter for descriptive information).
- A physical connection between the source and destination must exist.
- The Security-class user session should be running.

NOTES

When sync trail connections between symbols on different sub-maps are made, a ghost symbol is automatically inserted into the sub-map where the destination of the sync trail is located. For example, if the source of the sync trail exists on another sub-map, a ghost symbol is created on the submap where the host symbol of the sync trail destination exists.

When more than one sync trail is created between two SSU symbols, the single sync trail symbol shown on the map represents the multiple connections. This is known as a *meta connection*. Double clicking on the meta connection opens a window in which the individual connections can be viewed. Status is always propagated from the individual connections to the meta connection using OVW status propagation rules. Refer to *OVW Status Propagation* in this chapter for more information.

The following procedure explains how to create a sync trail.

- 1 On the synchronization map, click on (select) the SSU symbol that will be the destination of the link.

NOTE

Ensure that the SSU is in the managed state before performing the next step.

- 2 Choose the **Modify** option from the “Configuration” menu to call up the "Configuration:Modify" dialog box (the “Configuration” menu item is part of the “OSMF” menu).

NOTE

Whenever the “Configuration:Modify” dialog box is invoked, the OSMF software checks if the SSU configuration in the OSMF database is aligned with the actual hardware profile and configuration of the SSU. When checking the hardware profile, if the OSMF software detects that any output cards had been removed from the SSU, a message box appears in which you are notified that missing output cards have been detected, and asked if you want to delete the cards. If you click **Yes**, the cards are deleted from the OSMF database, a command is sent to the SSU to remove the equipment (cards) from the SSU inventory, and then the configuration upload proceeds. If you click **No**, the cards are not deleted from the database, but no further modifications can be made to the settings associated with the output cards.

- 3 Click on the **Input Channels** context-switch button and make the following changes to the input channel settings:
 - a. Choose the input channel that will be the destination of the link by clicking the appropriate radio button under “Input Channel.”
 - b. Enable the input if it is not enabled.
 - c. Enter the appropriate sync source information into the “Input Source” field. The information entered will depend on whether the input source is another SSU or a Primary Reference Source (GPS).

NOTE

Self-referencing, that is specifying an output on the same SSU as the sync source, must be avoided.

If the Input Source is Another SSU....

- Enter the following sync source information into the “Input Source” field:

ssu\$rack\$card\$port

Where:

- *ssu* is the selection name of the SSU containing the output port that is the source of the link.
- *rack* is “0” if the rack containing the output card that is the source of the link is the master subrack, or 1, 2, or 3 as appropriate if the output card is in one of the expansion subracks.
- *card* is the slot (A, B, C, D, or E) that the output card is installed in.
- *port* is the number (1 through 16) of the output port that is the source of the link.

NOTE

Instead of entering the information in the above step, you can click the **Select...** button and choose the source settings in the dialog box that appears.

- Ensure that the **Validate** check-box is selected. This check-box is selected by default. When the validate check-box is selected, the software will ensure that the sync source information entered above is in the proper format.

If the Input Source is a Primary Reference Source (GPS)....

- Enter the following sync source information into the “Input Source” field:

gps\$port

Where:

- *gps* is the selection name of the Primary Reference Source (GPS) containing the output that is the source of the link.
- *port* is the number (1 through 4) of the output port that is the source of the link.

NOTE

Instead of entering the information in the above step, you can click the **Select...** button and choose the source GPS and port in the dialog box that appears.

- Ensure that the **Validate** check-box is selected. This check-box is selected by default. When the validate check-box is selected, the software will ensure that the sync source information entered above is in the proper format.

- d. Click the **Apply** button to apply the modifications, then close the “Configuration:Modify” dialog box.

The sync trail symbol is now added between the symbols on the map. If the link is between symbols on different sub-maps, a ghost symbol is inserted into the sub-map where the SSU

symbol representing the destination of the link is located, with the sync trail symbol between the ghost symbol and destination SSU symbol.

NOTE

If the sync trail is created by an Administrator-class user, it will not appear on the map until it is refreshed with the Read-Write map opened (that is, the OpenView session of the Security-class user). If the Read-Write map is not opened, then the sync trail will not appear when the map is refreshed. In either case, the sync trail actually has been created in the database by the software.

NOTE

By default, sync trail labels are not enabled to appear in the display. To enable the label for a sync trail:

1. Click on the sync trail symbol with the right mouse button.
2. Choose the “Symbol Properties” item from the menu that appears.
3. Choose the “Yes” radio button under “Display Label” in the dialog box that appears.
4. Click OK.

2.8.1.6 To Delete Container, SSU, and GPS Symbols

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

NOTES

Symbols must be deleted from within a Container before the Container symbol can be deleted.

An SSU or GPS that is currently being managed by the OSMF software must be un-managed before it can be deleted. To un-manage an SSU or GPS, refer to *To Un-Manage an SSU or GPS* in this chapter. Ghost SSU or GPS symbols, however, do not have to be un-managed before they are deleted.

- 1 On the synchronization map, click on (select) the symbol that you want to delete.

When you click on an SSU, GPS, or ghost symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

NOTE

You cannot delete a sync trail symbol using this procedure. To delete a sync trail, refer to the procedure *To Delete Sync Trail Symbols*, below.

- 2 Choose the **Delete** menu item from the “Edit” menu, then the **From All Submaps** option in the “Delete” menu.

NOTE

When deleting a ghost symbol, you can choose the **From This Submap** option to avoid deleting the host symbol that the ghost symbol is associated with. You cannot delete a host symbol using the **From This Submap** option until all associated ghost symbols have been deleted.

- 3 Click **OK** in the delete warning box.

Once **OK** is chosen, the symbol disappears from the sub-map, indicating that it has successfully been deleted. Note that when symbols are deleted from a map, any associated sync trail symbols will automatically be deleted.

2.8.1.7 To Delete Sync Trail Symbols

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 On the synchronization map, click on (select) the SSU symbol that is the destination of the sync trail.

NOTE

Ensure that the SSU is in the managed state before performing the next step.

- 2 Choose the **Modify** option from the “Configuration” menu to call up the "Configuration:Modify" dialog box (the “Configuration” menu item is part of the “OSMF” menu).

NOTE

Whenever the “Configuration:Modify” dialog box is invoked, the OSMF software checks if the SSU configuration in the OSMF database is aligned with the actual hardware profile and configuration of the SSU. When checking the hardware profile, if the OSMF software detects that any output cards had been removed from the SSU, a message box appears in which you are notified that missing output cards have been detected, and asked if you want to delete the cards. If you click **Yes**, the cards are deleted from the OSMF database, a command is sent to the SSU to remove the equipment (cards) from the SSU inventory, and then the configuration upload proceeds. If you click **No**, the cards are not deleted from the database, but no further modifications can be made to the settings associated with the output cards.

- 3 Click on the **Input Channels** context-switch button and make the following changes to the input channel settings:
 - a. Choose the input channel that is the destination of the sync trail by clicking the appropriate radio button under “Input Channel.”
 - b. Remove all source information from the “Input Source” field (clear the field).
 - c. Click the **Apply** button to apply the modifications, then close the “Configuration:Modify” dialog box.

NOTE

If the sync trail is deleted by an Administrator-class user, it will not be removed from the map until the map is refreshed with the Read-Write opened (that is, the OpenView session of the Security-class user). If the Read-Write map is not opened, then the sync trail will not be deleted from the map even if the map is refreshed. In either case, the sync trail actually has been deleted from the database by the software.

NOTE

When you delete a sync trail connection that is between symbols on different sub-maps, the ghost symbol associated with the link is not automatically deleted. This is done to avoid deletion of ghost symbols which have been created by the user. To delete the ghost symbol, follow the procedure entitled *To Delete Container, SSU, and GPS Symbols* in this chapter.

2.9 SSU/GPS Management

2.9.1 The OSMF software must be directed to manage the SSUs and Primary Reference Sources in the network before network management can take place. The procedures in this section explain how to initially manage, un-manage, and re-manage these network elements.

2.9.1.1 To Initially Manage an SSU or GPS

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

Once an SSU or GPS symbol has been added to the synchronization map, the OSMF software must know the network address and, in the case of SSUs, the password and configuration option before the hardware the symbol represents can be managed. The following procedure explains how to set up the OSMF software to manage these network elements for the first time.

CAUTION A period exists during the management of an SSU or GPS when the “OSMF:Manage” or “OSMF:Remanage” dialog box is open, and **OK** has not yet been clicked. During this time, the symbol color will be tan. *Do not delete an SSU or GPS symbol in this state.* Doing so can cause functional problems within the OSMF software.

NOTE Before the OSMF software can manage an SSU, several networking-related parameters and a switch setting must be set at the SSU. The chapter entitled *Commissioning an SSU* in the *55451A OSMF Software System Administrator’s Guide* describes this in detail.

- 1 On the synchronization map, click on (select) the symbol that you want to manage.

When you click on the symbol, the area around the periphery of the symbol darkens, indicating that it is selected.
- 2 Choose the **Manage** menu item from the “OSMF” menu to invoke the “OSMF:Manage” dialog box.
- 3 Enter the necessary information into the “OSMF:Manage” dialog box:
 - a. If the network element being managed is an SSU, choose the network protocol to match the network protocol used by the SSU. For Primary Reference Sources (GPS), the network protocol is TCP/IP by default and cannot be changed.

NOTE If the OSMF software is to be used to manage SSUs using the X.25 networking protocol, you must modify the file `c1_x25dte` in the directory `/OSMF/config` to contain the X.25 address of the OSMF PC. The `c1_x25dte` file can be modified using any text editing program.

- b. Enter the address of the network element into the “Address” field of the dialog box. The address entered here must match the address set at the network element and be in the valid protocol format.
- c. If the network element being managed is an SSU, enter the password of the SSU into the “Password” field. The password entered here must match the actual password set at the SSU (10 characters maximum) for the svsec user. Primary Reference Sources (GPS) do not require a password.
- d. If the network element being managed is an SSU, choose the appropriate configuration option. The following three options are available.

NOTE

The “Download Defaults” and “Copy from Network Element” options are available only if the Deluxe Edition of the OSMF software is enabled. If the Deluxe Edition of OSMF software is *not* enabled, only “Upload from Network Element” is available and is selected by default.

Option	Description
Download Defaults ¹	Choose this option to download one of the previously stored default configurations ² from the database to the SSU being managed. Choose the appropriate default configuration from the drop-down list that appears to the right of the option.
Upload from Network Element	Choose this option to upload the current configuration of the SSU to the database as the SSU is being managed.
Copy from Network Element ¹	Choose this option to download - to the SSU being managed - the configuration settings of a previously managed SSU (the source SSU does not have to be currently managed, as long as it was managed once and has configuration settings in the database). Choose the name of the appropriate SSU from the drop-down list that appears to the right of the option. NOTE If the source SSU is currently locked, as for modification, you will be prompted to either continue or abort the manage operation.

¹ Deluxe Edition only.

² Refer to the section *Managing Default Configurations* in the *Configuration Management* chapter of this manual for more information on default SSU configurations.

NOTE

When a configuration is downloaded to the SSU, as when the “Download Defaults” or “Copy from Network Element” option is chosen, the configuration to be downloaded should be compatible with the equipment configuration of the SSU being managed. If the hardware revisions of cards in the source configuration are not compatible with the hardware revisions of the respective cards in the SSU being managed, the software will issue an OSMF:Manage:ERROR message. A configuration is considered compatible when the following is true:

- The number of input channels in the source configuration agrees with the actual number of input channels in the SSU being managed.
- The number of racks and output cards in the source configuration agrees with the

actual number of racks and output cards in the SSU being managed. Also, the positions of the output cards and the output card type in a given position must agree between the default configuration and SSU being managed.

- e. Click **OK**.

NOTES

When “OK” is clicked, a message box entitled “OSMF:In Progress” appears with a message indicating that the configuration is being uploaded or downloaded, *if* the network element being managed is an SSU. When the configuration upload/download is complete, the “OSMF:In Progress” message box disappears, and an “Uploading (or Downloading) configuration is done” message box appears. The color of the SSU symbol changes to represent the status of the SSU after clicking **OK** in the “Uploading (or Downloading) configuration is done” message box.

If a “CP-1416” error appears due to timeout of the command service, ignore it, and click **OK** in the message box to acknowledge it. The SSU will manage correctly anyway.

If the SSU issues a “NA”-type Acknowledgement or a “DENY”-type Error Response during a configuration download, the download will fail. In these cases, the SSU will assume the configuration it had before the management operation commenced. A likely reason for the SSU to issue a “DENY”-type Error Response is because the firmware version number stored in the system’s SV-FIRMWARE variable is a greater value than the SSU’s firmware version. If this is the case, performing the following steps will allow the configuration download to proceed without error:

1. Exit the OSMF software operator session. (Choose **Exit** from the “Map” menu in all submaps, then click **OK** in the “OpenView Windows WARNING” box when it appears). The goal is to exit out of the user map session, but not stop the Openview and OSMF daemons.
 2. Set the SV_FIRMWARE variable to be the same as the firmware version of the SSU to which you are downloading the configuration to:
 - a. Choose **Start** ⇒ **Run**.
 - b. Enter **regedt32** in the “Run” dialog box, and click **OK**.
 - c. In the “Registry Editor” window, click on the “HKEY_LOCAL_MACHINE” window.
 - d. Choose the path SOFTWARE\Hewlett-Packard\OSMF\CurrentVersion.
 - e. Double-click on SV_FIRMWARE : REG_SZ : xxxx and enter the version number into the “String Editor” dialog box that appears.
 3. Re-start the OSMF software (choose **Start** ⇒ **Programs** ⇒ **OSMF** ⇒ **User Map Session**), and perform the configuration download operation again.
-
- 4 Note the color of the symbol to determine the management status of the SSU or Primary Reference Source:
- If the color of the symbol is green, yellow, orange, or red, the network element is now being managed by the OSMF software.

- For SSUs, if the color of the symbol remains tan (off-white) and an “OSMF:Manage:ERROR” box appears, the configuration upload/download operation was not successful. Click the **Details** button (if displayed) in the “OSMF:Manage:ERROR” box to view details on the cause of the failure.

NOTE

If the svsec password is changed locally at an SSU after the SSU has been initially managed, the OSMF software cannot simply re-manage the SSU using the new password. The following must occur in order for the OSMF software to be able to manage the SSU:

- The SSU must be unmanaged (see *To Un-Manage an SSU or GPS*).
- The SSU symbol must be deleted (see *To Delete Container, SSU, and GPS Symbols*).
- A new symbol for the SSU must be created (see *To Add an SSU Symbol to the Map*).
- The SSU must be initially managed using the new password (see *To Initially Manage an SSU or GPS*).

2.9.1.2 To Un-Manage an SSU or GPS

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

In certain situations, such as when an SSU is being serviced, it might be desirable to change the status of the network element to unmanaged. The following procedure explains how to unmanage an SSU or GPS.

- 1 On the synchronization map, click on (select) the SSU or GPS symbol that you want to unmanage.

When you click on the symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

NOTE

If an SSU symbol has been selected and the “Configuration:Modify” dialog box is open, it must be closed before performing the next step.

- 2 Choose the **Unmanage** menu item from the “OSMF” menu.

When the “Unmanage” menu item is chosen, the color of the SSU or GPS symbol changes to tan (off-white), indicating that is now un-managed.

2.9.1.3 To Re-Manage an SSU or GPS

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

NOTE

To manage an SSU or GPS for the first time, refer to the procedure *To Initially Manage an SSU or GPS*.

- 1 On the synchronization map, click on (select) the SSU or GPS symbol that you want to re-manage.

When you click on the symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

- 2 Choose the **Manage** menu item from the “OSMF” menu to invoke the “OSMF:Remanage” dialog box.
- 3 Enter the necessary information into the “OSMF:Remanage” dialog box:
 - a. If the network element being remanaged is an SSU, enter the password of the svsec user into the “Password” field. The password entered here must match the actual password set at the SSU (10 characters maximum) for the svsec user.
 - b. If the network element being remanaged is an SSU, choose the appropriate configuration option. The following options are available.

NOTE

The “Download Defaults” and “Copy from Network Element” options are available only if the Deluxe Edition of the OSMF software is enabled. If the Deluxe Edition of OSMF software is *not* enabled, only “Upload from Network Element” is available and is selected by default.

Option	Description
Download Defaults ¹	Choose this option to download one of the previously stored default configurations ² from the database to the SSU being remanaged. Choose the appropriate default configuration from the drop-down list that appears to the right of the option.

Option	Description
Upload from Network Element	Choose this option to upload the current configuration of the SSU to the database as the SSU is remanaged.
Copy from Network Element ¹	<p>Choose this option to download - to the SSU being remanaged - the configuration settings of a previously managed SSU (the source SSU does not have to be currently managed, as long as it was managed once and has configuration settings in the database). Choose the name of the appropriate SSU from the drop-down list that appears to the right of the option.</p> <hr/> <p>NOTE If the source SSU is currently locked, as for modification, you will be prompted to either continue or abort the remanage operation.</p> <hr/>

¹ Deluxe Edition only.

² Refer to the section *Managing Default Configurations* in the *Configuration Management* chapter of this manual for more information on default SSU configurations.

NOTE

When a configuration is downloaded to the SSU, as when the “Download Defaults” or “Copy from Network Element” option is chosen, the configuration to be downloaded should be compatible with the equipment configuration of the SSU being managed. If the hardware revisions of cards in the source configuration are not compatible with the hardware revisions of the respective cards in the SSU being managed, the software will issue an OSMF:Manage:ERROR message. A configuration is considered compatible when the following is true:

- The number of input channels in the source configuration agrees with the actual number of input channels in the SSU being remanaged.
- The number of racks and output cards in the source configuration agrees with the actual number of racks and output cards in the SSU being remanaged. Also, the positions of the output cards and the output card type in a given position must agree between the default configuration and SSU being remanaged.

c. Click **OK**.

NOTES

When “OK” is clicked, a message box entitled “OSMF:In Progress” appears with a message indicating that the configuration is being uploaded or downloaded, *if* the network element being managed is an SSU. When the configuration upload/download is complete, the “OSMF:In Progress” message box disappears, and an “Uploading (or Downloading) configuration is done” message box appears. The color of the SSU symbol changes to represent the status of the SSU after clicking **OK** in the “Uploading (or Downloading) configuration is done” message box.

During a configuration upload from the SSU to the database, the OSMF software checks the hardware configuration of the SSU. If the OSMF software detects that any output cards had been removed from the SSU, a message box appears in which you are notified that missing output cards have been detected, and asked if you want to delete the cards. If you click **Yes**, the cards are deleted from the OSMF database, a command is sent to the SSU to remove the equipment (cards) from the SSU inventory, and then the configuration upload proceeds. If you click **No**, the

cards are not deleted from the database, but the re-management operation aborts.

If a “CP-1416” error appears due to timeout of the command service, ignore it, and click **OK** in the message box to acknowledge it. The SSU will remanage correctly anyway.

If the SSU issues a “NA”-type Acknowledgement or a “DENY”-type Error Response during a configuration download, the download will fail. In these cases, the SSU will assume the configuration it had before the remanagement operation commenced. A likely reason for the SSU to issue a “DENY”-type Error Response is because the firmware version number stored in the system’s SV-FIRMWARE variable is a greater value than the SSU’s firmware version. If this is the case, performing the following steps will allow the configuration download to proceed without error:

1. Exit the OSMF software operator session. (Choose **Exit** from the “Map” menu in all submaps, then click **OK** in the “OpenView Windows WARNING” box when it appears). The goal is to exit out of the user map session, but not stop the Openview and OSMF daemons.
 - 2 Set the SV_FIRMWARE variable to be the same as the firmware version of the SSU to which you are downloading the configuration to:
 - a. Choose **Start** ⇒ **Run**.
 - b. Enter **regedt32** in the “Run” dialog box, and click **OK**.
 - c. In the “Registry Editor” window, click on the “HKEY_LOCAL_MACHINE” window.
 - d. Choose the path SOFTWARE\Hewlett-Packard\OSMF\CurrentVersion.
 - e. Double-click on SV_FIRMWARE:REG_SZ:xxxx and enter the version number into the “String Editor” dialog box that appears.
 3. Re-start the OSMF software (choose **Start** ⇒ **Programs** ⇒ **OSMF** ⇒ **User Map Session**), and perform the configuration download operation again.
-
- 4 Note the color of the symbol to determine the status of the SSU or Primary Reference Source:
 - If the color of the symbol is green, yellow, orange, or red, the network element is now being managed by the OSMF software.
 - For SSUs, if the color of the symbol remains tan (off-white) and an “OSMF:Manage:ERROR” box appears, the configuration upload/download operation was not successful. Click the **Details** button (if displayed) in the “OSMF:Manage:ERROR” box to view details on the cause of the failure.

2.10 Setting the Date and Time on SSUs

2.10.1 An SSU uploads its time and date to the OSMF database, and this becomes the time stamp for data. If the date and time has not been set at the SSU, then the SSU will not include the date and time in its events and responses.

Typically, the date and time is set locally at an SSU when it is commissioned by the system administrator. If an SSU has been commissioned, but the date and time was not set for some reason, then the following procedure can be used to source the time and date from the OSMF system to the SSU (or multiple SSUs), thus setting the time and date on the SSUs.

2.10.1.1 To Set the Date and Time on SSUs

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 Open the synchronization map that contains the symbols for the SSUs on which you want to set the date and time, then click on (select) those symbols.

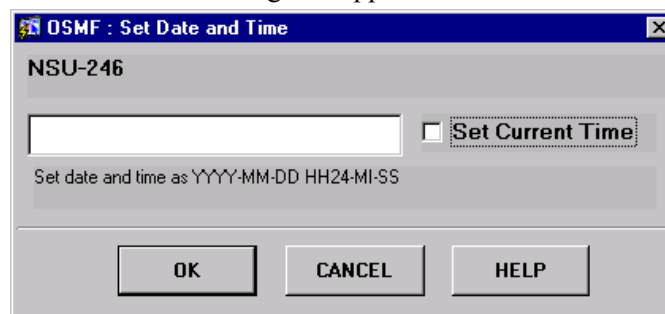
When you click on an SSU symbol, the area around the periphery of the symbol darkens, indicating that it is selected. To select more than one SSU symbol, hold the “CTRL” key down while clicking on the symbols.

NOTE

SSUs must be in the managed state before the date and time can be set on them.

- 2 Choose **Set Date and Time** in the “Administration” menu to call up the "OSMF:Set Date and Time" dialog box (the “Administration” menu is part of the “OSMF” menu).

The "OSMF:Set Date and Time" dialog box appears as follows:



The selected network elements field at the top of the dialog box contains the names of the SSUs that were selected on the map in the previous step. This field cannot be modified in the dialog box.

3 Perform one of the following actions:

- Enter the date and time into the remaining field in the format YYYY-MM-DD HH24-MI-SS, then with appropriate timing, click the **OK** button. When the **OK** button is clicked, the entered time is downloaded to each SSU in the selected network elements field.
- Select the “Set Current Time” check-box, then click **OK** to download the current date and time as stored in the OSMF system to each SSU in the selected network elements field.
- To close the dialog box, click the **Cancel** button. If no other actions were performed in the dialog box prior to clicking **Cancel**, then the dialog box will close without affecting the date and time on any SSUs.

When the date and time is entered and **OK** is clicked, the same date and time entered is set for each SSU in the list. When the “Set Current Time” check-box is selected before clicking **OK**, the current date and time is fetched from the OSMF system immediately before it is downloaded to each SSU in the list in succession. For large lists of SSUs, the preferable method is to select the “Set Current Time” check-box.

NOTE

A slight timing inaccuracy might result due to network and command execution delays.

3.1 Overview

3.1.1 The OSMF software user interface provides dialog box displays to aid in the management of alarms and other events. An alarm is a type of event that is generated as a result of abnormal operation within the synchronization network. The dialog box displays are as follows:

- The **Network Element Status** dialog box provides a snapshot of the front panel of the selected SSU. It simulates some of the status indicators on the front panel of the boards in the selected SSU, including the alarm indicators on the boards.
- The **Alarm Viewer** dialog box contains a summary of the outstanding alarms (that is, those alarms that have not expired or been cleared) from all managed SSUs.
- The **Event History Log** dialog box contains a summary of expired and cleared alarms, and all other non-alarm events.

In addition, the OSMF software user interface provides dialog boxes that are used to generate the following types of reports:

- **Event Reports** - An Event Report can be generated that contains events as shown in the Event History Log. The Event Report feature contains its own filtering and sorting capabilities, so that a subset of events can be generated from the information shown in the Event History Log.
- **Transaction Log Reports** - A Transaction Log Report can be generated that contains certain user-software and internal system transactions. The Transaction Log Report feature contains its own filtering and sorting capabilities.

NOTE

Transaction Log Reports are available only in the Deluxe Edition of the OSMF software.

3.1.1.1 Expired and Cleared Alarms

Once alarms have been cleared or they expire, they are transferred from the Alarm Viewer dialog box to the Event History Log dialog box.

The OSMF software obtains a list of active alarms from each SSU and GPS and compares these with the alarms in the Alarm Viewer dialog box. Any alarms that are in the Alarm Viewer dialog box but are no longer active in an SSU or GPS at that point are considered *expired*. This alarm synchronization process repeats every 12 hours.

Alarms are considered *cleared* when the fault that caused the alarm is remedied, such as when a malfunctioning sub-assembly in an SSU or GPS is replaced and the system determines that the problem no longer exists. When an alarm is cleared, the SSU/GPS returns a *clearing event* for the alarm.

3.1.1.2 User Classes

To control access to and protect the integrity of the system, three *user classes* are defined for the OSMF system. A user class defines the level of capability that a user is granted when using the system. In the OSMF system, all potential users of the system are assigned to one of three user classes: the “User” class (svusr), the “Administrator” class (svadm), and the “Security” class (svsec).

NOTES

The current version of the OSMF software supports up to five simultaneous user sessions.

The OSMF software supports only one user of the “Security” class (svsec). This user, which has the user name of “svroot,” is created when the OSMF software is installed.

The following table explains the general capabilities granted to users of each user class. User classes that have permission to perform a given procedure in this chapter are listed at the beginning of each procedure:

User Class	Capabilities (General)
User	Users in this user class can view the network map as well as view the synchronization management information in the Alarm Viewer, Event History Log, Performance Monitor, Inventory, and configuration dialog boxes. Users in this class can also create and print event and performance reports.
Administrator	Users in this user class have all of the capabilities of the “User” class, and can additionally modify the inventory database and current configuration of SSUs, and create or delete sync trails.
Security	Users in this user class have all of the capabilities of the “User” and “Administrator” classes, and can modify the network topology, manage default SSU configurations and manage or unmanage SSUs, view the transaction log and produce transaction log reports, download firmware upgrades to SSUs, set the date and time on SSUs, create users on SSUs, and configure management domains for users.

In addition, the Security-class user can restrict users of the “User” and “Administrator” classes to perform the tasks that fall within their level of capability only on an individual network element, location, or network basis. This is the concept of *management domains*.

3.1.1.3 Management Domains

NOTE

Management Domains are available only in the Deluxe Edition of the OSMF software. In the Standard Edition of the OSMF software, any valid OSMF user can perform management activities on any SSU, as long as the given management activity is within the level of capability dictated by the user’s user class.

A *management domain* specifies which SSUs a given user has permission to access. Management domains are set up and administered by the Security-class user. For more detailed information on management domains, refer to the chapter entitled *Security Management* in this guide.

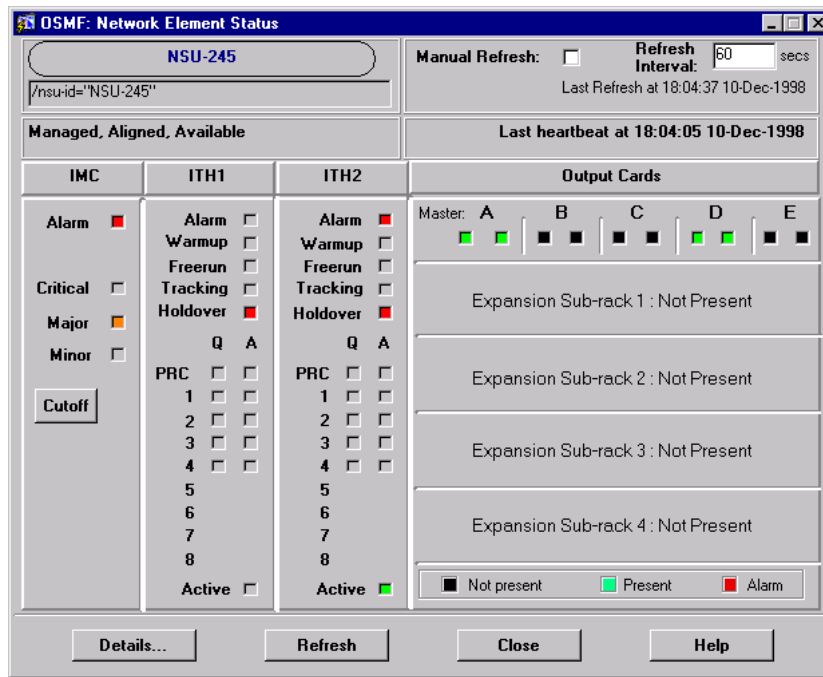
3.2 In This Chapter

3.2.1 The procedures in this chapter can be referenced when performing fault management operations using the OSMF software. The fault management tasks addressed in this chapter include the following:

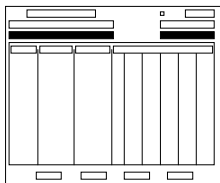
- Viewing the status summary of an SSU
- Viewing a summary of the alarms and events
- Using sorting and filtering to view only desired alarms or events
- Viewing the details of individual alarms and events
- Producing and printing formatted event reports.
- Producing and printing formatted transaction log reports.

3.3 SSU Status Summary

3.3.1 The “Network Element Status” dialog box displays a summary of the status of the various boards in a specified SSU. The dialog box contains a simulation of some of the status indicators on the front panels of the boards. The following figure and accompanying descriptions briefly explain the “Network Element Status” dialog box:



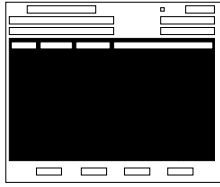
The name as well as the location (fully distinguished name) of the selected SSU is shown here. These fields cannot be edited; they reflect the SSU that was selected on the synchronization map when the dialog box was called up.



This area reports whether or not the selected SSU is currently Managed, Aligned, and Available.

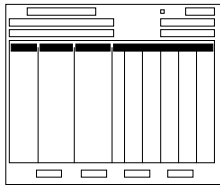
“Last Heartbeat At” shows the time and date when the last heartbeat was sent to the selected SSU (in the current version of OSMF software, the heartbeat is sent to all SSUs every 20 seconds).

If an SSU does not respond to a heartbeat, the OSMF software determines the SSU to be unavailable and the “Last Heartbeat At” field changes to “Down Since.” The “Down Since” field then shows the time and date that the link went down.



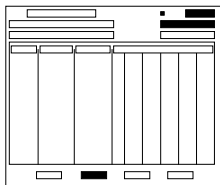
This area simulates the panel area of the selected SSU. It shows the current status of the various boards in the SSU via status indicators, which are a simulation of some of the LED indicators on the boards. If any of the ITH cards or expansion sub-racks are not present, the corresponding portion of this area will be blank and a "... not present" message will be shown ("ITH Not Present" or "Expansion Sub-rack X : Not Present").

NOTE If the selected SSU is reported as "Not Managed," you might still be able to view most of the status information, except for the most current alarm information. If the selected SSU is unavailable, this area will be blank and the message "Status Unknown" will be displayed.

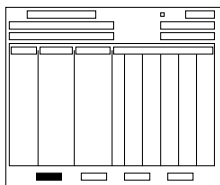


When you click on one of these buttons that are above the card slots, a message box pops up which contains a listing of the alarm and event conditions currently outstanding on the card. Refer to the 55400A SSU programming documentation for a listing of the event types with a brief description of each.

NOTE In the current release of OSMF software, no message box appears when the button above the IMC card slot is clicked.



The "Refresh Interval" determines the frequency at which the status summary display is automatically updated (the default refresh interval is 60 seconds; the minimum refresh interval is also 60 seconds). "Last Refresh At" shows the last time the summary was refreshed. The status summary display can be updated at any time by clicking the **Refresh** button. If the **Manual Refresh** check-box is selected, the display will not be automatically updated at the refresh interval but can be manually refreshed by clicking the **Refresh** button.



Clicking the **Details...** button calls up a dialog box in which you can view additional details pertaining to the selected SSU, such as its name and network address, as well as the model numbers, hardware revision numbers, and where applicable software revision numbers of the various cards in the SSU.

NOTE The information that appears in the details dialog box is retrieved from the rack inventory database.

3.3.1.1 To View the Status Summary of an SSU

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 On the synchronization network map, click on (select) the SSU symbol for which you want to display the status summary.

When you click on the SSU symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

- 2 Choose the **Status** menu item from the “OSMF” menu to call up the “Network Element Status” dialog box.

The “Network Element Status” dialog box displays a summary of the status of the selected SSU. It shows various useful data as explained at the beginning of this section, as well as a simulation of the panel area of the selected SSU. The status can be updated at any time by clicking the **Refresh** button, or it is automatically refreshed at the Refresh Interval indicated, which can be changed (the default refresh interval is 60 seconds; the minimum refresh interval is also 60 seconds). The following tables briefly explain the status indicators shown for each board in the SSU.

NOTES

As an alternative to using the “OSMF” menu to call up the “Network Element Status” dialog box, you can double-click on the SSU symbol.

There is no limit to the number of Network Element Status dialog boxes that can be opened per OVW session, however no more than one per SSU is recommended.

IMC Card Status Indicators

Indicator	Description
Alarm ^{1, 2}	When lit (red), there are active alarms in the selected SSU. Alarms on TRSC cards, however, will not be indicated here.
Critical ¹	When lit (red), one or more critical alarms exist in either the master or expansion sub-racks of the SSU.
Major ¹	When lit (orange), one or more major alarms exist in either the master or expansion sub-racks of the SSU.
Minor ¹	When lit (yellow), one or more minor alarms exist in either the master or expansion sub-racks of the SSU.

IMC Card Status Indicators

Indicator	Description
Cutoff	<p>When an alarm condition exists and the Cutoff button is clicked, the audible alarm relay contacts on the IMC card return to the non-alarmed state. After the alarm condition is over, normal alarm function resumes.</p> <p>NOTES</p> <ul style="list-style-type: none"> Only users of the “Administrator” and “Security” user classes can use the Cutoff button. Even though the audible alarm relay contacts return to the non-alarmed state, the alarm still persists until the condition that caused it is remedied. The status of an alarm cutoff operation can be checked by viewing the transaction log.

1 You can click this indicator when it is lit to display more information on the alarms related to it. Refer to the next step in this procedure for more information.

2 TRSC card alarms currently have a “Non-Alarm” severity level, so these alarms will not be reported by this indicator.

NOTE

The following ITH card status indicators will appear in the dialog box only if the ITH card is present and functioning properly in normal operating mode. The following messages might also be displayed in place of the indicators:

- If the ITH card is not present (as when a record for the card is not present in the rack inventory database, or when the ITHGONE event has been sent), the message “Not Present” will be displayed in the indicator area.
- If an ITHFAIL alarmed event is pending, the message “Failed” will be displayed.
- If the ITH card is in firmware download (“SWDL”) mode, the message “Downloading” will be displayed.
- If the ITH card returns a NORESP status, the message “No Response” will be displayed.

ITH Card Status Indicators

Indicator	Description
Alarm ¹	When lit (red), the ITH card is in an alarm state. This indicator lights when a problem exists that is specific to the ITH card.
Warmup	When lit (yellow), the oscillator oven is warming to operating temperature and the card is not yet active.
Freerun	When lit (red), the ITH oscillator is generating an output but without the use of any information from a reference.
Tracking	When lit (green), the ITH card has qualified an input and is using it as a system reference.
Holdover	When lit (red), the ITH oscillator, using recent tracking data from a qualified reference, is providing the output frequency. No qualified references are available.

ITH Card Status Indicators

Indicator	Description
PRC, 1 - 8	Each input signal has the following two indicators: <ul style="list-style-type: none"> • Q - When lit (green), the specified input signal is qualified for use as a system reference. • A - When lit (green), the specified input signal is currently being used as the system reference.
Active ²	When lit (green), the ITH card is the synchronization signal source for all of the output cards in the SSU.

1 You can click this indicator when it is lit to display more information on the alarms related to it. Refer to the next step in this procedure for more information.

2 If this indicator is not lit, then the card is in the Standby state. If the Active indicator is not lit, clicking on it will force the associated ITH card to the Active state, which in turn forces the other, currently active card to the Standby state. The status of the force-active operation can be checked by viewing the transaction log.

NOTE

The following output card status indicator will appear black in the dialog box if the output card is not present.

Output Card Status Indicators

Indicator	Description
Alarm ¹	When lit (red), the output card is in an alarm state. Note that there can be two indicators; one for each output card of a protected output card pair. ²

1 You can click this indicator when it is lit to display more information on the alarms related to it. Refer to the next step in this procedure for more information.

2 If only one output card is installed in a lettered slot *and* it is configured for unprotected operation, two Alarm indicators will be shown in the display. To verify that only a single card exists, click the **Details...** button and check the output card hardware revision number field. Only one hardware revision number will be shown if only a single card that is configured for unprotected operation is installed. Note that if one of the cards in a protected pair is pulled out, then the Alarm indicator for that card will disappear from the display when the display is refreshed.

- 3 If any of the associated alarm indicators are lit for any of the boards, you can click on them to invoke an “Alarm Viewer” dialog box. In this case, the Alarm Viewer will display only those alarms that are specific to the indicator, as shown in the following table.

NOTES

If the selected SSU is currently unmanaged, the alarm list might not be complete.

When the Alarm Viewer is invoked by clicking on the alarm indicator, you must close it in order to return to the “Network Element Status” dialog box. During the time the Alarm Viewer is open, the “Network Element Status” dialog box is not being refreshed, even if automatic refresh is enabled.

Indicator (Board)	Alarms Displayed in the Alarm Viewer
Alarm (IMC)	All active alarms in the selected SSU.

Indicator (Board)	Alarms Displayed in the Alarm Viewer
Critical (IMC)	All active critical alarms in the selected SSU.
Major (IMC)	All active major alarms in the selected SSU.
Minor (IMC)	All active minor alarms in the selected SSU.
Alarm (ITH)	All active alarms in the specified ITH card of the selected SSU.
Alarm (Output)	All active alarms in the specified output card of the selected SSU.

NOTE

Only users of the “Administrator” and “Security” user classes can perform the following step.

- 4 If you desire to force the ITH card that is currently in the Standby state to the Active state, click the “Active” indicator for the card that is currently in the Standby state.

An ITH card is in the Standby state when its “Active” indicator is not lit.

- 5 To close the “Network Element Status” dialog box, click the **Close** button. To invoke the “Network Element Status: Details” dialog box, which displays additional details pertaining to the selected SSU (such as its network address, and the model numbers, hardware, and software revision numbers of the various cards in the SSU), click the **Details...** button.

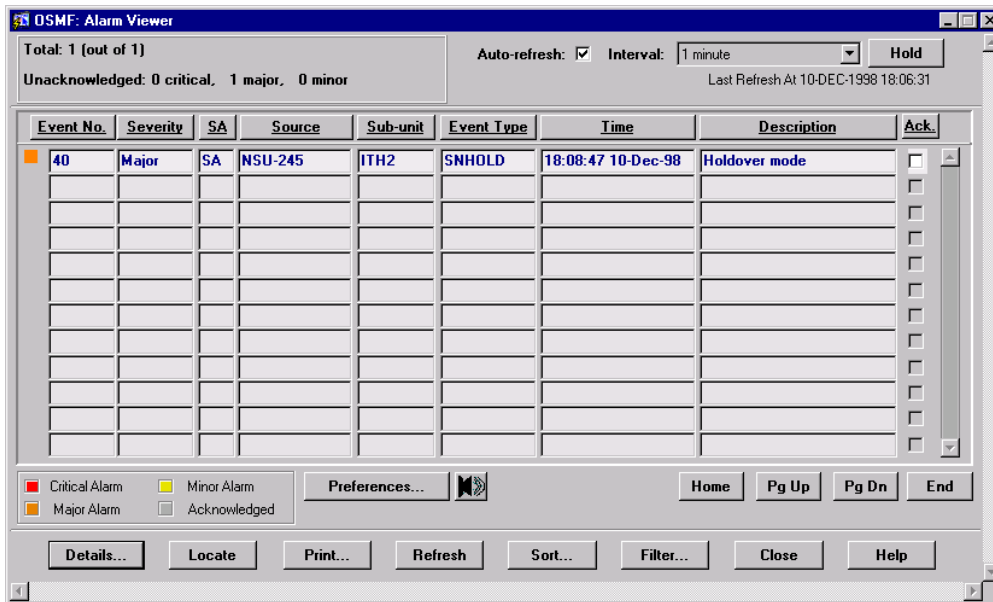
NOTES

You must close the “Network Element Status: Details” dialog box in order to return to the “Network Element Status” dialog box.

For information on the functionality of SSU boards, as well as an explanation of other status indicators on the boards, refer to the *55400A Synchronization Supply Unit User’s Manual*.

3.4 Alarm Management

3.4.1 All alarm management tasks are performed within the Alarm Viewer dialog box. The Alarm Viewer presents a summary of alarms from managed SSUs and GPSs. The following figure and accompanying descriptions briefly explain the Alarm Viewer dialog box:

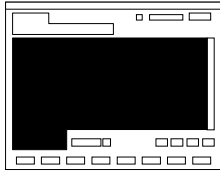


This area shows the following:

Total: n (out of N)

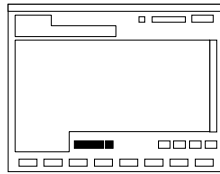
Where n is the number of alarms in the display after application of filtering criteria as well as restrictions on the specific alarms displayed as imposed by the user's management domain. N is the total number of currently active alarms in the database.



This area also shows the number of unacknowledged critical, major, and minor alarms.



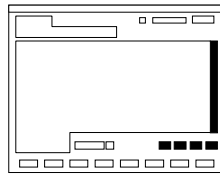
This area of the Alarm Viewer display contains the listing of outstanding alarms, that is, those alarms that have not expired or been cleared. The left-most column is color-coded to show the severity of the alarms. The legend is at the bottom left of this area.

The actual alarms displayed, as well as the order in which they are displayed, is subject to the sort and filtering criteria that has been set. Refer to the task *To View the Alarm Summary* for an explanation of the information provided in the listing.

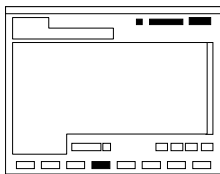


Clicking the **Preferences...** button calls up a dialog box in which you can set parameters related to audio notification for alarms. When audio notification is activated, the OSMF workstation will produce an audio beep as long as there are one or more unacknowledged alarms in the Alarm Viewer that are at or above the severity level set in the dialog box. The audio notification enable/disable button can be clicked to enable () or disable () the beep.

The audio notification feature is active only when the Alarm Viewer is open. Refer to the task *To Set Audio Notification for Unacknowledged Alarms* for more information.



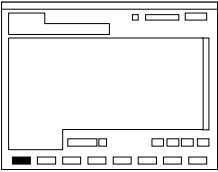
The number of outstanding alarms can exceed the number of alarms that can be displayed in the Alarm Viewer at any one time. When that is the case, the **Home**, **Pg Up** (page up), **Pg Dn** (page down), and **End** buttons as well as the vertical scroll bar can be used to view them.



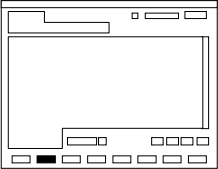
Auto-Refresh Interval determines the frequency at which the Alarm Viewer is automatically updated. Auto-refresh is active when the “Auto-refresh” check-box is selected. The Alarm Viewer can be updated at any time by clicking the **Refresh** button. Clicking **Hold** will cause the Alarm Viewer to not be automatically updated. When **Hold** is clicked, the button text changes to **Resume**, and clicking it again will cause automatic refresh to resume.



Clicking the **Sort...** button calls up a dialog box in which you can choose the order in which alarms are displayed in the Alarm Viewer. Refer to the task *To Sort Alarms for Display in the Alarm Viewer Dialog Box* for more information. Clicking the **Filter...** button calls up a dialog box in which you can choose the filtering criteria that determines which alarms are displayed in the Alarm Viewer. Refer to the task *To Display Only Certain Alarms Using the Filter Function* for more information.



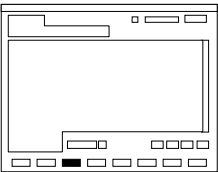
Clicking the **Details...** button calls up a dialog box in which you can view the details of the alarm that is selected (highlighted) in the Alarm Viewer. Refer to the task *To View Details of a Specific Alarm* for more information.



To locate the source of an alarm, select (click on) it in the Alarm Viewer, then click the **Locate** button. The map containing the symbol for the SSU that is the source of the alarm will pop up with the symbol's label superimposed upon a black background.

NOTE

The **Locate** button will be active only if the "Alarm Viewer" dialog box had been invoked from the OSMF menu. If the "Alarm Viewer" dialog box is invoked from the "Network Element Status" dialog box, for example, the **Locate** button will be de-emphasized (grayed out).



Clicking the **Print...** button calls up an Alarm Report previewer dialog box from which you can either print a formatted alarm report to a printer, or to a file. Refer to the task *To Print an Alarm Report* for more information.

3.4.1.1 To View the Alarm Summary

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- Choose the **Alarm Viewer** menu item from the “OSMF” menu to call up the “Alarm Viewer” dialog box:

The “Alarm Viewer” dialog box shows a summary of the active alarms as determined by the sort and filtering criteria, which can be modified to suit your needs (refer to the related tasks in this chapter to change the sort and filtering criteria for alarms).

NOTES

If no symbols are selected on the sub-map when the “Alarm Viewer” dialog box is called up, it will contain the alarms for all network elements in the user’s management domain. If symbols are selected, but the selected symbols are not in the user’s management domain, the alarms for all symbols that are in the user’s management domain will be shown.

No more than two “Alarm Viewer” dialog boxes opened at a time per OVW session is permitted when the Alarm Viewer is invoked by selecting the “Alarm Viewer” menu item in the OVW “OSMF” menu. In some situations, a third Alarm Viewer might open.

- If the number of outstanding alarms exceeds the number of alarms that can be displayed in the Alarm Viewer, use the **Home**, **Pg Up**, **Pg Dn**, and **End** buttons as well as the vertical scroll bar to view them.

Alarm summary information is presented in tabular format. The following information is provided for each alarm:

Field	Description
Event No.	The event number assigned to the alarm. Event numbers are assigned sequentially by the OSMF software in the order in which they are received.
Severity	Indicates the severity level of the alarm. Severity can be Critical, Major, or Minor. The severity level is also color-coded in the left-most column of the display.
SA (service affected)	Indicates whether or not telecommunications service is likely to be affected by the condition that caused the alarm (SA means service s likely to be affected, NSA means service is not likely to be affected).
Source	Indicates the SSU or GPS that generated the alarm.
Sub-unit	For an SSU, this indicates the card or sub-assembly, and if applicable, channel that generated the alarm (for example, if an alarm is generated as a result of a problem with input channel 3 of the ITH card in slot 2, the reported sub-unit is ITH2-3). NOTE For a GPS, this field will always show “GPS.”

Field	Description
Event Type	A code that indicates the type of alarm. Refer to the 55400A SSU programming documentation for a brief description of each.
Time	Indicates the date and time at which the alarm occurred.
Description	A one line description of the alarm.
Ack.	A check-box that can be clicked to acknowledge and unacknowledge the alarm.

3.4.1.2 To Acknowledge Alarms

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

Alarms occur as a result of abnormal operations within the synchronization network, such as when SSU or GPS hardware fails or malfunctions. The problems that cause alarms can cause immediate or delayed adverse effects within the telecommunications network. An alarm might require corrective action to be taken.

It is the responsibility of the user who acknowledges an alarm to be responsible for remedying its cause. When an alarm is acknowledged, the name of the user who acknowledged it appears in the “Alarm Details” dialog box.

Alarms are acknowledged from within the “Alarm Viewer” dialog box.

- In the “Alarm Viewer” dialog box, select the check-box in the “Ack.” column that is adjacent to the alarm being acknowledged.

Note that the color-coded square at the left of the display which signifies the severity of the alarm becomes colorless. The alarm is now acknowledged and will remain in the acknowledged state until it is unacknowledged or marked as cleared and moved to the Event History Log.

- To unacknowledge an alarm, click on the “Ack.” check-box again.

The square at the left of the alarm now reverts to the color that signifies the severity of the alarm as well as the fact that it has not yet been resolved.



3.4.1.3 To Set Audio Notification for Unacknowledged Alarms

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

When audio notification is active, the OSMF workstation will produce an audio beep as long as there are one or more unacknowledged alarms in the Alarm Viewer that are at or above the severity level set. The audio notification feature is active only when the Alarm Viewer is open, and only for alarms that appear in the dialog box (notification will not sound for alarms that are outstanding but currently filtered so as not to appear in the Alarm Viewer).

- 1 Click the **Preferences...** button that is in the “Alarm Viewer” dialog box to call up the “OSMF:Alarm Viewer:Preferences” dialog box.
- 2 To enable audio notification, click the “Enable Audio Notification” check-box so that it is selected (audio notification is enabled by default whenever the Alarm Viewer is first opened).

NOTE

As an alternative to the above step, you can click the audio notification enable/disable button in the Alarm Viewer to enable () or disable () the audio notification.

If audio notification is currently not enabled, and you are enabling it from within the “OSMF:Alarm Viewer:Preferences” dialog box, it will not start until after **OK** is clicked.

- 3 Under “Severity Threshold for Notification,” choose the severity levels for which you want the audio notification to sound.

If you want the audio notification to sound only if there is at least one unacknowledged critical alarm in the Alarm Viewer, choose “CRITICAL only.” If you want the audio notification to sound if there are unacknowledged critical or major alarms, choose “MAJOR and above.” If you want the audio notification to sound if there are unacknowledged critical, major, or minor alarms, choose “MINOR and above.”

NOTE

Choosing the “All” option under “Severity Threshold for Notification” is the same as choosing “Minor and above.”

- 4 Click **OK** to close the “OSMF:Alarm Viewer:Preferences” dialog box and activate the audio notification.

The audio notification will be active as long as the current instance of the “Alarm Viewer” dialog box is open, or until it is disabled.

3.4.1.4 To Sort Alarms for Display in the Alarm Viewer Dialog Box

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

The OSMF software provides a sorting function by which alarms can be sorted into groupings according to the user's preferences. As an example, a sort can take place whereby alarms are sorted by severity rating, or by time. You choose the criteria as well as the order in which the criteria are applied.

- 1 Click the **Sort...** button that is in the “Alarm Viewer” dialog box to call up the “Alarm Viewer: Sorting Criteria” dialog box, then choose the sort criteria in the appropriate order. The sort criteria are as follows (note that they do not necessarily have to be applied in the order listed below):

Sort Criteria	Description
Event Number	The event number for the event. Event numbers can be sorted on this field in either ascending or descending numeric order.
Time	The time at which an alarm occurred. Alarms can be sorted on this field from the oldest to most recent alarms, or vice versa.
Severity	The severity rating of an alarm. Alarms can be sorted on this field in either ascending or descending order of severity, which is Critical (highest severity), Major, Minor, and Cleared/None (lowest severity).
Event Type	The preassigned code for the type of event. Alarms can be sorted on this field in either ascending or descending alphanumeric order.
Source	The SSU or GPS that generated the alarm. SSU and GPS symbols are typically assigned an alphanumeric identifier when first added to the map. Alarms can be sorted on this field in either ascending or descending alphanumeric order.
Sub-Unit	The card or subassembly within the SSU that generated the alarm. Alarms can be sorted on this field in either ascending or descending alphanumeric order.
Status	The acknowledgment status of the alarm. Alarms can be sorted on this field first by acknowledged alarms, then by unacknowledged alarms, or vice versa.

- 2 Choose the appropriate actions:

- To apply the sort criteria, click the **Apply** button, then click **OK** to close the dialog box (alternatively, clicking **OK** without first clicking **Apply** will apply the criteria *and* close the dialog box).
- To exit the “Alarm Viewer: Sorting Criteria” dialog box without changing the current sort criteria, click the **Cancel** button *before* clicking **Apply**.

- To restore the sort order to the default state, which is by Event Number in descending order, click the **Restore Defaults** button, then click **OK**.

3.4.1.5 To Display Only Certain Alarms Using the Filter Function

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

A variety of filtering criteria can be applied to the alarms as they are displayed in the Alarm Viewer dialog box.

- Click the **Filter...** button that is in the “Alarm Viewer” dialog box to call up the “Alarm Viewer: Filtering Criteria” dialog box, then choose the desired filtering criteria:

Filtering Criteria	Description
status	Select the Hide Acknowledged Alarms check-box if you only want non-acknowledged alarms to be displayed. Clicking the Show All Alarms button, then Apply , effectively cancels filtering and shows all alarms.
Time	Alarms can be filtered so that only those occurring within a specified time frame are displayed. Under “Time:,” modify the dates and times shown so that they reflect the beginning and end of the time frame (be sure to use the format as shown). Alternatively, click First Alarm or Last Alarm to set the beginning or end of the time frame to be the first or last alarm in the log. (The format is <i>DD-MON-YYYY HH:MI</i> where <i>DD</i> is the day, <i>MON</i> is a three letter representation of the month, <i>YYYY</i> is the year, <i>HH</i> is the hour in 24-hour format, and <i>MI</i> is the minutes)
Network Elements	Alarms can be filtered so that only those emanating from SSUs or GPSs at certain locations are displayed, or alarms emanating from selected SSUs and GPSs are displayed. Under “Network Elements:,” click the Select radio button, then Filter... to call up the “Network Element Filter” dialog box. In that dialog box, select the desired locations under “Locations.” To select network elements, highlight them in the left-hand scroll box (Available Network Elements) from which you want to filter alarms, click > to transfer the selected items to the right-hand scroll box (Selected Network Elements) or >> to transfer all items to the right-hand scroll box, then click OK to add the selected items to the filtering criteria. NOTE Items that have been transferred to the right-hand scroll box can be removed using the Remove and Remove All buttons

Filtering Criteria	Description
Event Type	<p>Alarms can be filtered so that only alarms of specified types are displayed. Under “Event Types;” click the Select radio button, then Filter... to call up the “Event Type Filter” dialog box. In that dialog box, select (highlight) those event types in the left-hand scroll box (Event Types) from which you want to filter alarms, click > to transfer the selected items to the right-hand scroll box (Selected Network Elements) or >> to transfer all items to the right-hand scroll box, then click OK to add the selected items to the filtering criteria.</p> <hr/> <p>NOTE Items that have been transferred to the right-hand scroll box can be removed using the Remove and Remove All buttons</p>
Alarm Severity	<p>Alarms can be filtered so that only alarms of specified severity levels are displayed. Selecting one or more severity level check-boxes will cause alarms of those severity levels to be displayed. Clicking the All button causes alarms of all severity levels to be displayed.</p>

2 Choose the appropriate actions:

- To save the filtering criteria so that they can be used at a later time, click the **Save** button. The last filtering criteria saved can then be recalled by clicking the **Restore** button.
- To apply the filtering criteria, click the **Apply** button, then click **OK** to close the dialog box (alternatively, clicking **OK** without first clicking **Apply** will apply the criteria and close the dialog box).
- To exit the “Alarm Viewer: Filtering Criteria” dialog box without changing the current filtering criteria, click the **Cancel** button *before* clicking **Apply**.

NOTE

Filtering criteria selected are applied exclusively to the current instance of the Alarm Viewer. Clicking **Save**, however, saves the filtering criteria in the database for the current user, and subsequent Alarm Viewer instances invoked by the user will use the filtering criteria thus saved.

Due to the nature of the OSMF database, any database operation involving a database commit, such as acknowledging or unacknowledging an alarm, will also commit (save) filtering criteria changes to the database, even if they had not yet been explicitly saved in the filtering criteria dialog boxes.

3.4.1.6 To View Details of a Specific Alarm

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- Click on (highlight) an alarm in the “Alarm Viewer” dialog box to select it, then click the **Details...** button to call up the “Alarm Details” dialog box. The “Alarm Details” dialog box appears similar to the following:

The “Alarm Details” dialog box shows more detailed information for the specified alarm. The following information is provided *in addition to* the summary information given in the “Alarm Viewer” dialog box:

Field	Description
Event No.	Event numbers are assigned sequentially in the order in which they are received.
Acknowledged By	The name of the person who has acknowledged the alarm.
Ack. Time	The time that the alarm was acknowledged.
Address	The network address of the SSU or GPS that generated the alarm.
Location	The FDN (fully distinguished name) of the SSU or GPS that generated the alarm.
Remarks	Additional descriptive text that can be edited by the user.

- To edit the “Remarks” field, click in the associated text entry box, then type in the additional descriptive information.
- To close the “Alarm Details” dialog box and accept the edited remarks, click **OK**. To close the dialog box without accepting the remarks, click **Cancel**.


3.4.1.7 To Print an Alarm Report

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

The information displayed in the Alarm Viewer can be printed as a formatted report to a printer, or to a file.

- 1 Ensure that the sorting and filtering criteria are set appropriately so that the desired alarms are displayed in the Alarm Viewer.


Only those alarms shown in the Alarm Viewer will be included in the printed Alarm Report. Refer to the procedures *To Sort Alarms for Display in the Alarm Viewer Dialog Box* and *To Display Only Certain Alarms Using the Filter Function* in this chapter.

- 2 Click the **Print...** button in the “Alarm Viewer” dialog box to call up an “Alarm Report” dialog box.
- 3 In the “Alarm Report” dialog box, click the printer icon () to invoke the Print dialog box.

Within the “Print” dialog box, choose the settings as is appropriate to print the report to the system printer, or to a file if desired:


- a. Choose the printer, and to print certain pages, enter the range under “Print range.”
 - b. To print to a file, click the “Print to file” check-box so that it is selected.
 - c. Click the “Properties” button to invoke a sub-box in which you can set certain document properties, such as the paper size and source, number of copies, orientation, and duplexing.
 - d. Click **OK**.
- 4 If the “Print to file” check-box was selected, a “Print to File” box appears in which you must enter the name for the file, then click **OK**.

When the alarm report is printed to a file in this fashion, it is stored in a format that can be read by the selected printer. In any case, the last page of the printed report contains a summary that indicates the total number of alarms in the report, and the number of unacknowledged, critical, major, and minor alarms. The body of the report contains the same information shown in the Alarm Viewer dialog box.

- 5 Click the close () icon to close the “Alarm Report” dialog box.

NOTE

Other options are available within the “Alarm Report” dialog box:

-  (print setup icon), as an alternative method of changing print settings.

- File→Generate to File (menu), to generate PDF, HTML, HTML style sheet, RTF or Postscript files.

_____ - File→Mail... (menu), to mail a copy of the report via e-mail.

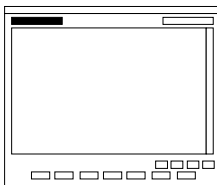
3.5 Event Management

3.5.1 All event management tasks are performed within the “Event History Log” dialog box. The Event History Log presents a summary of expired and cleared alarms, and all other non-alarm events. The following figure and accompanying descriptions briefly explain the “Event History Log” dialog box.

NOTE

Expired and cleared alarms, as well as other non-alarm events, are all generally referred to as events in this section.

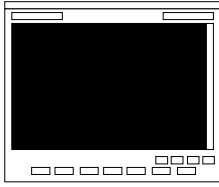
Event#	Clear By	Severity	SA	Source	Sub-unit	Event Type	Time	Description
39		Non-Alarm	NSA	NSU-245	ITH2-4	SNTRCK	18:08:47 10-Dec-98	ENDED Tracking this input
38		Non-Alarm	NSA	NSU-245	ITH2-4	SNTRCK	18:08:35 10-Dec-98	Tracking this input
37		Non-Alarm	NSA	NSU-245	ITH2-3	SNTRCK	18:08:34 10-Dec-98	ENDED Tracking this input
36		Non-Alarm	NSA	NSU-245	ITH2-3	SNTRCK	18:08:26 10-Dec-98	Tracking this input
35		Non-Alarm	NSA	NSU-245	ITH2-2	SNTRCK	18:08:25 10-Dec-98	ENDED Tracking this input
34		Non-Alarm	NSA	NSU-245	ITH2-2	SNTRCK	18:07:38 10-Dec-98	Tracking this input
33		Non-Alarm	NSA	NSU-245	ITH2-1	SNTRCK	18:07:38 10-Dec-98	ENDED Tracking this input
32		Non-Alarm	NSA	NSU-245	ITH2-1	SNTRCK	09:49:21 10-Dec-99	Tracking this input
31		Non-Alarm	NSA	NSU-245	ITH2-2	SNTRCK	09:49:21 10-Dec-99	ENDED Tracking this input
30		Clear	NSA	NSU-245	ITH2-1	INDISQ	09:49:21 10-Dec-99	ENDED Input disqualified
27		Non-Alarm	NSA	NSU-245	OUT2A	OPCDIN	09:45:00 10-Dec-49	Output Card Inserted
26		Clear	NSA	NSU-245	OUT2A	OPCDNP	09:44:59 10-Dec-49	ENDED Output Card Not Present
25		Non-Alarm	NSA	NSU-245	OUT1A	OPCDIN	09:44:59 10-Dec-49	Output Card Inserted
24	26	Major	NSA	NSU-245	OUT2A	OPCDNP	09:44:57 10-Dec-49	Output Card Not Present
23		Clear	NSA	NSU-245	OUT1A	OPCDNP	09:44:57 10-Dec-49	ENDED Output Card Not Present



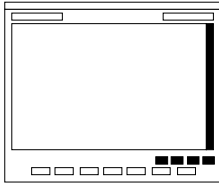
This area shows the following:

Total: n (out of N)

Where n is the number of events in the display after application of filtering criteria as well as restrictions on the specific events displayed as imposed by the user's management domain. N is the total number of events currently in the database.



This area of the Event History Log contains the listing of non-alarm events, as well as alarms that have expired or been cleared. The actual events displayed, as well as the order in which they are displayed, is subject to the sort and filtering criteria that has been set. Refer to the task *To View the Event History Log* for an explanation of the information provided in the listing.

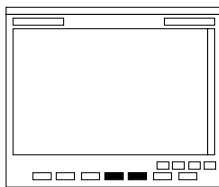


The number of events will often exceed the number of events that can be displayed in the Event History Log at any one time. When that is the case, the **Home**, **Pg Up** (page up), **Pg Dn** (page down), and **End** buttons as well as the vertical scroll bar can be used to view them.

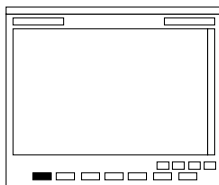
NOTE Operations using these navigation buttons (especially the **End** button) might take longer to complete if the number of events included in the dialog box is greater than 50,000. In some situations, the operation might not complete successfully.



The Event History Log is not automatically updated. Clicking the **Refresh** button, however, updates the Event History Log so that it reflects the events stored in the database at that instant. The time and date when the log was last refreshed is shown in the upper right corner of the dialog box.



Clicking the **Sort...** button calls up a dialog box in which you can choose the order in which events are displayed in the Event History Log. Refer to the task *To Sort Events for Display in the Event History Log Dialog Box* for more information. Clicking the **Filter...** button calls up a dialog box in which you can choose the filtering criteria that determines which events are displayed in the Event History Log. Refer to the task *To Display Only Certain Events Using the Filter Function* for more information.



Clicking the **Details...** button calls up a dialog box in which you can view the details of the event that is selected (highlighted) in the Event History Log. Refer to the task *To View Details of a Specific Alarm or Event* for more information.

3.5.1.1 To View the Event History Log

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- Choose the **Event History Log** menu item from the “OSMF” menu to call up the “Event History Log” dialog box:

The “Event History Log” dialog box shows a summary of expired and cleared alarms, and all other non-alarm events. The events displayed are subject to the sort and filtering criteria, which can be modified to suit your needs (refer to the related tasks in this chapter to change the sort and filtering criteria for events).

NOTES

If no symbols are selected on the sub-map when the “Event History Log” dialog box is called up, it will contain the events for all network elements in the user’s management domain. If symbols are selected, but the selected symbols are not in the user’s management domain, the events for all symbols that are in the user’s management domain will be shown.

Up to two “Event History Log” dialog boxes can be opened at a time per OVW session.

- If the number of events exceeds the number of events that can be displayed in the Event History Log, use the **Home**, **Pg Up**, **Pg Dn**, and **End** buttons as well as the vertical scroll bar to view them.

NOTE

Operations using the navigation buttons (**Home**, **Pg Up**, **Pg Dn**, and **End**) might take longer to complete if the number of events included in the dialog box is greater than 50,000. In some situations, the operation might not complete successfully.

Event summary information is presented in tabular format. The following information is provided for each event:

Field	Description
Event #	A numerical index for the specific event. Events are assigned this number as they are logged by the OSMF software.
Clear By	When an alarm is logged by the OSMF software, it is assigned an event number (see above). When that alarm is subsequently cleared, a clearing event is generated, which is assigned its own event number. The event number of the clearing event appears in this column of the record for the original alarm.
Severity	Indicates the severity level of the event. Severity can be Critical, Major, Minor, Non-Alarm, or Clear.

Field	Description
SA (service affected)	Indicates whether or not telecommunications service is likely to be affected by the condition that caused the event (SA means service s likely to be affected, NSA means service is not likely to be affected).
Source	Indicates the SSU or GPS that generated the event.
Sub-unit	For an SSU, this indicates the card or sub-assembly, and if applicable, channel that generated the event (for example, if an event is generated as a result of a status change at the PRC input channel of the ITH card in slot 1, the reported sub-unit is ITH1-0).
Event Type	A code that indicates the type of event. Refer to the 55400A SSU programming documentation for a brief description of each.
Time	Indicates the date and time at which the event occurred.
Description	A one line description of the event.

3.5.1.2 To Sort Events for Display in the Event History Log Dialog Box

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

The OSMF software provides a sorting function by which events can be sorted into groupings according to the user's preferences. As an example, a sort can take place whereby events are sorted by severity rating, or by time. You choose the criteria as well as the order in which the criteria are applied.

- 1 Click the **Sort...** button that is in the “Event History Log” dialog box to call up the “Event History Log: Sorting Criteria” dialog box, then choose the sort criteria in the appropriate order. The sort criteria are as follows (note that they do not necessarily have to be applied in the order listed below):

Sort Criteria	Description
Event Number	The event number for the event. Event numbers can be sorted on this field in either ascending or descending numeric order.
Time	The time at which an alarm or event occurred. Alarms and events can be sorted on this field from the oldest to most recent event, or vice versa.
Severity	The severity rating of an alarm or event. Alarms or events can be sorted on this field in either ascending or descending order of severity, which is Critical (highest severity), Major, Minor, Non-Alarm, and Clear (lowest severity).
Event Type	The pre-assigned code for the type of alarm or event. Alarms and events can be sorted on this field in either ascending or descending alphanumeric order.

Sort Criteria	Description
Source	The SSU or GPS that generated the alarm or event. SSU and GPS symbols are typically assigned an alphanumeric identifier when first added to the map. Alarms and events can be sorted on this field in either ascending or descending alphanumeric order.
Sub-unit	The card or sub-assembly within the SSU that generated the alarm or event. Alarms and events can be sorted on this field in either ascending or descending alphanumeric order.
Status	The clearing status of an alarm. Alarms can be sorted on this field first by those alarms that have been cleared, or those alarms that have not been cleared.

NOTE

If the number of events included in the dialog box is greater than 50,000, sorting should be done only on the Event Number field. To restrict the total number of events in the dialog box, try setting appropriate filtering criteria.

2 Choose the appropriate actions:

- To apply the sort criteria, click the **Apply** button, then click **OK** to close the dialog box (alternatively, clicking **OK** without first clicking **Apply** will apply the criteria *and* close the dialog box).
- To exit the “Event History Log: Sorting Criteria” dialog box without changing the current sort criteria, click the **Cancel** button *before* clicking **Apply**.
- To restore the sort order to the default state, which is by Event Number in descending order, click the **Restore Defaults** button, then click **OK**.

3.5.1.3 To Display Only Certain Events Using the Filter Function

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

A variety of filtering criteria can be applied to the alarms and events as they are displayed in the “Event History Log” dialog box.

- 1 Click the **Filter...** button that is in the “Event History Log” dialog box to call up the “Event History Log: Filtering Criteria” dialog box, then choose the desired filtering criteria:

Filtering Criteria	Description
	Clicking the Show All Events button, then Apply , effectively cancels filtering and shows all events.

Filtering Criteria	Description
Time	Alarms and events can be filtered so that only those occurring within a specified time frame are displayed. Under “Time:,” modify the dates and times shown so that they reflect the beginning and end of the time frame (be sure to use the format as shown). Alternatively, click First Event or Last Event to set the beginning or end of the time frame to be the first or last alarm or event in the log. (The format is <i>DD-MON-YYYY HH:MI</i> where <i>DD</i> is the day, <i>MON</i> is a three letter representation of the month, <i>YYYY</i> is the year, <i>HH</i> is the hour in 24-hour format, and <i>MI</i> is the minutes)
Network Elements	Alarms and events can be filtered so that only those emanating from SSUs or GPSs at certain locations are displayed, or alarms and events emanating from selected SSUs and GPSs are displayed. Under “Network Elements:,” click the Select radio button, then Filter... to call up the “Network Element Filter” dialog box. In that dialog box, select the desired locations under “Locations.” To select network elements, highlight them in the left-hand scroll box (Available Network Elements) from which you want to filter events, click > to transfer the selected items to the right-hand scroll box (Selected Network Elements) or >> to transfer all items to the right-hand scroll box, then click OK to add the selected items to the filtering criteria. NOTE Items that have been transferred to the right-hand scroll box can be removed using the Remove and Remove All buttons
Event Type	Alarms and events can be filtered so that only those of specified types are displayed. Under “Event Types:,” click the Select radio button, then Filter... to call up the “Event Type Filter” dialog box. In that dialog box, select (highlight) those event types in the left-hand scroll box (Event Types) from which you want to filter events, click > to transfer the selected items to the right-hand scroll box (Selected Network Elements) or >> to transfer all items to the right-hand scroll box, then click OK to add the selected items to the filtering criteria. NOTE Items that have been transferred to the right-hand scroll box can be removed using the Remove and Remove All buttons
Severity	Alarms and events can be filtered so that only those of specified severity levels are displayed. Selecting one or more severity level check-boxes will cause alarms or events of those severity levels to be displayed. Clicking the All button causes events of all severity levels to be displayed.
	Select the Hide Cleared Alarms check-box if you only want to hide alarms that have been cleared. Select the Hide Acknowledged Alarms check-box if you only want unacknowledged alarms to be displayed.

2 Choose the appropriate actions:

- To save the filtering criteria so that they can be used at a later time, click the **Save** button. The last filtering criteria saved can then be recalled by clicking the **Restore** button.
- To apply the filtering criteria, click the **Apply** button, then click **OK** to close the dialog box (alternatively, clicking **OK** without first clicking **Apply** will apply the criteria and close the dialog box).
- To exit the “Event History Log: Filtering Criteria” dialog box without changing the current filtering criteria, click the **Cancel** button *before* clicking **Apply**.

NOTE

Filtering criteria selected are applied exclusively to the current instance of the Event History Log. Clicking **Save**, however, saves the filtering criteria in the database for the current user, and subsequent Event History Log instances invoked by the user will use the filtering criteria thus saved.

Due to the nature of the OSMF database, any database operation involving a database commit, such as acknowledging or unacknowledging an alarm, will also commit (save) filtering criteria changes to the database, even if they had not yet been explicitly saved in the filtering criteria dialog boxes.

3.5.1.4 To View Details of a Specific Event

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- Click on (highlight) an alarm or event in the “Event History Log” display to select it, then click the **Details...** button to call up the “Event History Log:Details” dialog box. The “Event History Log:Details” dialog box appears similar to the following:

The dialog box shows more detailed information for the specified alarm or event. The following information is provided *in addition* to the summary information given in the “Event History Log” dialog box:

Field	Description
Ack.ed By	The name of the person who has acknowledged the alarm.
Ack. Time	The time that the alarm was acknowledged.

Field	Description
Clear Time	The time that the OSMF software received a message indicating that the fault was cleared.
Address	The network address of the SSU or GPS that generated the alarm or event.
Location	The FDN (fully distinguished name) of the SSU or GPS that generated the alarm.
Remarks	Additional descriptive text that had been added by the user. The remarks cannot be edited in this dialog box.

- To close the “Event History Log:Details” dialog box, click **OK**.

3.6 Event Reports

3.6.1 The OSMF software provides the capability to produce and print formatted event reports. Sorting and filtering functions allow you to produce reports that represent a sub-set of the events stored in the Event History Log database.

Two dialog boxes are involved in the creation of event reports: the “Runtime Parameter Form” dialog box, and the “OSMF: Event History Log Previewer” dialog box. The following figures and accompanying descriptions briefly describe these dialog boxes.

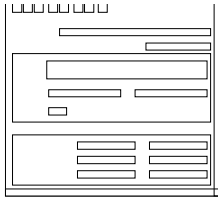
3.6.1.1 Runtime Parameter Form dialog box

Report header information, as well as filtering and sorting criteria for the event report are entered into the “Runtime Parameter Form” dialog box:

The screenshot shows a window titled "OSMF : Event History Log Previewer" with a menu bar (File, Edit, View, Help) and a toolbar. The main content area is titled "Event History Log Report : Runtime Parameters" and contains the following fields and controls:

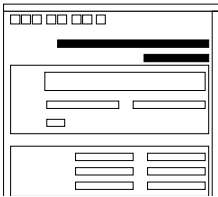
- Header:** A text box containing "Week Ending 12/11" with a note "(Optional, not to exceed 50 characters)".
- Filtering Criteria:** A label followed by an "Output Mode" dropdown menu set to "Default".
- Network Elements:** A text box containing "NSU-2451246" with a note "(Blank for selection of all network elements)".
- Time:** Two text boxes for start and end times, containing "12/10/1998 18:07:38" and "12/11/1998 09:45:00" respectively, with a note "(Enter time in MM/DD/YYYY HH24:MI:SS format)".
- Maximum No. of Events:** A text box containing "10" with a note "(Blank for display of all events)".
- Sorting Criteria:** A table with two columns: "Column" and "Order".

Sorting Criteria	Column	Order
First Sort:	Event Number	Descending
Second sort:	None	None
Third sort:	None	None



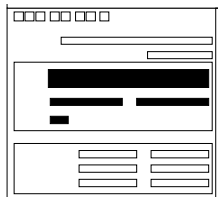
The menus that appear in this menu bar can be used to choose a printer, set certain page parameters, run or cancel report generation, etc. The menus are provided by Oracle Reports, the development tool used to develop the dialog box.

NOTE *The printer to which the report is printed can be set either in this dialog box using these menus, or in the Event History Log Previewer dialog box.*



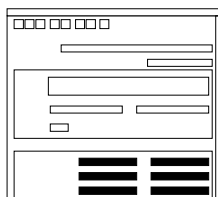
The header that is typed into this area of the dialog box will appear on every page of the event report. The header can be up to 50 characters long.

NOTE Do not change the “Output Mode” setting. It should be set to “Default.”

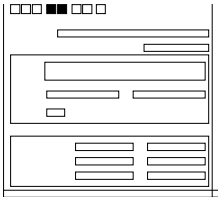




The filtering criteria entered here affects the events that appear in the event report. You can specify that events generated only by certain network elements appear in the report by entering the SSU or GPS names under “Network Elements.” You can also filter the events so that only those occurring within a certain time frame appear in the report, and specify the maximum number of events that appear in the formatted report. Note that if no SSU or GPS names are entered under “Network Elements,” then events generated by all network elements will appear in the report (filtering only functions when at least one SSU or GPS is specified).

NOTE The Event History Log Previewer might take long to display if the number of events included in the report is greater than 50,000. The “Time” filtering criteria and the “Maximum No of Events” field can be used to limit the number of events that appear in the report, or only desired SSUs can be selected on the map before invoking the report.



The sorting criteria entered here affect the order in which events appear in the event report. Events can be sorted by Event Number, Event Time, and Severity in ascending or descending order.



After all parameters have been entered into this dialog box, clicking the run report icon () calls up the “Event History Log Previewer” dialog box, where the formatted event report can be viewed and printed. To exit the dialog box without generating a report, click the cancel icon ().

3.6.1.2 OSMF: Event History Log Previewer dialog box

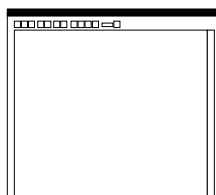
The formatted event report can be previewed in as well as printed from the “OSMF: Event History Log Previewer” dialog box. Note that the report cannot be edited in this dialog box:

Event#	Clear Event#	Sev.	SA Source	Sub-unit	Event Type	Event Time	Event Message
39		NA	N NSU-245	ITH2-4	SNTRCK	12/10/98 18:08:47	ENDED Tracking
38		NA	N NSU-245	ITH2-4	SNTRCK	12/10/98 18:08:35	Tracking this
37		NA	N NSU-245	ITH2-3	SNTRCK	12/10/98 18:08:34	ENDED Tracking
36		NA	N NSU-245	ITH2-3	SNTRCK	12/10/98 18:08:26	Tracking this
35		NA	N NSU-245	ITH2-2	SNTRCK	12/10/98 18:08:25	ENDED Tracking
34		NA	N NSU-245	ITH2-2	SNTRCK	12/10/98 18:07:38	Tracking this
33		NA	N NSU-245	ITH2-1	SNTRCK	12/10/98 18:07:38	ENDED Tracking

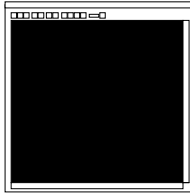
Summary:-

No. Of Entries:	7	No. of Critical Alarms:	0
No. Of Non-alarm Events:	7	No. of Major Alarms:	0
No. Of Expired Alarms:	0	No. of Minor Alarms:	0
No. Of Cleared Alarms:	0		

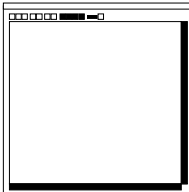
-End of Report-



The menus that appear in this menu bar can be used to select printing and mailing options, viewing options, etc. The menus are provided by Oracle Reports, the development tool used to develop the dialog box.



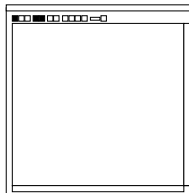
This area of the dialog box contains the formatted event report. The event report can only be previewed in this area; you cannot edit it here. Refer to the task *To Create an Event Report* for an explanation of the information provided in the report.






The “first page,” “previous page,” “next page,” and “last page” icons are used to change the page that appears in the dialog box. The scroll bars can be used to view portions of the page being previewed that are hidden from immediate view. Note that the scroll bars cannot be used to change pages.

NOTE

The Event History Log Previewer might take long to display if the number of events included in the report is greater than 50,000.



To start the print process, click the printer icon (). To close the dialog box without printing the report, click the cancel icon ().

The new report icon () creates an independent copy of the “OSMF: Event History Log Previewer” dialog box.

3.6.1.3 To Create an Event Report

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 If you want events only from certain SSUs or GPSs to appear in the event report, select those symbols in the network map.

To select more than one SSU or GPS in the map, hold the “CTRL” key down while clicking on the symbols.

NOTE

If no symbols are selected on the map when the “Runtime Parameter Form” dialog box is called up, the event report will contain the events for all network elements in the user’s management domain. If symbols are selected, but the selected symbols are not in the user’s management domain, the events for all symbols that are in the user’s management domain will be reported.

- 2 Choose the **Event Report** menu item from the “Reports” menu to call up the “Runtime Parameter Form” dialog box.
- 3 If desired, enter a header for the report in the “Header” area of the “Runtime Parameter Form” dialog box.

The report header will appear on each page of the report. It must not exceed 50 characters.


- 4 Choose the filtering criteria, as appropriate, to be applied to the report. The available filtering criteria are as follows:

Filtering Criteria	Description
Network Elements	When the dialog box is called up, the names of the SSUs and GPSs that were highlighted in the network map appear in this entry area. Add or delete SSU or GPS names as appropriate in this entry area, inserting an exclamation character (!) between the names that you add. Note that if no names are entered under “Network Elements,” then events generated by all network elements in the user’s management domain will appear in the report (filtering only functions when at least one SSU or GPS is specified).
Time ¹	Events can be filtered so that only those that occurred within a specified time frame are displayed. Modify the dates and times shown so that they reflect the beginning and end of the time frame (the format is <i>DD-MON-YYYY HH:MI:SS</i> where <i>DD</i> is the day, <i>MON</i> is a three letter representation of the month, <i>YYYY</i> is the year, <i>HH</i> is the hour in 24-hour format, <i>MI</i> is the minutes, and <i>SS</i> is the seconds).
Maximum No. of Events ¹	If left blank, all events not subject to the above filtering criteria will be added to the report.

1 The Event History Log Previewer might take long to display if the number of events included in the report is greater than 50,000. These filtering criteria can be used to limit the number of events that appear in the report.

- 5 Choose the sorting criteria, as appropriate, to be applied to the report. The available sorting criteria are as follows:

Sort Criteria	Description
Event Number	The event numbers of the events. Event numbers can be sorted on this field in either ascending or descending numeric order.
Event Time	The times at which the events occurred. Events can be sorted on this field from the oldest to most recent event (ascending order), or vice versa.
Severity	The severity rating of the events. Events can be sorted on this field in either ascending or descending order of severity, which is Clear (highest severity), Critical, Major, Minor, and Non-Alarm (lowest severity).


- 6 Click the run report icon () to call up the “Event History Log Previewer” dialog box.

When the run report icon is clicked, the system produces the formatted report, which is displayed in the “Event History Log Previewer” dialog box.

The last page of the report contains a summary that indicates the total number of entries in the report, as well as the total number of non-alarm events, and number of expired, cleared, critical, major, and minor events in the report. Event reports contain the following fields:


Field	Description
Event #	A numerical index for the specific event. Events are assigned this number as they are logged by the OSMF software.
Clear Event #	When an alarm is logged by the OSMF software, it is assigned an event number. When that alarm is subsequently cleared, a clearing event is generated, which is assigned its own event number. The event number of the clearing event (the Clearing Event #) appears in this column of the record for the original alarm.
Sev.	Indicates the severity level of the event. Severity can be Critical (Cri), Major (Maj), Minor (Min), Non-Alarm (NA), or Clear (Clr).
SA (service affected)	Indicates whether or not telecommunications service is likely to be affected by the condition that caused the event (Y means service is likely to be affected, N means service is not likely to be affected).
Source	Indicates the SSU or GPS that generated the event.
Sub-unit	For an SSU, this indicates the card or sub-assembly, and if applicable, channel that generated the event (for example, if an event is generated as a result of a status change at the PRC input channel of the ITH card in slot 1, the reported sub-unit is ITH1-0).
Event Type	A code that indicates the type of event. Refer to the 55400A SSU programming documentation for a brief description of each.

Field	Description
Event Time	Indicates the date and time at which the event occurred.
Event Message	A one line description of the event. NOTE If the event description is greater than 14 characters in length, it will be truncated to 14 characters in this field.

If the number of events exceeds the number of events that can be displayed on one page, use the “first page,” “previous page,” “next page,” and “last page” navigation icons () to view them. To go to a specific page of the report, enter the page number into the “Page” entry box that is to the right of the navigation icons, then press **Enter**.

NOTE

The Event History Log Previewer might take long to display if the number of events included in the report is greater than 50,000.

- 7 In the “Event History Log Previewer” dialog box, click the printer icon () to invoke the Print dialog box.


Within the “Print” dialog box, choose the settings as is appropriate to print the report to the system printer, or to a file if desired:

- a. Choose the printer, and to print certain pages, enter the range under “Print range.”
- b. To print to a file, click the “Print to file” check-box so that it is selected.
- c. Click the “Properties” button to invoke a sub-box in which you can set certain document properties, such as the paper size and source, number of copies, orientation, and duplexing.
- d. Click **OK**.

The report will now begin printing, or a “Print to File” box will appear if the “Print to file” check-box was selected.


- 8 If the “Print to file” check-box was selected, you must enter the name for the file into the “Print to File” box, then click **OK**.

When the event report is printed to a file in this fashion, it is stored in a format that can be read by the selected printer.

- 9 Click the close () icon to close the “Event History Log Previewer.”

NOTE

Other options are available within the “previewer” dialog box:

-  (print setup icon), as an alternative method of changing print settings.
- File→Mail . . . (menu), to mail a copy of the report via e-mail.

_____ *Do not use the File→Generate to File menu, as errors will result.*

3.7 Transaction Log Reports

3.7.1 The OSMF software maintains a log in the database of various user and system transactions. The log generally contains the transactions that have been logged in the past 30 days. Specifically, the following are considered transactions, and are logged:

- User-initiated changes to the configuration of SSUs, with the exception of SSU user creation and deletion operations.
- User-initiated changes to the management status of SSUs or GPSs.
- User-initiated creation or deletion of sync trails.
- User-initiated unacknowledgement of alarms.
- User-initiated default configuration download operations.
- User-initiated firmware download operations.
- User-initiated alarm cutoff operations.
- System-initiated changes in SSU states from available to unavailable, or vice versa.
- System-initiated changes in SSU states from configuration aligned to configuration unaligned, or vice versa.
- System-initiated changes in SSU states from hardware configuration aligned to hardware configuration unaligned, or vice versa.

The OSMF software provides the capability to produce and print formatted transaction log reports. Sorting and filtering functions allow you to produce reports that represent a sub-set of the total transaction log in the database.

Two dialog boxes are involved in the creation of transaction log reports: the “Runtime Parameter Form” dialog box, and the “Transaction Log Previewer” dialog box. The following figures and accompanying descriptions briefly describe these dialog boxes.

3.7.1.1 Runtime Parameter Form dialog box

Filtering and sorting criteria, as well as the destination for the report, are entered into the “Runtime Parameter Form” dialog box:

Transaction Log Report : Runtime Parameters

Filter Criteria :

Name(s) :

User Name(s) :

Aid(s) :

Attr. Name(s) :

Tr. Type(s) :

Serial No.(s) :

From Time : 03-19-1999 11:21:32 To Time : 03-29-1999 15:41:13

Relation : **AND** (mm-dd-yyyy hh24:mi:ss format for from/to time)

Date Format : **MM-DD-YY HH24:MI:SS** (for report)

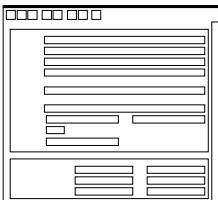
Note : List items are seperated by!

Sorting Criteria :

First Order : **SERIAL NO** **Ascending**

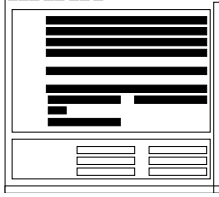
Second Order : **None** **None**

Third Order : **None** **None**



The menus that appear in this menu bar can be used to choose a printer, set certain page parameters, run or cancel report generation, etc. The menus are provided by Oracle Reports, the development tool used to develop the dialog box.

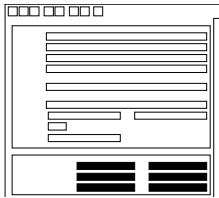
NOTE *The printer to which the report is printed can be set either in this dialog box using these menus, or in the Transaction Log Previewer dialog box.*



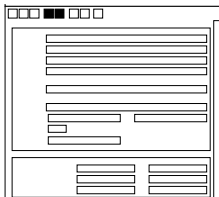
The filtering criteria entered here affect the entries that appear in the transaction log report. You can filter on up to eight fields of filtering criteria. If the field for a given criteria is left blank, that criteria has no effect on the report produced. If all fields are left blank, a report of the entire transaction log will be produced.



More than one criteria can be entered into a field. To do this, the exclamation point (!) character must be placed between each criteria.

If “AND” is selected for “Relation,” a given transaction log record will appear in the report only if every criteria entered matches the respective field in the transaction log record. If “OR” is selected for “Relation,” a given transaction log record will appear in the report if any of the entered criteria matches the respective field of the transaction log record.



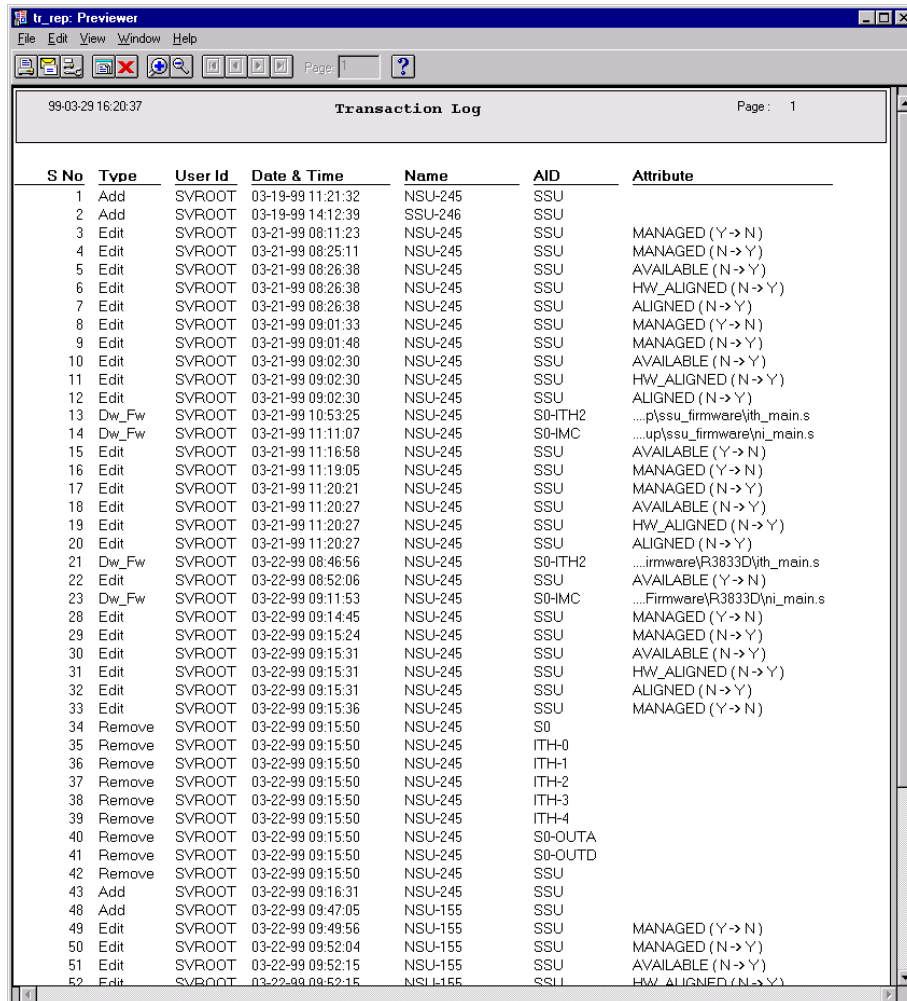
The sorting criteria entered here affect the order in which transaction log entries appear in the report. Events can be sorted on the “Serial Number,” “Name,” and “Aid” fields, in either ascending or descending order.



After all parameters have been entered into this dialog box, clicking the run report icon () calls up the “Transaction Log Previewer” dialog box, where the formatted report can be viewed and printed. To exit the dialog box without generating a report, click the cancel icon ().

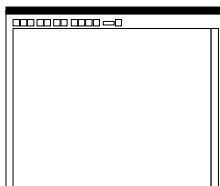
3.7.1.2 Transaction Log Previewer dialog box

The formatted transaction log report can be viewed in as well as printed from the “Transaction Log Previewer” dialog box. Note that the report cannot be edited in this dialog box:



The screenshot shows a window titled "tr_rep: Previewer" with a menu bar (File, Edit, View, Window, Help) and a toolbar. The main area displays a "Transaction Log" report for the date 99-03-29 16:20:37, Page 1. The report is a table with the following columns: S No, Type, User Id, Date & Time, Name, AID, and Attribute.

S No	Type	User Id	Date & Time	Name	AID	Attribute
1	Add	SVROOT	03-19-99 11:21:32	NSU-245	SSU	
2	Add	SVROOT	03-19-99 14:12:39	NSU-245	SSU	
3	Edit	SVROOT	03-21-99 08:11:23	NSU-245	SSU	MANAGED (Y->N)
4	Edit	SVROOT	03-21-99 08:25:11	NSU-245	SSU	MANAGED (N->Y)
5	Edit	SVROOT	03-21-99 08:26:38	NSU-245	SSU	AVAILABLE (N->Y)
6	Edit	SVROOT	03-21-99 08:26:38	NSU-245	SSU	HW_ALIGNED (N->Y)
7	Edit	SVROOT	03-21-99 08:26:38	NSU-245	SSU	ALIGNED (N->Y)
8	Edit	SVROOT	03-21-99 09:01:33	NSU-245	SSU	MANAGED (Y->N)
9	Edit	SVROOT	03-21-99 09:01:48	NSU-245	SSU	MANAGED (N->Y)
10	Edit	SVROOT	03-21-99 09:02:30	NSU-245	SSU	AVAILABLE (N->Y)
11	Edit	SVROOT	03-21-99 09:02:30	NSU-245	SSU	HW_ALIGNED (N->Y)
12	Edit	SVROOT	03-21-99 09:02:30	NSU-245	SSU	ALIGNED (N->Y)
13	Dw_Fw	SVROOT	03-21-99 10:53:25	NSU-245	S0-IH2p\ssu_firmware\iwh_main.s
14	Dw_Fw	SVROOT	03-21-99 11:11:07	NSU-245	S0-HMCup\ssu_firmware\ini_main.s
15	Edit	SVROOT	03-21-99 11:16:58	NSU-245	SSU	AVAILABLE (Y->N)
16	Edit	SVROOT	03-21-99 11:19:05	NSU-245	SSU	MANAGED (Y->N)
17	Edit	SVROOT	03-21-99 11:20:21	NSU-245	SSU	MANAGED (N->Y)
18	Edit	SVROOT	03-21-99 11:20:27	NSU-245	SSU	AVAILABLE (N->Y)
19	Edit	SVROOT	03-21-99 11:20:27	NSU-245	SSU	HW_ALIGNED (N->Y)
20	Edit	SVROOT	03-21-99 11:20:27	NSU-245	SSU	ALIGNED (N->Y)
21	Dw_Fw	SVROOT	03-22-99 08:46:56	NSU-245	S0-IH2irmware\R3833D\iwh_main.s
22	Edit	SVROOT	03-22-99 08:52:06	NSU-245	SSU	AVAILABLE (Y->N)
23	Dw_Fw	SVROOT	03-22-99 09:11:53	NSU-245	S0-HMCFirmware\R3833D\ini_main.s
28	Edit	SVROOT	03-22-99 09:14:45	NSU-245	SSU	MANAGED (Y->N)
29	Edit	SVROOT	03-22-99 09:15:24	NSU-245	SSU	MANAGED (N->Y)
30	Edit	SVROOT	03-22-99 09:15:31	NSU-245	SSU	AVAILABLE (N->Y)
31	Edit	SVROOT	03-22-99 09:15:31	NSU-245	SSU	HW_ALIGNED (N->Y)
32	Edit	SVROOT	03-22-99 09:15:31	NSU-245	SSU	ALIGNED (N->Y)
33	Edit	SVROOT	03-22-99 09:15:36	NSU-245	SSU	MANAGED (Y->N)
34	Remove	SVROOT	03-22-99 09:15:50	NSU-245	S0	
35	Remove	SVROOT	03-22-99 09:15:50	NSU-245	ITH-0	
36	Remove	SVROOT	03-22-99 09:15:50	NSU-245	ITH-1	
37	Remove	SVROOT	03-22-99 09:15:50	NSU-245	ITH-2	
38	Remove	SVROOT	03-22-99 09:15:50	NSU-245	ITH-3	
39	Remove	SVROOT	03-22-99 09:15:50	NSU-245	ITH-4	
40	Remove	SVROOT	03-22-99 09:15:50	NSU-245	S0-OUTA	
41	Remove	SVROOT	03-22-99 09:15:50	NSU-245	S0-OUTD	
42	Remove	SVROOT	03-22-99 09:15:50	NSU-245	SSU	
43	Add	SVROOT	03-22-99 09:16:31	NSU-245	SSU	
48	Add	SVROOT	03-22-99 09:47:05	NSU-155	SSU	
49	Edit	SVROOT	03-22-99 09:49:56	NSU-155	SSU	MANAGED (Y->N)
50	Edit	SVROOT	03-22-99 09:52:04	NSU-155	SSU	MANAGED (N->Y)
51	Edit	SVROOT	03-22-99 09:52:15	NSU-155	SSU	AVAILABLE (N->Y)
52	Edit	SVROOT	03-22-99 09:52:15	NSU-155	SSU	HW_ALIGNED (N->Y)



The menus that appear in this menu bar can be used to select printing and mailing options, viewing options, etc. The menus are provided by Oracle Reports, the development tool used to develop the dialog box.






This area of the dialog box contains the formatted transaction log report. The transaction log report can only be viewed in this area; you cannot edit it here. Refer to the task *To Create a Transaction Log Report* for an explanation of the information provided in the report.



The “first page,” “previous page,” “next page,” and “last page” icons are used to change the page that appears in the dialog box. The scroll bars can be used to view portions of the page being previewed that are hidden from immediate view. Note that the scroll bars cannot be used to change pages.



To start the print process, click the printer icon (). To close the dialog box without printing the report, click the cancel icon ().

The new report icon () creates an independent copy of the “Transaction Log Previewer” dialog box.

3.7.1.3 To Create a Transaction Log Report

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 Choose the **Transaction Log** menu item from the “Administration” menu to call up the “Runtime Parameter Form” dialog box (the “Administration” menu item is part of the “OSMF” menu).
- 2 Enter the desired filtering criteria into the appropriate fields in the dialog box.

NOTES

You need to enter full or partial filtering criteria exactly as they might appear in the corresponding field of the transaction log, as the filtering algorithm functions by making an exact character-for-character match between the filtering criteria and the corresponding field. For example, to match to the HW_ALIGNED attribute, you can enter HW_ALIGNED or even HW_ALIGN in the “Attr. Name(s)” field, but HW-ALIGNED will not produce a match. If you are unsure of the string you need to enter into a particular filtering criteria field in order to produce a desired result, you can run the report (by continuing with this procedure) *without first making any filtering criteria entries*. This produces a report that contains all transaction log entries. You can then note the exact string to enter for the filtering criteria, close the report, and re-start this procedure, entering the desired filtering criteria string.

If you choose to enter more than one criteria into a field, place an exclamation point (!) character between each criteria (for example, SSU-122 ! SSU-123 ! SSU-124).

The available filtering criteria are as follows:


Filtering Criteria	Description
Name(s)	The names of the network elements involved in the transaction. Network element names are committed when the network element is first managed.
User Name(s)	The user-ids of the system/database users who performed the transaction. NOTE When a system user is properly created using the procedure detailed in the System Administrator’s Guide, the user is created for the operating system as well as for the Oracle database. It is the Oracle database user-id that appears in the report.
Aid(s)	The classes of components, such as network elements (SSU, GPS) or boards (ITH, IMC, etc.) that were involved in the transaction.

Filtering Criteria	Description
Attr. Name(s)	The attributes that were changed in the transaction. NOTE The “Attribute” column of the report will typically have an attribute name, its old value, and its new value (for example, if the user squelches one of the outputs of an output card, the transaction log record will contain SQUELCH (N -> Y) in the “Attribute” column for that transaction. It is the attribute name only (SQUELCH) that forms the basis for the filtering criteria.
Tr. Types(s)	The strings that identify the types of transactions (Add, Remove, Edit, etc.).
Serial No.(s)	The serial numbers that uniquely identify the transaction records. Serial numbers are assigned sequentially by the OSMF software in the order in which the transactions are logged.
From Time To Time	Transaction log entries can be filtered so that only those that occurred within a specified time frame are displayed. The dates and times entered should reflect the beginning and end of the desired time frame ¹ (the format is <i>MM-DD-YYYY HH:MI:SS</i> where <i>MM</i> is a three letter representation of the month, <i>DD</i> is the day, <i>YYYY</i> is the year, <i>HH</i> is the hour in 24-hour format, <i>MI</i> is the minutes, and <i>SS</i> is the seconds).

¹ If the “OR” relation is chosen, all entries within the “From Time” and “To Time” criteria will appear in the report, *plus* entries that are outside of this time filtering criteria will appear if they satisfy the other filtering criteria that has been set.


- 3 Choose the sorting criteria, as appropriate, to be applied to the report. The available sorting criteria are as follows:


Sort Criteria	Description
Serial No	Choose this to sort the transaction log report by serial numbers. Transaction Log records can be sorted on the “Serial No” field in either ascending or descending numeric order.
Name	Choose this to sort the transaction log report by network element names. Transaction Log records can be sorted on the “Name” field in either ascending or descending alphanumeric order.
Aid	Choose this to sort the transaction log report by the class of component involved in the transaction. Transaction Log records can be sorted on the “Aid” field in either ascending or descending alphanumeric order.

- 4 Click the run report icon () to call up the “Transaction Log Previewer” dialog box.

When the run report icon is clicked, the system produces the formatted report, which is displayed in the “Transaction Log Previewer” dialog box.

The last page of the report shows the total number of transactions listed in the report. Transaction Log reports contain fields for Serial Number (S No), Type, User Id, Date and Time, Name, Aid, and Attribute. These fields were already explained above in the Filtering Criteria table.

If the number of transactions exceeds the number of records that can be displayed on one page, use the “first page,” “previous page,” “next,” and “last” navigation icons () to view them. To go to a specific page of the report, enter the page number into the “Page” entry box that is to the right of the navigation icons, then press **Enter**.

- 5 In the “Transaction Log Previewer” dialog box, click the printer icon () to invoke the Print dialog box.


Within the “Print” dialog box, choose the settings as is appropriate to print the report to the system printer, or to a file if desired:

- a. Choose the printer, and to print certain pages, enter the range under “Print range.”
- b. To print to a file, click the “Print to file” check-box so that it is selected.
- c. Click the “Properties” button to invoke a sub-box in which you can set certain document properties, such as the paper size and source, number of copies, orientation, and duplexing.
- d. Click **OK**.

The report will now begin printing, or a “Print to File” box will appear if the “Print to file” check-box was selected.


- 6 If the “Print to file” check-box was selected, you must enter the name for the file into the “Print to File” box, then click **OK**.

When the transaction log report is printed to a file in this fashion, it is stored in a format that can be read by the selected printer.

- 7 Click the close () icon to close the “Transaction Log Previewer.”

NOTE

Other options are available within the “previewer” dialog box:

-  (print setup icon), as an alternative method of changing print settings.
- File→Mail... (menu), to mail a copy of the report via e-mail.

Do not use the File→Generate to File menu, as errors will result.

4.1 Overview

4.1.1 SSUs constantly monitor the phase deviation of their reference inputs as one of the means of qualifying the inputs. Network performance parameters that are based on these measurements can be calculated by the SSUs and downloaded to the OSMF software for display.

4.1.2 The OSMF software displays performance information in the Performance Monitor dialog box. Five performance measurements are available:

- Time Deviation (TDEV)
- Maximum Relative Time Interval Error (MRTIE)
- Latest Maximum Relative Time Interval Error (LMRTIE)
- Fractional Frequency Offset (FFOFF)
- Frequency Spread (SPRD)

4.1.2.1 Performance History Data

The performance logs are stored in the database. The data contained in these logs can be recalled and added to the display for comparison to current data. This data, referred to as *performance history data*, is collected using either of two methods:

- By running the performance monitor application (the “Performance Monitor” dialog box). Using this method, the performance data is logged to the database each time it is retrieved by the application.
- By enabling the performance data auto-upload feature. Using this method, the performance data is uploaded automatically from the SSU to the OSMF software application. The upload rate will depend on the measurement type selected as well as the observation/averaging time for which the data is being uploaded.

4.1.2.2 User Classes

To control access to and protect the integrity of the system, three *user classes* are defined for the OSMF system. A user class defines the level of capability that a user is granted when using the system. In the OSMF system, all potential users of the system are assigned to one of three user classes: the “User” class (svusr), the “Administrator” class (svadm), and the “Security” class (svsec).

NOTES

The current version of the OSMF software supports up to five simultaneous user sessions.

The OSMF software supports only one user of the “Security” class (svsec). This user, which has the user name of “svroot,” is created when the OSMF software is installed.

The following table explains the general capabilities granted to users of each user class. User classes that have permission to perform a given procedure in this chapter are listed at the beginning of each procedure:

User Class	Capabilities (General)
User	Users in this user class can view the network map as well as view the synchronization management information in the Alarm Viewer, Event History Log, Performance Monitor, Inventory, and configuration dialog boxes. Users in this class can also create and print event and performance reports.
Administrator	Users in this user class have all of the capabilities of the “User” class, and can additionally modify the inventory database and current configuration of SSUs, and create or delete sync trails.
Security	Users in this user class have all of the capabilities of the “User” and “Administrator” classes, and can modify the network topology, manage default SSU configurations and manage or unmanage SSUs, view the transaction log and produce transaction log reports, download firmware upgrades to SSUs, set the date and time on SSUs, create users on SSUs, and configure management domains for users.

In addition, the Security-class user can restrict users of the “User” and “Administrator” classes to perform the tasks that fall within their level of capability only on an individual network element, location, or network basis. This is the concept of *management domains*.

4.1.2.3 Management Domains

NOTE

Management Domains are available only in the Deluxe Edition of the OSMF software. In the Standard Edition of the OSMF software, any valid OSMF user can perform management activities on any SSU, as long as the given management activity is within the level of capability dictated by the user’s user class.

A *management domain* specifies which SSUs a given user has permission to access. Management domains are set up and administered by the Security-class user. For more detailed information on management domains, refer to the chapter entitled *Security Management* in this guide.

4.2 In This Chapter

4.2.1 The information in this chapter can be referenced when performing performance management operations using the OSMF software. The following is addressed in this chapter:

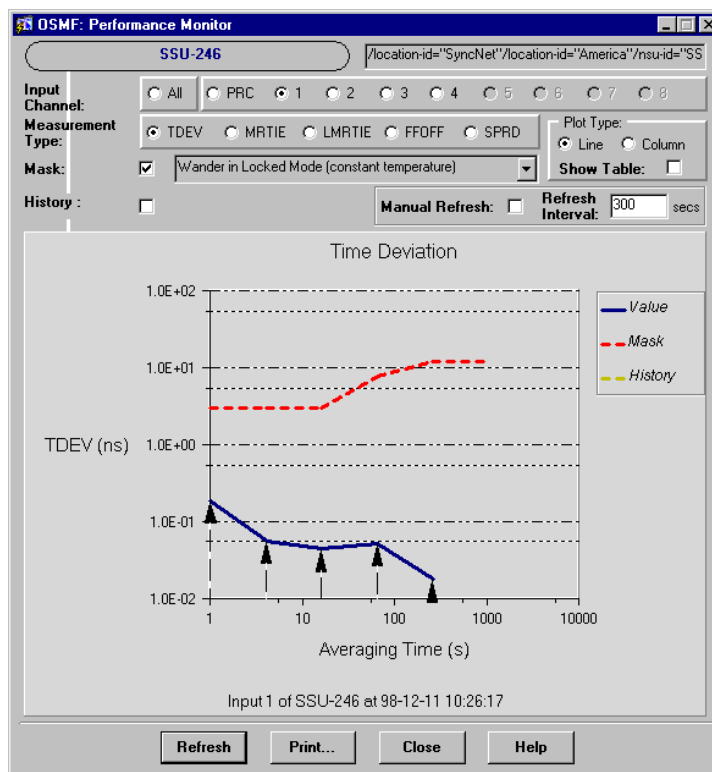
- An explanation of the Performance Monitor dialog box.
- Viewing various performance graphs using the Performance Monitor.
- Producing and printing formatted performance reports.

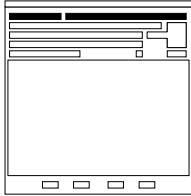
4.3 Performance Monitoring

4.3.1 The OSMF software provides a dialog box - the “Performance Monitor” dialog box - for setup and display of various performance measurements. The following features are available in the “Performance Monitor” dialog box:

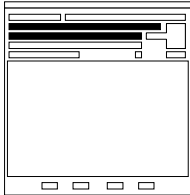
- Five different measurement types (TDEV, MRTIE, LMRTIE, FFOFF, and SPRD) available for specified input channels (SPRD is not input channel specific).
- A choice of either a line, column (bar), or tabular display of the measurement data.
- Automatic refresh of the graphical display at a user-selectable rate (the minimum rate is 30 seconds), or manual refresh at any time.
- A choice of standard masks for inclusion in the graphical display.
- The ability to recall measurement history data for performance comparisons. When selected, measurement history data is included in the graphical display.

4.3.2 The following shows the “Performance Monitor” dialog box with an example line graph for time deviation (TDEV):



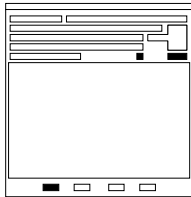


The network element name as well as the fully distinguished name (FDN) of the selected SSU is shown here. This field cannot be edited; it reflects the name of the SSU that is selected on the synchronization map when the dialog box is called up.



A choice of five different performance measurements can be performed on the SSU input channels. You select the input channel and measurement type by clicking the appropriate radio buttons in this area. Refer to *Measurement Types*, below, for more information on the types of performance measurements that are available.

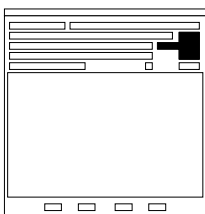
NOTE When the Performance Monitor is invoked, it attempts to retrieve TDEV measurement data for the PRC input channel by default.



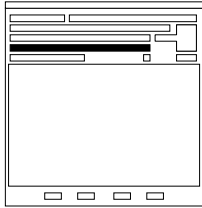
The "Refresh Interval" determines the frequency at which the performance measurement display is automatically updated (the minimum refresh interval is 30 seconds). The performance measurement display can be updated at any time by clicking the **Refresh** button. If the **Manual Refresh** check-box is selected, the display will not be automatically updated at the refresh interval but can be manually refreshed by clicking the Refresh button.

NOTE *After each refresh interval, the OSMF software queries the latest measurement data from the SSU, so refresh intervals that are short can cause a large amount of network traffic.*

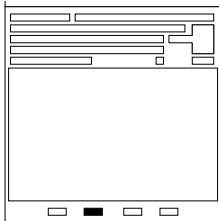
NOTE If, upon refreshing the display, the software detects that the SSU has been deleted, an error message (ERROR in retrieving performance data) is displayed.



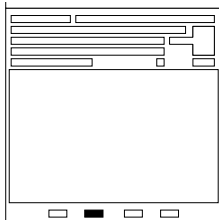
A choice of either a line or column (bar) display of the measurement data can be chosen by clicking the appropriate radio button in this area. Note that if the "All" option under "Input Channel" is selected, the measurement can only be displayed in line graph form. In addition, a separate tabular display can be shown by selecting the "Show Table" check-box. Refer to *Plot Types*, below, for more information on the graphical display options that are available.



Performance measurement data can be displayed against one of several standard performance masks. Refer to *Performance Masks*, below, for more information on the performance masks that are available.



You can select from a list of time-stamped performance history data in this area. This feature is useful for comparing past performance data for an input reference, which is stored in the database, to its current performance. Note that if the “All” option under “Input Channel” is selected, history data cannot be displayed.



Clicking the **Print...** button initiates a dialog box sequence that allows you to print the contents of the window containing the Performance Monitor to a PostScript printer, or to a file. Refer to the task *To Print the Performance Monitor* for more information.

4.3.2.1 Measurement Types

There are five measurements available:

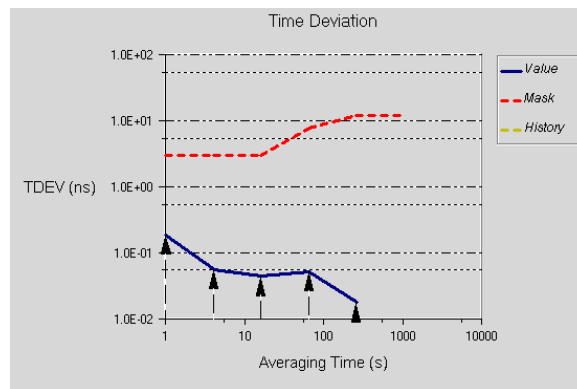
Measurement	Description
TDEV	(Time Deviation) TDEV is a measurement that describes the averaged phase deviation of the incoming signal from a perfect signal over different observation times. The perfect signal is derived from the output of the ITH card that has been corrected for the effects of wander on the local oscillator.
MRTIE	(Maximum Relative Time Interval Error) In an MRTIE measurement, the OSMF software keeps track of the maximum phase deviation that occurs within specified observation time windows for the input being measured (window sizes from 1 second to 24 hours can be used). The reported MRTIE value is the maximum of all of these phase deviation measurements made during the past 24 hour time period (if 24 hours of data is available).
LMRTIE	(Latest Maximum Relative Time Interval Error) LMRTIE is a measurement of phase transients similar to MRTIE, but the reported value is the maximum phase deviation that occurs during only the last observation time window.
FFOFF	(Fractional Frequency Offset) FFOFF is a measurement of the frequency difference between the input signal and the output of the ITH card. This will be zero if the input being measured is the active reference since the output tracks the active reference input.
SPRD	(Frequency Spread) SPRD is a measurement of the difference between the maximum and minimum FFOFF of all input signals included in the measurement.

4.3.2.2 Plot Types

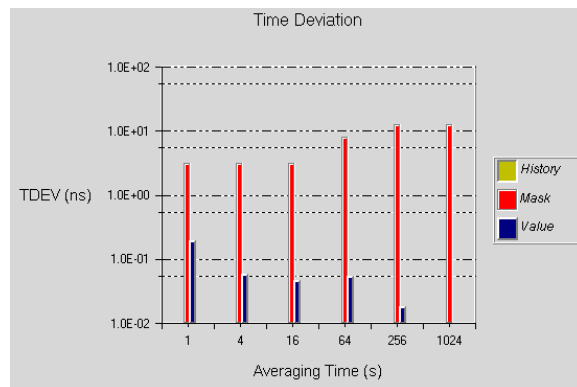
The performance measurement data can be displayed in either a line graph, columnar (bar) graph, or tabular format. The following three figures show the three different display formats for an example time deviation (TDEV) measurement:

NOTE

If the “All” option is selected so that the measurement is being simultaneously displayed for all input channels, only the line graph format can be selected. In this case, the plot for each channel will be shown in a different color, as indicated in the legend.



Example TDEV Measurement - Line Graph



Example TDEV Measurement - Columnar (Bar) Graph

Time Deviation			
Time	Value	Mask	History
1	1.861E-01	3.000E+00	
4	5.645E-02	3.000E+00	
16	4.456E-02	3.000E+00	
64	5.160E-02	7.680E+00	
256	1.780E-02	1.200E+01	
1024		1.200E+01	

Example TDEV Measurement - Tabular Format

4.3.2.3 Performance Masks

The OSMF software contains four standard performance masks. The following table shows the masks that are available for each measurement (no masks are available for the frequency spread (SPRD) measurement):

Mask	TDEV	MRTIE	LMRTIE	FFOFF
Wander in Locked Mode (Constant Temperature)	✓	✓	✓	✓
Wander in Locked Mode (Variable Temperature)		✓	✓	
Input Wander Tolerance	✓	✓	✓	✓
Output Wander Mask	✓			✓

4.3.2.4 To Display a Performance Measurement

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

There are three different plot types that can be used to display performance measurements:

- Line Graph
- Columnar (Bar) Graph
- Tabular Format

NOTE

The SSU can be configured to upload the performance measurement data to the OSMF software. This data is then time stamped and logged into the OSMF performance database and can be later viewed by selecting the appropriately time-stamped history data in the Performance Monitor dialog box. This configuration is done on a per input channel basis. The following parameters must be properly configured in the “Configuration:Modify” dialog box (OSMF ⇒ Configuration ⇒ Modify) for the input channels of choice:

- The “Auto-Upload Performance Data” radio buttons that are under the “Input Channels” setting group must be set so that **Yes** is selected.
- The “PM” check-box for each desired observation point in the “Thresholds” setting group must be selected.
- In addition, if the desired channel is to be included in the SPRD measurement, it needs to be selected in the “ITH Card” setting group.

Refer to the *Configuration Management* chapter for more information.

- 1 On the synchronization network map, click on (select) the SSU symbol for which you want to display the performance measurement.

When you click on the SSU symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

- 2 Choose the **Performance Monitor** menu item from the “OSMF” menu to call up the “Performance Monitor” dialog box:

The upper portion of the “Performance Monitor” dialog box provides an interface for selecting several measurement-related parameters. The lower portion shows the selected graphical display for the input channel and measurement type that is selected.

NOTES

When the “Performance Monitor” dialog box is called up, the OSMF software queries the SSU for performance data. During this time, a message box containing the message “Retrieving Performance Data. Please Wait” is displayed (this also happens whenever the input channel and measurement type is changed). When the message appears, wait for it to disappear before continuing.

There should be no more than one “Performance Monitor” dialog box opened per SSU. No more than two per OVW session is recommended.

- 3 Under “Input Channel,” choose the input channel on which the measurement is to be made by clicking the appropriate radio button.
- 4 Under “Measurement Type,” choose the desired measurement type by clicking the appropriate radio button.
- 5 Under “Plot Type,” choose the desired plot type by clicking the appropriate radio button.

If the “Show Table” check-box is selected, the data also appears in tabular format in a separate window.

NOTE

If the “All” option under “Input Channel” was selected, the only plot type that can be chosen is “Line” (line graph).

- 6 If a mask is desired, click the check-box that is next to the label “Mask,” then choose the appropriate mask type from the drop-down list box that appears.

NOTE

If the reference input being measured is recently connected, a significant amount of time might elapse before some data points become available for display in the Performance Monitor. For example, a TDEV display potentially can contain data points for averaging times (T_{AVG}) of 1, 4, 16, 64, 256, and 1024 seconds, however, each data point becomes available after $98 \times T_{AVG}$, so the 16-second T_{AVG} data point will not appear until 1568 seconds (26 minutes) after the reference is connected.

Adding Performance History Data to the Display

Each time the OSMF software queries an SSU for measurement data, or the SSU automatically uploads measurement data to the OSMF workstation (as when the performance data auto-upload feature is enabled), the OSMF software time-stamps the data and stores it in the database. This data can be recalled and added to the performance measurement display for comparison with the current data.

- Click the check-box that is next to the label “History,” then choose the desired history data from the drop-down list box that appears. The drop down list shows the time stamp and number of values measured for each history data item.

NOTE

If the “All” option under “Input Channel” is selected, history data cannot be displayed.

Refreshing the Display

The refresh interval setting determines the frequency at which the OSMF software automatically queries the SSU for measurement data and then refreshes the performance measurement display.

- To change the automatic refresh interval, double click in the “Refresh Interval” entry box, then type in the desired interval in seconds. The minimum refresh interval is 30 seconds.
- To disable the automatic refresh interval, select the **Manual Refresh** check-box.
- To refresh the display at any time, click the **Refresh** button.

NOTE

If, upon refreshing the display, the software detects that the SSU has been deleted, an error message (ERROR in retrieving performance data) is displayed.

4.3.2.5 To Print the Performance Monitor

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

The Performance Monitor dialog box can be printed to a PostScript printer or to a file.

- 1 Ensure that the Performance Monitor is set appropriately to affect the desired measurement display.

Refer to the procedure *To Display a Performance Measurement* in this chapter for more information.

- 2 Click the **Print...** button in the Performance Monitor.

NOTE

When the **Print...** button is clicked, a Caution box appears in which you are instructed to resize and clip the window as required. Ignore these instructions, as you cannot resize and clip the window. Clicking **OK** in this Caution box will close it, and invoke the Page Setup dialog box.

- 3 In the Page Setup dialog box, choose the paper size, orientation, and margins as is appropriate, then click **OK**.

When **OK** is clicked, the Print dialog box is invoked.

- 4 Within the Print dialog box, choose the settings as is appropriate to print the report to the system printer, or to a file if desired:
 - a. Choose the printer in the “Name” field, and to print certain pages, enter the range under “Print range.”
 - b. To print to a file, click the “Print to file” check-box so that it is selected.

- c. Click the **Properties** button to invoke a sub-box in which you can set certain document properties, such as the paper size and source, number of copies, orientation, and duplexing, then click **OK**.
 - d. Click **OK** in the Print dialog box.
- 5 Click **OK** in the message box which reads “Print capture beginning...” when it appears.
- 6 If the “Print to file” check-box was selected above, you must enter the name for the file into the “Print to File” box when it appears, then click **OK**.

When the Performance Monitor is printed to a file in this fashion, it is stored in a format that can be read by the selected printer.

- 7 A message box containing the message “Print capture complete” appears. Click **OK** in this message box to close it.

4.4 Performance Reports

4.4.1 The OSMF software provides the capability to produce and print formatted performance reports. Time filtering capability allows you to produce reports that include performance measurements logged within a specified time frame.

Two dialog boxes are involved in the creation of performance reports: the “Runtime Parameter Form” dialog box, and the “Performance Report Previewer” dialog box. The following figures and accompanying descriptions briefly describe these dialog boxes.

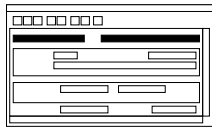
4.4.1.1 Runtime Parameter Form dialog box

The input channel (or channels) of the selected SSU to be included in the report, as well as the measurement type, mask, and time filtering criteria are entered into the “Runtime Parameter Form” dialog box:

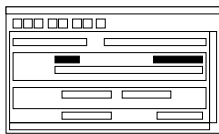


The menus that appear in this menu bar can be used to choose a printer, set certain page parameters, run or cancel report generation, etc. The menus are provided by Oracle Reports, the development tool used to develop the dialog box.

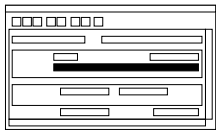
NOTE *The printer to which the report is printed can be set either in this dialog box using these menus, or in the Performance Report Previewer dialog box.*



The Network Element name as well as the fully distinguished name (Location) of the selected SSU is shown here. These fields reflect the name and FDN of the SSU that is selected on the synchronization map when the dialog box is called up. Note that although you can enter different text in the “Network Element” and “Location” fields, the software will not accept the changes, so you should not attempt to modify these fields.



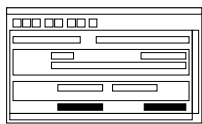
The input channel and measurement type is chosen here. You will always have ten choices for Input Channel (PRC, 1 - 8, and All) even if the current hardware configuration of the SSU supports only five inputs (PRC, 1 - 4) as it is possible that some historical measurement data might exist in the database for a previous, nine-input configuration of the SSU.



The performance mask chosen here will appear at the beginning of the performance report. Note that some masks are not available for some measurement types. If an invalid combination of mask and measurement type is chosen, a message stating this will appear when the report is run.

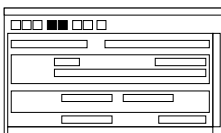




The filtering criteria entered here affects the measurement data that appears in the performance report. You can filter the data so that only measurements occurring within a certain time frame appear in the report.



Changing the orientation to landscape mode can result in the truncation of some entries from the bottom of each page of the performance report. Only the “Default” or “Portrait” orientation should be used.

NOTE Do not change the “Output Mode” setting. It should be set to “Default.”



After all parameters have been entered into this dialog box, clicking the run report icon () calls up the “Performance Report Previewer” dialog box, where the formatted performance report can be viewed and printed. To exit the dialog box without generating a report, click the cancel icon ().

4.4.1.2 Performance Report Previewer dialog box

The formatted performance report can be previewed in as well as printed from the “Performance Report Previewer” dialog box. Note that the report cannot be edited in this dialog box.

NOTE

If the number of performance records for the selected input channel is less than 50,000, you can preview as well as print the performance report. If the number of records is over 50,000 but less than 100,000, you can preview the report, but operations using the report navigation features (“first page,” “previous page,” etc.) might take longer to complete. If there are over 100,000 records in the report, you will only be able to print the report. In any case, if the number of records is over 10,000, you might experience a considerable delay before the Previewer is displayed or the printout is produced. In these cases, a message box will appear explaining the situation, and you will need to click an **OK** button in the message box to continue.

OSMF : Performance Report

File Edit View Window Help

Page: 1

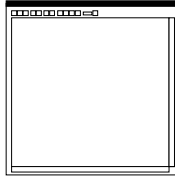
08-40:25:11-Dec-1998 Performance Report Page: 1

NSLA-245 Time Deviation (ns) Vs. Averaging Time

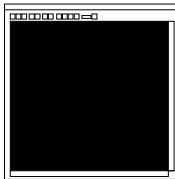
Mask: Wander in Locked Mode (constant temperature)

	1 S	2 S	16 S	64 S	256 S	1024 S	>1024 S
Value	Value	Value	Value	Value	Value	Value	Value
	3	3	3	7.68	12	12	12

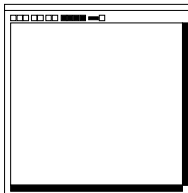
Time	Interval	Input CH	1 S Value ns	2 S Value ns	16 S Value ns	64 S Value ns	256 S Value ns	1024 S Value ns
12/10/00 09:40:50		1	.447712	.139622	.20178	.047519	.025599	.071428
12/10/00 09:42:20		1	.395171	.139622	.20178	.047519	.025599	.071428
12/10/98 10:41:45		1	.243515	.235583	.071522			
12/10/98 10:41:47		1	.243515	.235583	.071522			
12/10/98 10:46:51		1	.255182	.206138	.074508			
12/10/98 10:47:16		1	.255182	.206138	.074508			
12/10/98 10:52:17		1	.222549	.230232	.074951			
12/10/98 10:56:48		1	.275132	.229692	.068388			
12/10/98 11:01:53		1	.221075	.252861	.068388			
12/10/98 11:02:00		1	.24506	.252861	.068388			
12/10/98 11:07:03		1	.227618	.235006	.067545			
12/10/98 11:07:25		1	.227618	.235006	.067545			
12/10/98 11:12:29		1	.275906	.211121	.065361			
12/10/98 11:14:04		1	.218352	.211121	.065361			
12/10/98 11:18:45		1	.2526	.224244	.060246			
12/10/98 11:19:38		1	.210917	.224244	.060246			



The menus that appear in this menu bar can be used to select printing and mailing options, viewing and navigation options, etc. The menus are provided by Oracle Reports, the development tool used to develop the dialog box.

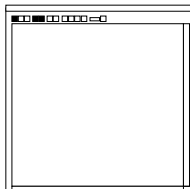




This area of the dialog box contains the formatted performance report. The performance report can only be previewed in this area; you cannot edit it here. Refer to the task *To Create a Performance Report* for an explanation of the information provided in the report.




The “first page,” “previous page,” “next page,” and “last page” icons are used to change the page that appears in the dialog box. The scroll bars can be used to view portions of the page being previewed that are hidden from immediate view. Note that the scroll bars cannot be used to change pages.

NOTE Operations using the report navigation features might take a long time if the number of performance records included in the report is greater than 50,000.



To start the print process, click the printer icon (). To close the dialog box without printing the report, click the cancel icon ().

The new report icon () creates an independent copy of the “Performance Report Previewer” dialog box.

4.4.1.3 To Create a Performance Report


Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 Select the SSU in the network map for which you want to produce the performance report. *Do not select more than one SSU in the map.*
- 2 Choose the **Performance Report** menu item from the “Reports” menu to call up the “Runtime Parameter Form” dialog box.
- 3 Choose the input channel, measurement type, and mask type as appropriate:

Parameter	Description
Input Channel	The measurement data for the input channel or channels chosen here will appear in the report. Choose any one individual channel (PRC, 1 - 8), or choose “All” to include data from all input channels. Note that all ten of these choices will always be available, even if the current SSU configuration does not include nine input channels.
Measurement Type	Choose the measurement type. Note that the frequency spread (SPRD) measurement involves all channels, so the choice of input channel (above) is inconsequential for the spread measurement.
Mask Type	Choose the performance mask. The data for the mask chosen here will appear at the beginning of the performance report. If the mask chosen is not available for the measurement type selected (above), a message stating this will appear when the report is run.

- 4 Choose the filtering criteria, as appropriate, to be applied to the report. The data can be filtered based on time, as follows:

Filtering Criteria	Description
Time	<p>Performance measurement data can be filtered so that only measurements that were logged within a specified time frame are displayed. Modify the dates and times shown so that they reflect the beginning and end of the time frame (the format is <i>MON/DD/YYYY HH:MI:SS</i> where <i>MON</i> is a three letter representation of the month, <i>DD</i> is the day, <i>YYYY</i> is the year, <i>HH</i> is the hour in 24-hour format, <i>MI</i> is the minutes, and <i>SS</i> is the seconds).</p> <p>NOTE When the dialog box is called up, the dates shown in the time stamp fields reflect the oldest to most recent time stamp included in the performance log. These dates do not necessarily correlate with the time stamps for any given block of performance data.</p>

- 5 Click the run report icon () to call up the “Performance Report Previewer” dialog box.

NOTE


If no performance data is available for the combination of parameters chosen above, a message box containing the message “No performance data available.....” will appear.

When the run report icon is clicked, the system produces the formatted report, which is displayed in the “Performance Report Previewer” dialog box.

The header of the report indicates the date and time, the selected SSU, and the page number. It appears on each page. Mask values appear under the header if a mask was chosen.


In the body of the performance report, measurement data is grouped in blocks of time-stamped data. Each data block includes a row for each input channel and columns for each measurement time interval. For example, the following shows a block of Time Deviation (TDEV) measurement data that is time stamped 11/17/97. In the example, the “All” option was chosen under “Input Channel” in the Runtime Parameter Form dialog box, so all channels appear in the report. If data was not available for any of the channels, the row would be blank. The actual data is shown in the columns to the right of the input channel column, and is the data taken at the various averaging time intervals. If data was not available at any given time interval, the column would be blank.

11/17/97 14:40:41	pre	.03	.5	26	70.68	120	13000
1	11	22	99	170.68	1120	13000	
2	2.03	2.5	25	270.68	2120	13000	
3	.02	2.5	15	270.68	3120	13000	
4	4.03	4.5	45	470.68	1200	13000	
5	4.03	4.5	45	470.68	1200	13000	
6	4.03	4.5	45	470.68	1200	13000	
7	4.03	4.5	45	470.68	1200	13000	
8	4.03	4.5	45	470.68	1200	13000	

If the number of records exceeds the number of records that can be displayed on one page, use the “first page,” “previous page,” “next,” and “last” navigation icons () to view them. To go to a specific page of the report, enter the page number into the “Page” entry box that is to the right of the navigation icons, then press **Enter**.

NOTE

Operations using the report navigation features might take a long time if the number of performance records included in the report is greater than 50,000.


- 6 In the “Performance Report Previewer” dialog box, click the printer icon () to invoke the Print dialog box.
- 7 Within the “Print” dialog box, choose the settings as is appropriate to print the report to the system printer, or to a file if desired:
- Choose the printer, and to print certain pages, enter the range under “Print range.”

- b. To print to a file, click the “Print to file” check-box so that it is selected.
- c. Click the “Properties” button to invoke a sub-box in which you can set certain document properties, such as the paper size and source, number of copies, orientation, and duplexing, then click **OK**.
- d. Click **OK** in the Print dialog box.

The report will now begin printing, or a “Print to file” box will appear if the “Print to File” check-box was selected.


- 8 If the “Print to file” check-box was selected, you must enter the name for the file into the “Print to File” box, then click **OK**.

When the performance report is printed to a file in this fashion, it is stored in a format that can be read by the selected printer.

- 9 Click the close () icon to close the “Performance Report Previewer.”

NOTE

Other options are available within the “Performance Report Previewer” dialog box:

-  (print setup icon), as an alternative method of changing print settings.
- File→Mail... (menu), to mail a copy of the report via e-mail.

Do not use the File→Generate to File menu, as errors will result.

5.1 Overview

5.1.1 The OSMF software provides the ability to keep a master inventory of the hardware resources available in the synchronization network. There are three main dialog boxes that are used when performing inventory management tasks:

- The **Inventory** dialog box, also referred to as the master inventory form, is the main interface to the inventory database. Important information related to each synchronization network hardware resource is entered into this dialog box, and once applied, is added to the inventory database (a “*hardware resource*” can be any of the SSU sub-assemblies, such as the IMC, ITH, TRSC, and output cards, or rack frames). Fields in the Inventory dialog box can be edited as necessary to reflect changes in the status of hardware resources, and filtering and sorting functionality is included for easy retrieval of resource information.

Note that all of the hardware resource information is simply listed in this dialog box. The resources listed might or might not be present in the currently managed SSUs. Resources that are present in SSUs in the network are said to be *associated* with the corresponding entries in the master inventory form. You can create, view, or modify the associations between SSUs and resources in the Output Card Inventory and Rack Inventory dialog boxes.

- The **Output Card Inventory** dialog box is used to associate output cards that are included in the master inventory to the SSUs that contain them. This dialog box also includes filtering and sorting functionality.
- The **Rack Inventory** dialog box is similar to the Output Card Inventory dialog box, but is used to associate IMC and ITH cards, as well as rack frames that are included in the master inventory to the SSUs that contain them. This dialog box also includes filtering and sorting functionality.

5.1.1.1 User Classes

To control access to and protect the integrity of the system, three *user classes* are defined for the OSMF system. A user class defines the level of capability that a user is granted when using the system. In the OSMF system, all potential users of the system are assigned to one of three user classes: the “User” class (svusr), the “Administrator” class (svadm), and the “Security” class (svsec).

NOTES

The current version of the OSMF software supports up to five simultaneous user sessions.

The OSMF software supports only one user of the “Security” class (svsec). This user, which has the user name of “svroot,” is created when the OSMF software is installed.

The following table explains the general capabilities granted to users of each user class. User classes that have permission to perform a given procedure in this chapter are listed at the beginning of each procedure:

User Class	Capabilities (General)
User	Users in this user class can view the network map as well as view the synchronization management information in the Alarm Viewer, Event History Log, Performance Monitor, Inventory, and configuration dialog boxes. Users in this class can also create and print event and performance reports.
Administrator	Users in this user class have all of the capabilities of the “User” class, and can additionally modify the inventory database and current configuration of SSUs, and create or delete sync trails.
Security	Users in this user class have all of the capabilities of the “User” and “Administrator” classes, and can modify the network topology, manage default SSU configurations and manage or unmanage SSUs, view the transaction log and produce transaction log reports, download firmware upgrades to SSUs, set the date and time on SSUs, create users on SSUs, and configure management domains for users.

In addition, the Security-class user can restrict users of the “User” and “Administrator” classes to perform the tasks that fall within their level of capability only on an individual network element, location, or network basis. This is the concept of *management domains*.

5.1.1.2 Management Domains

NOTE

Management Domains are available only in the Deluxe Edition of the OSMF software. In the Standard Edition of the OSMF software, any valid OSMF user can perform management activities on any SSU, as long as the given management activity is within the level of capability dictated by the user’s user class.

A *management domain* specifies which SSUs a given user has permission to access. Management domains are set up and administered by the Security-class user. For more detailed information on management domains, refer to the chapter entitled *Security Management* in this guide.

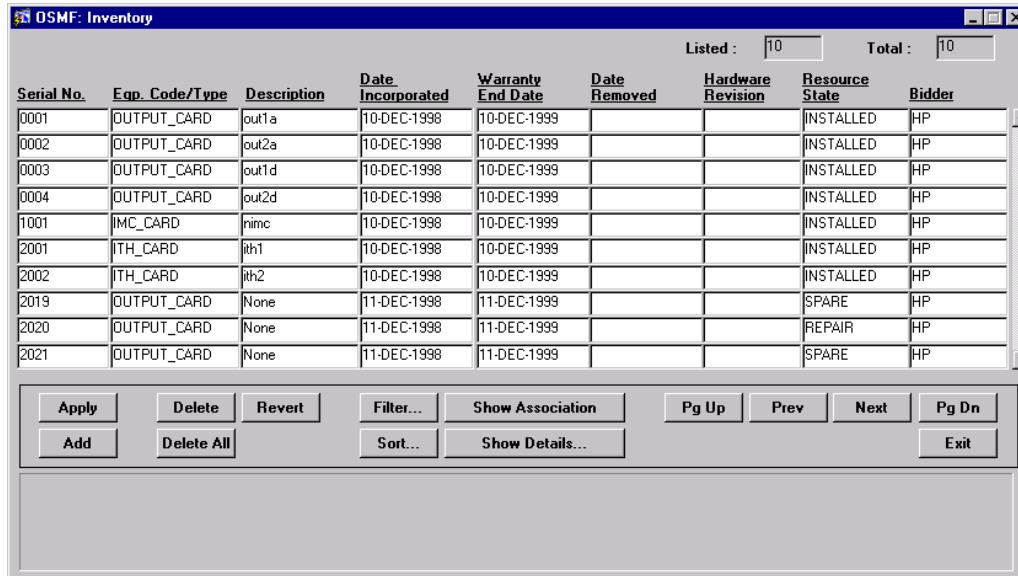
5.2 In This Chapter

5.2.1 The procedures in this chapter can be referenced when performing inventory management tasks using the OSMF software. The inventory management tasks addressed in this chapter include the following:

- Managing the master inventory database.
- Associating output cards, IMC cards, ITH cards, and rack frames with SSUs.

5.3 Managing the Inventory Database

5.3.1 Information on each hardware resource in the synchronization network is entered into the Inventory dialog box, where it can then be applied to the inventory database (a “hardware resource” can be any of the SSU sub-assemblies, also called “equipment types”). The dialog box can also be used to view the database, and filtering and sorting functionality is included for easy location and retrieval of resource information. The following figure and accompanying descriptions briefly explain the Inventory dialog box:





This area of the Inventory dialog box contains a listing of hardware resources that have been entered into the master inventory database. It is referred to as the “resource listing.” The information in a given row applies to a single hardware resource. The serial number in the first column of a row uniquely identifies the hardware resource, and therefore cannot be changed once it is applied to the database. The other fields in the row, however, can be edited as resource status changes dictate. Refer to the task *To Modify the Inventory Database* for an explanation of the information provided in the resource listing.

The area at the top right shows the total number of entries in the database (“Total:”), as well as those currently retrieved as a result of applied filtering criteria (“Listed:”). The count displayed in the “Listed” field increases as the user scrolls down the resource listing, until the last record entry is retrieved.

NOTE If additional records are entered into the inventory database after the Inventory dialog box is opened, they will not be reflected in the “Total” and “Listed” fields until after the **Apply** button in the Filter dialog box has been clicked.

The total entries retrieved is subject to the filtering criteria that has been set, as well as the SSUs that had been selected on the map prior to invoking the dialog box. The order in which the entries are displayed is subject to the sort criteria that has been set.

NOTE If there are no entries in the inventory database that are associated with the SSUs selected on the map, or if no entries satisfy the filtering criteria set, then all records present in the inventory database will be displayed.

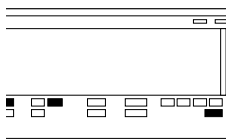


The number of potential entries in the resource listing can exceed the number of entries that can be displayed at any one time. When this is the case, the **Pg Up** (page up), **Prev** (previous line), **Next** (next line), and **Pg Dn** (page down) buttons as well as the vertical scroll bar can be used to view them.



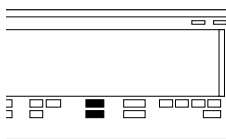
Clicking the **Add** button inserts a new row into the resource listing below the currently selected row. Information can then be filled into the newly inserted row for a new hardware resource. Note that the serial number (“Serial No.,”) field *must* be filled in first before the other fields can be filled in.

Clicking the **Delete** button will delete the selected row from the listing *if* an SSU association does not exist for it, and clicking the **Delete All** button will delete all rows containing resources for which an SSU association does not exist (refer to “Show Association,” below).

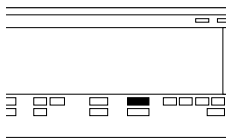


When clicked, the **Apply** button causes the changes, additions, or deletions made in the resource listing to be added to the inventory database.

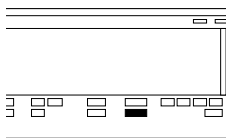
Clicking the **Revert** button brings up a question box in which you can restore the current state of the inventory database for the selected row (by clicking **Revert Current Record**), or restore the current state of the inventory database to the entire resource listing (by clicking **Rollback All Changes**). These selections effectively cancel any modifications made to the row or entire listing since the last time **Apply** was clicked. Once **Apply** is clicked, the changes to the database are committed and cannot be undone by clicking **Revert**.



Clicking the **Sort...** button calls up a dialog box in which you can choose the order in which entries are displayed in the dialog box. Clicking the **Filter...** button calls up a dialog box in which you can choose the filtering criteria that determines which entries are displayed in the dialog box.



If the entry selected in the resource listing exists in an SSU (which is to say that it is *associated* with the SSU), the related record from either the Output Card Inventory and Rack Inventory dialog box will be displayed below the button area in the dialog box automatically. The **Show Association** button, therefore, has no function in the current version of the OSMF software.



Fields in the resource listing might contain more characters than are visible in the listing. Clicking the **Show Details** button calls up a dialog box in which you can view the full contents of each field of the row that is selected in the resource listing. Note that even after the Show Details dialog box is opened, other rows can be selected in the Inventory dialog box, and the information pertinent to the currently selected row will appear in the Show Details dialog box.

5.3.1.1 To Modify the Inventory Database

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

NOTE Users of the “User” class can view the Inventory dialog box, but cannot modify it.

- 1 Choose the **Master Inventory** option from the “Inventory” menu to call up the Inventory dialog box (the “Inventory” menu item is part of the “OSMF” menu).

NOTE It is recommended that there be no more than two Inventory dialog boxes opened at a time per OVW session.

The resource listing area of the Inventory dialog box contains a listing of the hardware resources that are currently stored in the inventory database. The actual resources listed, as well as the order in which they are listed, are determined by the sort and filtering criteria, which can be modified to suit your needs (refer to the related tasks in this chapter to change the sort and filtering criteria).

If the number of current resource entries exceeds the number of entries that can be displayed in the resource listing, use the **Pg Up**, **Prev**, **Next**, and **Pg Dn** buttons as well as the vertical scroll bar to view them.

The resource listing contains the following information:

Field	Description
Serial No.	A unique serial number identifying the resource. The serial number can be assigned as per company policy, but it must be unique. This field <i>must</i> be filled in before any of the other fields can be filled in. Once the resource information has been applied to the database, this field cannot be modified.
Eqp. Code/Type	A code that identifies the type of hardware resource. When this field is clicked, a selection box appears in which you can select a pre-assigned code for certain equipment, or you can enter your own equipment code by clicking Cancel in the selection box, then entering your own code. The pre-assigned codes are IMC_CARD, ITH_CARD, OUTPUT_CARD, TRSC_CARD, and RACK_FRAME. NOTE Once an association is made with a resource, you will not be able to modify the Eqp. Code/Type field in this dialog box unless the association is removed.
Description	A description of the resource. The resource’s location, such as the room or shelf number where it is installed or stored, can be entered in this field.

Field	Description
Date incorporated	Typically, the date that the resource was incorporated into the network is entered into this field. When a new row is added to the listing, this field is set to the current date, but it can be changed. Note that the valid date format is <i>DD-MON-YYYY</i> where <i>DD</i> is the two-digit date (for example, 06 or 31), <i>MON</i> is a three character representation of the month (for example, JAN or MAR), and <i>YYYY</i> is the four-digit year (for example, 1998 or 2000).
Warranty End Date	The date that the resource's warranty ends. The valid date format is the same as for the "Date Incorporated" field.
Date Removed	If the resource is removed from the synchronization network, as for repair, replacement, scrapping, etc., this field can be filled in to reflect the date when it was removed. The valid date format is the same as for the "Date Incorporated" field. NOTE You will only be able to create an association for resources for which the Date Removed field is empty (blank).
Hardware Revision	The current hardware revision code for the resource. The hardware revision code is a means of tracking differing hardware versions of the same model of equipment. NOTE The hardware revision codes assigned here are entered by the user. The hardware revision codes in the Output Card Inventory and Rack Inventory dialog boxes are retrieved from the current firmware of the resource. If an upgrade to the firmware of a resource should cause a change in hardware revision code in the Output Card Inventory and Rack Inventory dialog boxes, be aware that the change will not automatically be reflected in the Inventory dialog box.
Resource State	The current status of the resource, which explains whether it is new, working, in repair, etc. When this field is clicked, a selection box appears in which you can select one of several pre-assigned status codes, or you can enter your own status by clicking Cancel in the selection box, then entering your own status code. The Pre-assigned codes are SPARE ¹ , INSTALLED ² , FAULTY ³ , REPAIR ⁴ , and UNUSABLE ⁵ . NOTES You will not be able to create an association for resources for which the Resource State is FAULTY, REPAIR, or UNUSABLE. Once an association is made with a resource, you will not be able to modify the Resource State field in this dialog box unless the association is removed. If the SPARE or user-defined resource state is assigned to a resource, and an association is made with the resource later, the Resource State field will automatically be forced to INSTALLED.
Bidder	The bidder for the resource, as the company from which the resource was purchased. <i>The default is "HP."</i>

- 1 The card is functional but not currently being used in the network.
- 2 The card is functional and currently being used in the network.
- 3 The card is currently experiencing functional problems.
- 4 The card is currently being repaired.
- 5 The card can no longer be used in the network.

2 Make the appropriate modifications:

- *To Modify an existing entry in the listing*, click on the appropriate fields and re-enter the information.

Note that if an entry has already been applied to the database, you can no longer modify the “Serial No” (serial number) field. You will have to add a new entry for the changed serial number, and delete the old entry as appropriate. If you cannot see all of the information currently contained in a given field, click the **Show Details...** button to call up a dialog box in which you can view the full contents of each field of the selected row.

- *To add a new entry into the listing*, select (click on) the row *above* where you want to add the new entry, then click the **Add** button.

A new row is added to the listing, to which you can enter the new resource information. Note that you *must* fill in the “Serial No” field before filling in the rest of the fields. Some fields will contain default information, but all can be modified as is appropriate.

- *To delete any entry from the listing*, select (click on) the entry, then click the **Delete** button. Note that if an SSU association exists for the resource, the entry cannot be deleted.

3 Choose the appropriate action:

- *To apply the resource modifications*, which adds them to the inventory database, click the **Apply** button, then confirm the apply operation by clicking **Yes** in the question box that appears.
- *To delete all rows containing resources for which an SSU association does not exist*, click the **Delete All** button, then confirm the delete operation by clicking **Continue** in the question box that appears.
- *To cancel all modifications made to the resource listing since the last time **Apply** was clicked*, click the **Revert** button, then choose the pertinent button in the question box that appears.

NOTE

Once **Apply** is clicked, the changes to the database are committed and cannot be undone by clicking **Revert**. If **Exit** is clicked before changes that have been made are applied, a question box appears asking if you want to save the changes that you have made.

4 Click the **Exit** button to close the Inventory dialog box.

5.3.1.2 To Sort Resource Entries for Display in the Inventory Dialog Box

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

The Inventory dialog box provides a sorting function by which resource entries can be sorted into groupings according to the user's preferences. As an example, a sort can take place whereby the resource listing is sorted by serial number, equipment type, etc. You choose the criteria as well as the order in which the criteria are applied.

- 1 Click the **Sort...** button that is in the Inventory dialog box to call up the Sorting Criteria dialog box, then choose the sort criteria in the appropriate sort order.

You can sort on any field in either ascending or descending alphanumeric order. The algorithm sorts first by numbers, then by upper-case alpha characters, then by lower-case alpha characters. The sort-order priority is determined by the top-to-bottom order that the criteria appear in the "Sort" dialog box. For example, during sorting, the field name selected as "1st Field" has a higher sort-order priority than the field name selected as "2nd Field," etc. Note that when sorting on a field in which each item is unique, like the "Serial No" field, lower priority sort-order criteria will basically have no effect on the outcome of the sort.

- 2 Choose the appropriate action:

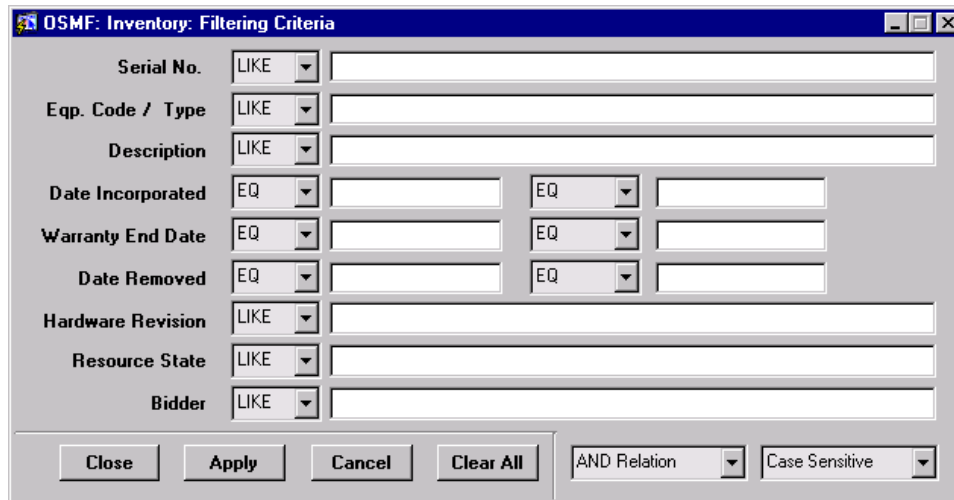
- To apply the sort criteria, click the **Apply** button.
- To apply the sort criteria and close the dialog box, click the **Close** button.
- To close the Sorting Criteria dialog box without applying the sort criteria, click the **Cancel** button.
- To re-set all sort order fields in the Sorting Criteria dialog box to the null (blank) state, click the **Clear All** button.

5.3.1.3 To Display Only Certain Entries Using the Filter Function

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

A variety of filtering criteria can be applied to the resource entries as they are displayed in the Inventory dialog box.

- 1 Click the **Filter...** button that is in the Inventory dialog box to call up the Filtering Criteria dialog box, then choose the desired filtering criteria. The Filtering Criteria dialog box appears as follows:



You can filter on any combination of resource listing fields. Choose the filtering criteria as follows:

- a. Enter the appropriate filter text strings into the entry boxes that adjoin the field names (if an entry box is left blank, no filtering will be applied to the adjoining field). The three date fields each include two entry boxes so that you can define a range of dates on which to filter.
- b. Choose **LIKE** or **EQ** (equal) for the fields on which you are filtering. If **LIKE** is chosen, a field will be rejected *only* if no portion of it contains the filter text string in the adjoining entry box. If **EQ** is chosen, a field will be rejected if it does not match the filter text string in the adjoining entry box character-for-character. The three date fields also contain a **GT.EQ** (greater than or equal to) and **LT.EQ** (less than or equal to) option.
- c. Choose either **AND Relation** or **OR Relation**. If **AND Relation** is chosen, an entry will appear in the resource listing only if none of the entry's fields are rejected by the filtering algorithm. If **OR Relation** is chosen, an entry will appear in the resource listing if any of the entry's fields are *not* rejected by the filtering algorithm.
- d. Choose either **Case Sensitive** or **Ignore Case**.

2 Choose the appropriate action:

- *To apply the filtering criteria, click the **Apply** button.*
- *To apply the filtering criteria and close the dialog box, click the **Close** button.*
- *To close the Filtering Criteria dialog box without applying the filtering criteria, click the **Cancel** button.*
- *To re-set all filtering criteria fields in the Filtering Criteria dialog box to the null (blank) state, click the **Clear All** button. Clicking **Clear All** also sets all “LIKE/EQ” settings to their default values.*

NOTE

The default value for the “LIKE/EQ” settings in the date fields is “EQ.” The default value for the other fields is “LIKE.”

5.4 Resource Associations

5.4.1 The master inventory listing (“resource listing”) in the Inventory dialog box simply shows all of the hardware resources available within the synchronization network. In that dialog box, no provision is made to establish an association between hardware resources and the network elements into which they are contained.

5.4.2 The OSMF software presents two dialog boxes, the Output Card Inventory dialog box and Rack Inventory dialog box, that can be used to establish an association between output cards, IMC cards, ITH cards, or rack frames and SSUs in the network.

5.4.3 Associations are made between output cards and SSUs in the Output Card Inventory dialog box. Likewise, associations are made between IMC cards, ITH cards, or rack frames and SSUs in the Rack Inventory dialog box. These dialog boxes also include filtering and sorting functionality that is similar to the Inventory dialog box. The following figures and accompanying descriptions briefly explain these dialog boxes:

5.4.3.1 Output Card Inventory dialog box

The Output Card Inventory dialog box is used to associate output cards that are included in the master inventory to SSUs in the network:

Output Card Inventory

Listed : 7 Total : 7

Selection Name	Rack Card	card 1		card 2	
		Serial No.	H/W Revision	Serial No.	H/W Revision
246	0 A		HP55482		HP55482
246	0 B		HP55481		HP55481
246	0 E		HP55481		HP55481
NSU-245	0 A	0001	HP55481	0002	HP55481
NSU-245	0 D	0003	HP55482	0004	HP55482
SSU-154	0 A		HP55481		HP55481
SSU-154	0 B		HP55484		HP55484

Legend: 0: Master Sub Rack 1, 2, 3, 4: Expansion Sub-Racks

Buttons: Apply, Filter, Serial No Look Up, Pg Up, Prev, Next, Pg Dn, Revert, Sort, Copy Serial No, Exit



This area of the Output Card Inventory dialog box contains a row for each output card that the OSMF software has detected to exist in the synchronization network. The SSU (Selection Name) as well as the rack and slot (Card) containing the card is shown for a given output card. If you fill in the “Card 1 - Serial No” or “Card 2 - Serial No” entry field with the serial number of an output card resource stored in the inventory database, an association is made between the entry in the database and the SSU (the “Serial No” fields correspond to the two cards in the protected card pair). The hardware revision information is retrieved from the SSU firmware and filled into the appropriate fields.

The area at the top right shows the total number of entries in the database (“Total:”), as well as those currently retrieved as a result of applied filtering criteria (“Listed:”). The count displayed in the “Listed” field increases as the user scrolls down the listing, until the last record entry is retrieved.

The total entries retrieved is subject to the filtering criteria that has been set, as well as the SSUs that had been selected on the map prior to invoking the dialog box. The order in which the entries are displayed is subject to the sort criteria that has been set.

NOTE If there are no output cards associated with the SSUs selected on the map, or if no entries satisfy the filtering criteria set, then entries for all detected output cards for SSUs in the user’s domain will be displayed.



The number of potential entries in the list can exceed the number of entries that can be displayed at any one time. When this is the case, the **Pg Up** (page up), **Prev** (previous line), **Next** (next line), and **Pg Dn** (page down) buttons as well as the vertical scroll bar can be used to view them.



Clicking the **Sort** button calls up a dialog box in which you can choose the order in which entries are displayed in the dialog box. Clicking the **Filter** button calls up a dialog box in which you can choose the filtering criteria that determines which entries are displayed in the dialog box.



When the **Serial No Look Up** button is clicked, a read-only copy of the Inventory dialog box is invoked. This is useful for searching the inventory database for the serial number of the resource for which you are creating an association (the sorting and filtering functions are available in the read-only dialog box). Once the appropriate serial number is located in the read-only Inventory dialog box, you can select (click on) it, then click the **Copy Serial No** button to copy it to the currently selected field of the Output Card Inventory dialog box.

NOTE Try not to open more than one copy of the read-only Inventory dialog box. Doing so might affect system performance.



When clicked, the **Apply** button causes the associations made in the listing to be applied and stored in the database.

Clicking the **Revert** button brings up a question box in which you can restore the current state of the association database for the selected row (by clicking **Revert Current Record**), or restore the current state of the association database to the entire listing (by clicking **Rollback All Changes**). These selections effectively cancel any modifications made to the row or entire listing since the last time **Apply** was clicked. Once **Apply** is clicked, the changes to the database are committed and cannot be undone by clicking **Revert**.

5.4.3.2 Rack Inventory dialog box

The Rack Inventory dialog box is used to associate IMC and ITH cards that are included in the master inventory and the SSUs that contain them:

Selection Name	Rack Serial No	IMC Card			ITH-1 Card			ITH-2 Card		
		Serial No.	H/W Rev.	S/W Rev.	Serial No.	H/W Rev.	S/W Rev.	Serial No.	H/W Rev.	S/W Rev.
246	0		HP55442	R3744E		HP55413	R3744E		HP55413	R3744E
NSU-245	0	1001	HP55442	R3744H	2001	HP55412	R3744H	2002	HP55412	R3744H
SSU-154	0		HP55442	R3833B		HP55412	R3744H		HP55412	R3744H

Legend: 0: Master Sub Rack 1, 2, 3, 4: Expansion Sub-Racks

Buttons: Apply, Revert, Filter..., Sort..., Serial No Look Up, Copy Serial No, Pg Up, Prev, Next, Pg Dn, Exit

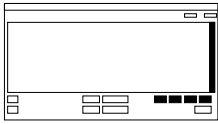


This area of the Rack Inventory dialog box contains a row for each IMC and ITH card that the OSMF software has detected to exist in the synchronization network. The SSU (Selection Name) as well as the rack containing the card is shown for each card. If you fill in the “IMC Card - Serial No.,” “ITH1 Card - Serial No.,” or “ITH2 Card - Serial No.” entry field with the serial number of an IMC or ITH card resource stored in the inventory database, an association is made between the entry in the database and the SSU. The software or hardware revision information is retrieved from the SSU firmware and filled into the appropriate fields.

The area at the top right shows the total number of entries in the database (“Total:”), as well as those currently retrieved as a result of applied filtering criteria (“Listed:”). The count displayed in the “Listed” field increases as the user scrolls down the listing, until the last record entry is retrieved.

The total entries retrieved is subject to the filtering criteria that has been set, as well as the SSUs that had been selected on the map prior to invoking the dialog box. The order in which the entries are displayed is subject to the sort criteria that has been set.

NOTE If there are no rack components associated with the SSUs selected on the map, or if no entries satisfy the filtering criteria set, then entries for all detected rack components for SSUs in the user’s domain will be displayed.



The number of potential entries in the list can exceed the number of entries that can be displayed at any one time. When this is the case, the **Pg Up** (page up), **Prev** (previous line), **Next** (next line), and **Pg Dn** (page down) buttons as well as the vertical scroll bar can be used to view them.



Clicking the **Sort** button calls up a dialog box in which you can choose the order in which entries are displayed in the dialog box. Clicking the **Filter** button calls up a dialog box in which you can choose the filtering criteria that determines which entries are displayed in the dialog box.



When the **Serial No Look Up** button is clicked, a read-only copy of the Inventory dialog box is invoked. This is useful for searching the inventory database for the serial number of the resource for which you are creating an association (the sorting and filtering functions are available in the read-only dialog box). Once the appropriate serial number is located in the read-only Inventory dialog box, you can select (click on) it, then click the **Copy Serial No** button to copy it to the currently selected field of the Rack Inventory dialog box.

NOTE Try not to open more than one copy of the read-only Inventory dialog box. Doing so might affect system performance.



When clicked, the **Apply** button causes the associations made in the listing to be applied and stored in the database.

Clicking the **Revert** button brings up a question box in which you can restore the current state of the association database for the selected row (by clicking **Revert Current Record**), or restore the current state of the association database to the entire listing (by clicking **Rollback All Changes**). These selections effectively cancel any modifications made to the row or entire listing since the last time **Apply** was clicked. Once **Apply** is clicked, the changes to the database are committed and cannot be undone by clicking **Revert**.

5.4.3.3 To Create an Association Between a Resource and an SSU

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

NOTES

Users of the “User” class can view the Output Card Inventory and Rack Inventory dialog boxes, but cannot modify them.

Associations can only be made for resources for which the Date Removed field in the Inventory dialog box is empty (blank).

Associations cannot be made for resources for which the Resource State field in the Inventory dialog box is FAULTY, REPAIR, or UNUSABLE.

Once an association is made with a resource, you will not be able to modify the Eqp. Code/Type and Resource State fields in the Inventory dialog box.

If the SPARE or user-defined Resource State is assigned to a resource in the Inventory dialog box, then an association is made with the resource, the Resource State field in the Inventory dialog box will automatically be forced to INSTALLED.

- 1 Choose the appropriate option from the “Inventory” menu to call up the appropriate dialog box (the “Inventory” menu item is part of the “OSMF” menu):

- *To associate output card resources with SSUs*, choose the **Output Card Inventory** menu option.

The listing area of this dialog box contains entries for output cards that the OSMF software has detected to exist in the synchronization network. Basically, once an SSU is managed, the Output Card Inventory dialog box will contain all information for the output cards it contains except for the serial numbers.

- *To associate IMC cards, ITH cards, or rack frames with SSUs*, choose the **Rack Inventory** menu option.

The listing area of this dialog box contains entries for IMC cards, ITH cards, and rack frames that the OSMF software has detected to exist in the synchronization network. Basically, once an SSU is managed, the Rack Inventory dialog box will contain all information for the IMC cards, ITH cards, and rack frames it contains except for the serial numbers.

The actual entries listed, as well as the order in which they are listed, can be determined by the sort and filtering criteria, which can be modified to suit your needs (refer to the related tasks in this chapter to change the sort and filtering criteria). If the number of current entries exceeds the number of entries that can be displayed in the listing, use the **Pg Up**, **Prev**, **Next**, and **Pg Dn** buttons as well as the vertical scroll bar to view them.

The information contained in the dialog boxes is as follows:

Output Card Inventory Dialog Box Fields

Field	Description
Selection Name	When an SSU is managed, a record for every output card in the SSU is automatically entered into the Output Card Inventory dialog box. For each row (record), this field contains the selection name of the SSU containing the output card to which the row pertains.
Rack	For each row (record), this field shows the rack which contains the output card to which the row pertains. The identifier is 0 if the rack is the master subrack, or 1, 2, or 3 if the rack is one of the expansion subracks (the information in this field is automatically filled in as SSUs are managed).
Card	For each row, this field identifies the card slot containing the output card to which the row pertains. The identifier can be either A, B, C, D, or E (the information in this field is automatically filled in as SSUs are managed).
Card 1 - Serial No	The serial number of the first output card to which the row pertains is entered here by the user. This particular field is for the first output card of the protected output card pair. Once the field is filled in with valid output card serial number information from the inventory database, the association is made.
Card 1 - HW Revision	Hardware revision information is retrieved from the output card firmware and filled into this field when the SSU is managed.
Card 2 - Serial No	The serial number of the second output card to which the row pertains is entered here by the user. This particular field is for the second output card of the protected output card pair. Once the field is filled in with valid output card serial number information from the inventory database, the association is made.
Card 2 - HW Revision	Hardware revision information is retrieved from the output card firmware and filled into this field when the SSU is managed.

Rack Inventory Dialog Box Fields

Field	Description
Selection Name	When an SSU is managed, a record for every IMC card and ITH card in the SSU, as well as its rack frames, is automatically entered into the Rack Inventory dialog box. For each row (record), this field contains the selection name of the SSU containing the resource to which the row pertains.
Rack	For each row (record), this field shows the identifier of the rack which contains the IMC or ITH card, or rack frame to which the row pertains. The identifier is 0 if the rack is the master subrack, or 1, 2, or 3 if the rack is one of the expansion subracks (the information in this field is automatically filled in as SSUs are managed).
Rack Serial No IMC Card Serial No ITH1 Card Serial No ITH2 Card Serial No	The serial number of the specified resource to which the row pertains is entered here by the user. Once the field is filled in with valid serial number information from the inventory database, the association is made.

Rack Inventory Dialog Box Fields

Field	Description
IMC Card S/W Rev ITH1 Card S/W Rev ITH2 Card S/W Rev	The software revision information is retrieved from the resource's firmware and filled into this field when the SSU is managed.
IMC Card H/W Rev ITH1 Card H/W Rev ITH2 Card H/W Rev	The hardware revision information is retrieved from the resource's firmware and filled into this field when the SSU is managed.

- 2 Enter the serial numbers, as appropriate, to associate the inventory resources (output cards, IMC cards, ITH cards, and rack frames) with SSUs.

When serial numbers that have been assigned to a resource are entered in the serial number fields in the Output Card Inventory or Rack Inventory dialog box, the OSMF software makes an association between the resource entry in the inventory database and the particular resource within the SSU.

NOTE

As an alternative to entering the serial numbers into the dialog box, you can click the **Serial No Look Up** button. This button invokes a read-only copy of the Inventory dialog box, in which you can search the inventory database for the serial number of the resource for which you want to create an association. The sorting and filtering functions are available in this read-only copy of the dialog box. Once the appropriate serial number is located in the read-only Inventory dialog box, you can select (click on) it, click the field to which you want to copy the serial number, then click the **Copy Serial No** button to copy it to the field.

- 3 Choose the appropriate action:
 - *To apply the associations*, click the **Apply** button, then click **Yes** in the question box that appears.
 - *To cancel all associations made since the last time **Apply** was clicked*, click the **Revert** button, then choose the pertinent button in the question box that appears.

NOTES

Once the associations are applied, they are committed and cannot be undone by clicking **Revert**.

Once an association has been made in the Output Card Inventory or Rack Inventory dialog box, it will be shown in the Inventory dialog box when the resource entry row is selected.

If the SPARE or a user-defined resource state is assigned to a resource in the Inventory dialog box, and an association is subsequently made with the resource, the Resource State field in the Inventory dialog box will automatically be forced to INSTALLED.

- 4 Click the **Exit** button to close the dialog box.

Resource Association Example

In the following example, an association will be created between two output cards that have been entered into the inventory database, and a slot in an SSU which contains these output cards.

- Once resources have been entered into the inventory database, they appear in the Inventory dialog box when it is invoked. Consider that two output cards, with serial numbers “oc243” and “oc244” have been entered into the inventory database, and therefore appear in the Inventory dialog box, as shown here:

Serial No.	Eqn. Code/Type	Description	Date Incorporated	Warranty End Date	Date Removed	Hardware Revision	Resource State	Bidder
oc243	OUTPUT_CARD	2048 MHz Output	14-DEC-1998	14-DEC-2003		oc_rev_2.03	INSTALLED	HP
oc244	OUTPUT_CARD	2048 MHz Output	14-DEC-1998	14-DEC-2003		oc_rev_2.03	INSTALLED	HP

NOTE

If the Resource State field shows “INSTALLED” and no association exists, the card was previously installed.

Note that there is no information in the above figure to suggest an association between the cards shown and their placement in an SSU.

- When an SSU is managed, the SSU reports important information on all of its component boards, and the OSMF software automatically creates appropriate entries into the Output Card Inventory and Rack Inventory dialog boxes. Consider that an SSU, with the selection name of “SSU-249,” is managed. The OSMF software automatically creates entries for the SSU’s components in the Output Card Inventory and Rack Inventory dialog boxes, including an entry for the output cards in card slot “A” of rack “0” (the master subrack), as shown here:

Selection Name	Rack	Card	card 1		card 2	
			Serial No.	H/W Revision	Serial No.	H/W
SSU-249	0	A		HP55482		HP55
SSU-249	0	B		HP55482		HP55

Note that although the entry in the above figure shows the SSU name, rack, card slot, and hardware revision information for the output cards, it does not yet show an association with the inventory database as the “Serial No” fields are empty.

- To create the association, as between the output cards with serial numbers “oc243” and “oc244” and SSU-249, the serial numbers are entered into the Output Card Inventory dialog box, as shown below:

Selection Name	Rack	Card	card 1		card 2	
			Serial No.	H/W Revision	Serial No.	H/W
SSU-249	0	A	oc243	HP55482	oc244	HP55
SSU-249	0	B		HP55482		HP55

Once the serial numbers have been entered and applied, the association is created. The lines shown in the above example illustrate an association between SSU-249, rack 0 (the master subrack), card slot A-1 and the output card with serial number “oc243.” It likewise illustrates an association between SSU-249, rack 0, card slot A-2 and the output card with serial number “oc244.”

5.4.3.4 To Remove an Association Between a Resource and an SSU

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

NOTES

Users of the “User” class can view the Output Card Inventory and Rack Inventory dialog boxes, but cannot modify them.

- 1 Choose the appropriate option from the “Inventory” menu to call up the appropriate dialog box (the “Inventory” menu item is part of the “OSMF” menu):
 - *To remove an association between output cards and SSUs, choose the **Output Card Inventory** menu option.*
 - *To remove an association between IMC cards, ITH cards, or rack frames and SSUs, choose the **Rack Inventory** menu option.*
- 2 Delete the serial number data, as appropriate, to remove the association between the resources (output cards, IMC cards, ITH cards, and rack frames) and SSUs. Once a serial number field is deleted and the change is applied, the association is removed.
- 3 Choose the appropriate action:
 - *To apply the changes, click the **Apply** button, then click **Yes** in the question box that appears.*
 - *To cancel all changes made since the last time **Apply** was clicked, click the **Revert** button, then choose the pertinent button in the question box that appears.*

NOTE

Once the association removal operations are applied, they are committed and cannot be undone by clicking **Revert**.

- 4 Click the **Exit** button to close the dialog box.

5.4.3.5 To Sort Entries for Display in the Output Card Inventory or Rack Inventory Dialog Box

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

The Output Card Inventory and Rack Inventory dialog boxes provide a sorting function by which entries can be sorted into groupings according to the user's preferences. As an example, a sort can take place whereby the listing is sorted by rack, serial number, etc. You choose the criteria as well as the order in which the criteria are applied.

- 1 Click the **Sort** button that is in the dialog box to call up the Sorting Criteria dialog box, then choose the sort criteria in the appropriate sort order.

You can sort on any field, except for the "Selection Name" field, in either ascending or descending alphanumeric order. The algorithm sorts first by numbers, then by upper-case alpha characters, then by lower-case alpha characters. The sort-order priority is determined by the top-to-bottom order that the criteria appear in the Sort dialog box. For example, during sorting, the field name selected as "1st Field" has a higher sort-order priority than the field name selected as "2nd Field," etc. Note that when sorting on fields in which each item is unique, like the serial number fields, lower priority sort-order criteria will basically have no effect on the outcome of the sort.

- 2 Choose the appropriate action:

- *To apply the sort criteria*, click the **Apply** button.
- *To apply the sort criteria and close the dialog box*, click the **Close** button.
- *To close the Sorting Criteria dialog box without applying the sort criteria*, click the **Cancel** button.
- *To re-set all sort order fields in the Sorting Criteria dialog box to the null (blank) state*, click the **Clear All** button.

5.4.3.6 To Display Only Certain Entries Using the Filter Function

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

A variety of filtering criteria can be applied to the entries as they are displayed in the Output Card Inventory and Rack Inventory dialog boxes.

- 1 Click the **Filter** button that is in the dialog box to call up the Filtering Criteria dialog box, then choose the desired filtering criteria.

You can filter on any combination of fields. Choose the filtering criteria as follows:

- a. Enter the appropriate filter text strings into the entry boxes that adjoin the field names (if an entry box is left blank, no filtering will be applied to the adjoining field).
- b. Choose **LIKE** or **EQ** (equal) for the fields on which you are filtering. If **LIKE** is chosen, a field will be rejected *only* if no portion of it contains the filter text string in the adjoining entry box. If **EQ** is chosen, a field will be rejected if it does not match the filter text string in the adjoining entry box character-for-character.
- c. Choose either **AND Relation** or **OR Relation**. If **AND Relation** is chosen, an entry will appear in the dialog box listing only if none of the entry's fields are rejected by the filtering algorithm. If **OR Relation** is chosen, an entry will appear in the dialog box listing if any of the entry's fields are *not* rejected by the filtering algorithm.
- d. Choose either **Case Sensitive** or **Ignore Case**.

- 2 Choose the appropriate action:

- *To apply the filtering criteria*, click the **Apply** button.
- *To apply the filtering criteria and close the dialog box*, click the **Close** button.
- *To close the Filtering Criteria dialog box without applying the filtering criteria*, click the **Cancel** button.
- *To re-set all filtering criteria fields in the Filtering Criteria dialog box to the null (blank) state*, click the **Clear All** button. Clicking **Clear All** also sets all "LIKE/EQ" settings to their default value, which is "LIKE."

6.1 Overview

6.1.1 To control access to and protect the integrity of the OSMF system as well as the synchronization network resources, the OSMF software has implemented the concept of Security Management.

Security Management has been implemented in the OSMF software through the use of *user administration*, *user classes*, and *management domains*.

6.1.1.1 User Administration

The following describes two categories of users related to the OSMF product and element management:

- **OSMF System Users** - These users are set up on the OSMF system. They have the ability to use some or all of the functionality afforded by the OSMF software. OSMF system users are assigned to a user class which dictates their level of access to the OSMF software's functionality.

When the OSMF software is installed, a system user with the user name "svroot" is automatically created in the "Security" user class (refer to *User Classes*, below). No other users can access the system until they have been expressly created by this user. Each user is assigned a login name, password, and user class (also referred to as an "access level"), when they are created by the security-class user.

OSMF User Administration is explained in detail in the *55451A Open Synchronization Management Framework Software System Administrator's Guide*.

- **SSU Users** - These users are created locally on a given SSU. SSU users are allowed local access only to SSUs on which they are created. They have the ability to command the SSU using a local interface or TL1 commands. Like OSMF system users, SSU users are assigned to a user class which dictates their level of access to the SSU. This chapter includes information on SSU user administration.

6.1.1.2 User Classes

NOTE

The following section explains user classes for system users. Similar user classes exist for SSU users.

Three *user classes* are defined for the OSMF system. A user class defines the level of capability that a user is granted when using the system. In the OSMF system, all potential users of the system are assigned to one of three user classes: the "User" class (svusr), the "Administrator" class (svadm), and the "Security" class (svsec).

NOTE

The current version of the OSMF software supports up to five simultaneous user sessions.

The OSMF software supports only one user of the "Security" class (svsec). This user, which has the user name of "svroot," is created when the OSMF software is installed.

The following table explains the general capabilities granted to users of each user class:

User Class	Capabilities (General)
User	Users in this user class can view the network map as well as view the synchronization management information in the Alarm Viewer, Event History Log, Performance Monitor, Inventory, and configuration dialog boxes. Users in this class can also create and print event and performance reports.
Administrator	Users in this user class have all of the capabilities of the “User” class, and can additionally modify the inventory database and current configuration of SSUs, and create or delete sync trails.
Security	Users in this user class have all of the capabilities of the “User” and “Administrator” classes, and can modify the network topology, manage default SSU configurations and manage or unmanage SSUs, view the transaction log and produce transaction log reports, download firmware upgrades to SSUs, set the date and time on SSUs, create users on SSUs, and configure management domains for users.

In addition, the Security-class user can restrict users of the “User” and “Administrator” classes to perform the tasks that fall within their level of capability only on an individual network element, location, or network basis. This is the concept of *management domains*.

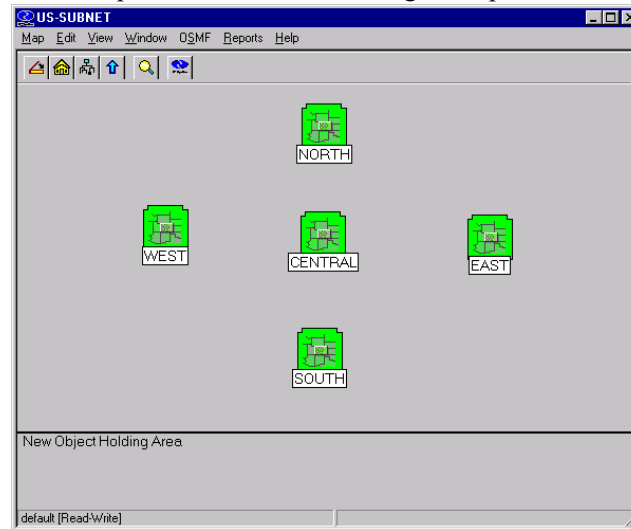
6.1.1.3 Management Domains

NOTE

Management Domains are available only in the Deluxe Edition of the OSMF software. In the Standard Edition of the OSMF software, any valid OSMF user can perform management activities on any SSU, as long as the given management activity is within the level of capability dictated by the user’s user class.

A *management domain* specifies which SSUs a given user has permission to access. Management domains are set up and administered by the Security-class user.

To further illustrate the concept, consider the following example.



The above map, which represents a large synchronization network, consists of containers for five regional sub-maps, labeled “North,” “South,” “East,” “West,” and “Central.” Assume that the OSMF system on which the above map resides has four users: one Security-class user (which is mandatory), one user “svadm” of the Administrator class, and two users “svusr1” and “svusr2” of the User class. The management domains *could* be set up as follows:

- The Administration-class user (svadm) having management capability for all SSUs, that is, SSUs in all sub-maps.
- One User-class user (svusr1) having management capability for all of the SSUs in the “North” and “South” sub-maps, plus half of the SSUs in the “Central” sub-map.
- The other User-class user (svusr2) having management capability for all of the SSUs in the “East” and “West” sub-maps, plus the other half of the SSUs in the “Central” sub-map.

The Security-class user (user name “svroot”) has full management capability for all SSUs. This management domain for this user cannot be modified.

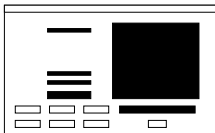
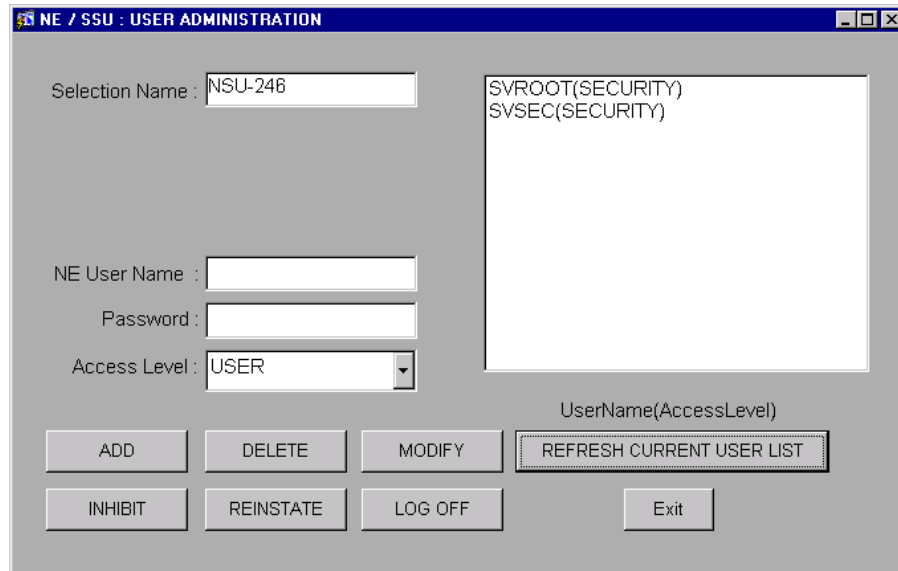
6.2 In This Chapter

6.2.1 This chapter contains the following sections:

- **SSU User Administration** - creating, modifying, and deleting SSU users, and changing an SSU user’s ability to access (log into) an SSU.
- **Management Domains** - creating, viewing, and modifying management domains for users.

6.3 SSU User Administration

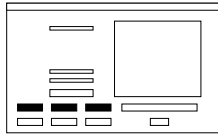
6.3.1 In order for a user to access a given SSU via an alternate interface (such as a local terminal interface), a login for that user must first exist on the SSU. The OSMF software contains functionality that allows you to administer SSU users remotely via the OSMF system. SSU user administration takes place within the “NE/SSU : User Administration” dialog box. The following figure and accompanying descriptions briefly explain the “NE/SSU : User Administration” dialog box:



The user list on the right side of the dialog box shows all of the users currently existing on the SSU shown in the “Selection Name” field. You can enter the selection name of any managed or previously managed SSU into the “Selection Name” field, and then click the **Refresh Current User List** button to display the users for that SSU in the user list (the **Refresh Current User List** button can be clicked at any time to refresh the user list).

The “NE User Name,” “Password,” and “Access Level” fields are used when adding a user or modifying a user’s profile. If an existing user is selected in the user list, that user’s name and access level will appear in the appropriate fields.

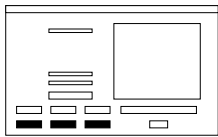
NOTE Up to nine users can exist on an SSU simultaneously.



The **Add** button is used to create (add) a new user on the selected SSU. In order to add a user, you must enter a login name, password, and access level for the user, then click **Add**.

Once a user has been created on an SSU, you can modify the user's access level using the **Modify** button. In order to modify the access level, select the user's name in the user list, modify the access level as is appropriate, then click **Modify**.

You can delete a user from the SSU by selecting the user's name in the user list, then clicking the **Delete** button.



The **Inhibit** button is used to prevent a user from accessing the SSU. Once this action is taken, the user can no longer log into the SSU until the **Reinstate** button is used to reinstate the user.

NOTE If the user is logged into the SSU when **Inhibit** is clicked, the inhibit operation will be denied by the system.

The **Log Off** button is used to immediately log the selected user off of the SSU. Unlike the **Inhibit** button, a user that is logged off of the SSU through use of the **Log Off** button will retain log in permission.

6.3.1.1 To Create a User on an SSU

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 On the synchronization network map, click on (select) the symbol for the SSU on which you want to create a user.

NOTE

The SSU symbol you select does not have to be currently managed, however, it must have been managed at least once.

When you click on the SSU symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

- 2 Choose the **SSU User Admin** menu item from the “Administration” menu to call up the “NE/SSU : User Administration” dialog box (the “Administration” menu item is part of the “OSMF” menu).
- 3 Click the **Refresh Current User List** button in the dialog box.

When the **Refresh Current User List** button is clicked, the users that currently have logins on the selected SSU are shown in the user list on the right side of the dialog box. Note that after the dialog box is invoked, you can choose any other SSU by entering its name into the “Selection Name” field, and then clicking the **Refresh Current User List** button.

- 4 Enter the following information into the “NE/SSU : User Administration” dialog box:

Field	Description
NE User Name	The login name for the user. The login name can be up to ten alphanumeric characters. It <i>is not</i> case sensitive.
Password	The user’s password. The password can be three to ten characters in length, at least two of which cannot be letters of the alphabet. Also, at least one special character must be included in the password (a special character is any printing character other than a letter of the alphabet, a number, comma, colon, or semicolon). The password <i>is</i> case sensitive.

Field	Description
Access Level	<p>The access level (user class) for the user. There are three access levels for SSU users (these are similar to the access levels for system users):</p> <ul style="list-style-type: none"> • <i>User</i> - Users at this access level can issue SSU commands that are involved in the retrieval of information. • <i>Administrator (Admin)</i> - Users at this access level can issue SSU commands that are involved in changing of the SSU's configuration. They also have the privileges afforded by the User class. • <i>Security</i> - Users at this access level can issue SSU commands that are involved in modification of the SSU's Security Database, and firmware downloads. They also have the privileges afforded by the User and Administrator classes.

- 5 Click the **Add** button to create the user, then click the **Exit** button if desired to close the “NE/SSU : User Administration” dialog box.

6.3.1.2 To Delete a User from an SSU

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 On the synchronization network map, click on (select) the symbol for the SSU on which you want to delete a user.

NOTE

The SSU symbol you select does not have to be currently managed, however, it must have been managed at least once.

When you click on the SSU symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

- 2 Choose the **SSU User Admin** menu item from the “Administration” menu to call up the “NE/SSU : User Administration” dialog box (the “Administration” menu item is part of the “OSMF” menu).
- 3 Click the **Refresh Current User List** button in the dialog box.

When the **Refresh Current User List** button is clicked, the users that currently have logins on the selected SSU are shown in the user list on the right side of the dialog box. Note that after the dialog box is invoked, you can choose any other SSU by entering its name into the “Selection Name” field, and then clicking the **Refresh Current User List** button.

- 4 In the user list area of the dialog box, click on (select) the name of the user that you want to delete.

NOTE

In the next step, no warning or confirmation box is presented prior to deletion of the user.

- 5 Click the **Delete** button to delete the user, then click the **Exit** button if desired to close the “NE/SSU : User Administration” dialog box.

6.3.1.3 To Change an SSU User’s Access Level and Password

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 On the synchronization network map, click on (select) the symbol for the SSU on which you want to change the user’s access level.

NOTE

The SSU symbol you select does not have to be currently managed, however, it must have been managed at least once.

When you click on the SSU symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

- 2 Choose the **SSU User Admin** menu item from the “Administration” menu to call up the “NE/SSU : User Administration” dialog box (the “Administration” menu item is part of the “OSMF” menu).
- 3 Click the **Refresh Current User List** button in the dialog box.

When the **Refresh Current User List** button is clicked, the users that currently have logins on the selected SSU are shown in the user list on the right side of the dialog box. Note that after the dialog box is invoked, you can choose any other SSU by entering its name into the “Selection Name” field, and then clicking the **Refresh Current User List** button.

- 4 In the user list area of the dialog box, click on (select) the name of the user for which you want to change the access level and password.

The user’s current login name and access level will appear in the appropriate fields in the dialog box

- 5 Change the user’s access level and password as is appropriate in the “Access Level” and “Password” fields.

NOTE

To change just the access level, you must *re-enter* the password, even if you do not intend to change the password.

There are three access levels (user classes) from which to choose. The three access levels - User, Administrator, and Security - are explained in the task *To Create a User on an SSU*, above.

- Click the **Modify** button to cause the change to take place, then click the **Exit** button if desired to close the “NE/SSU : User Administration” dialog box.

6.3.1.4 To Inhibit an SSU User from Future Log-Ins

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

In some instances, it might be necessary to suspend a user’s permission to access an SSU, without deleting that user from the SSU. The following procedure explains how to do this:

- On the synchronization network map, click on (select) the symbol for the SSU on which you want to change the user’s login permission.

NOTE

The SSU symbol you select does not have to be currently managed, however, it must have been managed at least once.

When you click on the SSU symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

- Choose the **SSU User Admin** menu item from the “Administration” menu to call up the “NE/SSU : User Administration” dialog box (the “Administration” menu item is part of the “OSMF” menu).
- Click the **Refresh Current User List** button in the dialog box.

When the **Refresh Current User List** button is clicked, the users that currently have logins on the selected SSU are shown in the user list on the right side of the dialog box. Note that after the dialog box is invoked, you can choose any other SSU by entering its name into the “Selection Name” field, and then clicking the **Refresh Current User List** button.

- In the user list area of the dialog box, click on (select) the name of the user for which you want to change the login permission.

The user’s current login name and access level will appear in the appropriate fields in the dialog box

NOTES

If a user’s login permission is currently denied, then that user’s access level will be shown as (DISABLED) in the user list area of the dialog box.

The login permission of the “svsec” user cannot be changed.

- 5 Click either the **Inhibit** or **Reinstate** button as appropriate to change the user’s login permission.

Use the **Inhibit** button to inhibit the user from logging on to the SSU. Once the **Inhibit** button is clicked, the user will not be able to log into the SSU until his or her login permission is reinstated through use of the **Reinstate** button.

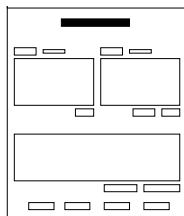
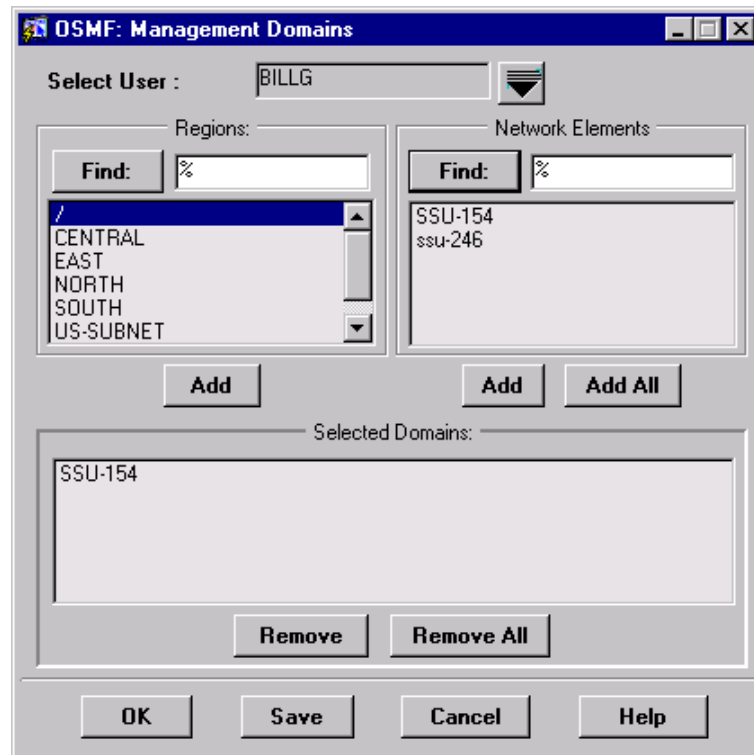
NOTE


If the user is logged into the SSU when **Inhibit** is clicked, the inhibit operation will be denied by the system. If the inhibit operation is denied, click the **Log Off** button first to log the user off of the SSU, then click the **Inhibit** button.

- 6 Click the **Exit** button if desired to close the “NE/SSU : User Administration” dialog box.

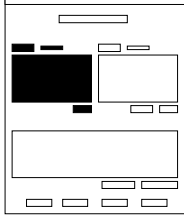
6.4 Management Domains

6.4.1 The creation, viewing, and modification of management domains takes place within the “Management Domains” dialog box. The following figure and accompanying descriptions briefly explain the “Management Domains” dialog box:



The user name that appears in the “Select User” field is the user to which the management domain pertains. Clicking the “down-arrow” () symbol adjacent to the field calls up a sub-box in which you can select a user from a scrollable list of users, or if the list is long, use a find function to search for a user name. Clicking **OK** in the sub-box sets the user name selected in the scrollable list as the user to which the management domain pertains.

NOTE If, after making changes, you attempt to change the user name in the “Select User” field before clicking the **Save** button, you will be prompted to save the changes.



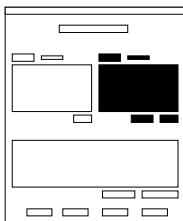
This scroll box (“Regions”) shows the names of all containers within the network topology. If the list of containers is long, the **Find** function can be used to search for a specific container or subset of containers. When a container name is selected in the list, the names of all of the SSU symbols contained within it appear in the “Network Elements” list. If **Add** is clicked, any container name selected in the list is added to the “Selected Domains” list.

NOTES

This list will only display those locations (containers) that had been created before the “Management Domains” dialog box was invoked.

If a container contains ghost SSU symbols, the ghost symbols *will not* appear in the “Network Elements” list when the container name is selected.

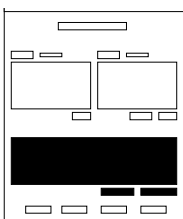
If a container is selected in the container list, then added to the user’s management domain, the user will have access to all SSUs under that container.



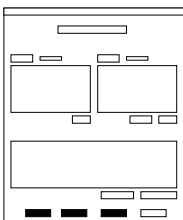
This scroll-box (“Network Elements”) shows the names of all of the SSUs contained within the container whose name is selected in the “Regions” list. If the list of SSUs is long, the **Find** function can be used to search for a specific SSU or subset of SSUs. If **Add** is clicked, any SSU name selected in the list is added to the “Selected Domains” list, or clicking **Add All** will add all of the SSU names in the list to the “Selected Domains” list.

NOTE

Ghost symbols do not appear in the “Network Elements” list.



The container and SSU names that appear here represent the management domain of the user shown in the “Select User” field. The specified user will have permission to manage SSUs whose names or container names appear in this list, and *will not* have permission to manage any SSUs that do not appear in this list. Selecting an item in the list and clicking **Remove** will delete it from the list, or clicking **Remove All** will remove all items from the list.



Clicking **OK** will save any modifications made in the management domain for the specified user and close the dialog box. Clicking **Save** will save modifications made to the user’s management domain, but will not close the dialog box. Clicking **Cancel** will close the dialog box without saving any modifications made to the management domain since the last save.

6.4.1.1 To Create or Modify the Management Domain for a User


Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

When set up, the *management domain* specifies which SSUs a given user of the “User” or “Administrator” class has permission to manage. The following procedure explains how to create, view, or modify the management domain for a user.

- 1 Choose the **Management Domains** option from the “Administration” menu to call up the “Management Domains” dialog box (the “Administration” menu item is part of the “OSMF” menu).

NOTE

There can be no more than one “Management Domains” dialog box opened at a time per OVW session.

- 2 Click the “down-arrow” () symbol adjacent to the “Select User” field to invoke a “find” sub-box in which you can select the user for which you want to create or modify the management domain:
 - a. Select (click on) the user from the scrollable list of users in the sub-box, or if the list is long, use the **Find** button in the sub-box to search for the user’s name.
 - b. Click **OK** in the sub-box to set the user name selected in the scrollable list as the user to which the management domain pertains.

The container and SSU names that appear in the “Selected Domains” list now represent the current management domain of the selected user.

- 3 Modify the user’s management domain, as appropriate:
 - *To add a container to the user’s management domain*, select the name of the container in the “Regions” list, then click the associated **Add** button.
When a container is added to a user’s management domain, the user will have permission to manage all current and future SSUs that are contained within the container, or any SSUs within any containers under it.
 - *To add all of the SSUs currently listed in the “Network Elements” list to the user’s management domain*, select the name of the container in the “Regions” list which contains the SSUs, then click the **Add All** button that is under the “Network Elements” list. Now you can use the **Remove** button to selectively remove certain SSUs from the user’s management domain.

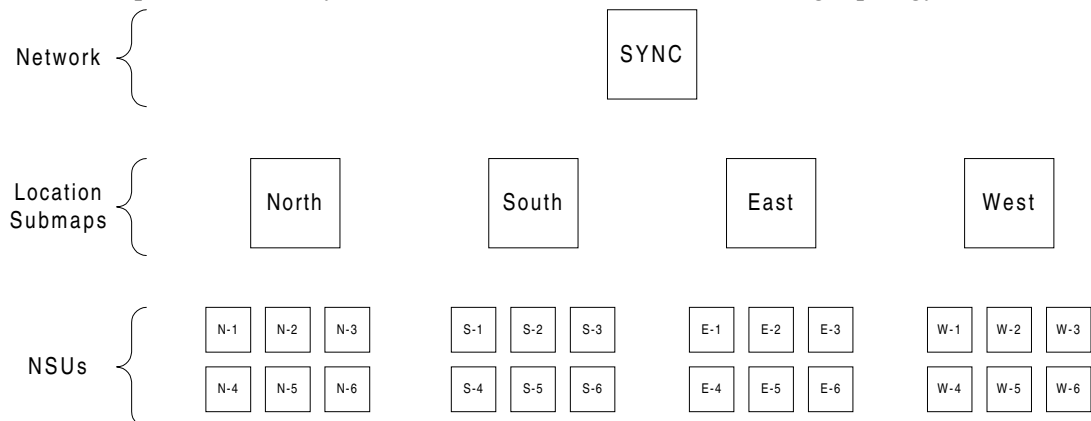
- *To add individual SSUs to the user's management domain, select the name of the container in the "Regions" list which contains the SSU, then select the SSU name in the "Network Elements" list, and click the associated **Add** button.*
- *To delete items from the user's management domain, select the item in the "Selected Domains" list, then click the **Remove** button. To delete all of the items from the list, click the **Remove All** button.*

4 Choose the appropriate action:

- *To save any modifications made the user's management domain and close the "Management Domains" dialog box, click the **OK** button.*
- *To save modifications made to the user's management domain, but not close the dialog box, as when you still wish to view or modify the management domains of other users, click the **Save** button.*
- *To close the dialog box without saving any modifications made to the management domain since the last save, click the **Cancel** button.*

Management Domain Example

For this example, consider a synchronization network with the following topology structure:



The Security-class user (user name “svroot”) needs to create the management domains shown in the following table for four users, named “svadm1,” “svadm2,” “svusr1,” and “svusr2.” The process shown in the “Process” column of the table can be used to create the domains:

User Name	Management Domain	Process (done in “Administration:Management Domains” dialog box)
svadm1	Location Submap “North” Location Submap “South”	<ul style="list-style-type: none"> • Under “Select User,” choose “svadm1.” • Select “North” in the “Regions” list, then click Add. • Select “South” in the “Regions” list, then click Add. • Click Save
svadm2	Location Submap “East” Location Submap “West”	<ul style="list-style-type: none"> • Under “Select User,” choose “svadm2.” • Select “East” in the “Regions” list, then click Add. • Select “West” in the “Regions” list, then click Add. • Click Save
svusr1	Location Submap “North” Location Submap “South” SSUs “E-1,” “E-2,” and “E-3”	<ul style="list-style-type: none"> • Under “Select User,” choose “svusr1.” • Select “North” in the “Regions” list, then click Add. • Select “South” in the “Regions” list, then click Add. • Select “East” in the “Regions” list. • Select “E-1” in the “Network Elements” list, then click Add. • Select “E-2” in the “Network Elements” list, then click Add. • Select “E-3” in the “Network Elements” list, then click Add. • Click Save
svusr2	Location Submap “East” Location Submap “West” SSUs “S-1,” “S-2,” and “S-3”	<ul style="list-style-type: none"> • Under “Select User,” choose “svusr2.” • Select “East” in the “Regions” list, then click Add. • Select “West” in the “Regions” list, then click Add. • Select “South” in the “Regions” list. • Click Add All. • Select “S-4” in the “Selected Domains” list, then click Remove. • Select “S-5” in the “Selected Domains” list, then click Remove. • Select “S-6” in the “Selected Domains” list, then click Remove. • Click Save

Note in the above table that a somewhat different process was used to create similar domains for users “svusr1” and “svusr2:”

- For both of these users, locations were added to the domains simply by selecting their selection names in the “Regions” list, and clicking **Add**.
- For user “svusr1,” individual SSUs were added to the domain by selecting their selection names individually in the “Network Elements” list, and clicking **Add**. This is one strategy for adding selected SSUs to a user’s management domain.
- For user “svusr2,” all of the SSUs in a location were added to the domain by clicking **Add All**, then the undesired ones were selected and removed from the management domain using the **Remove** button. This is an alternate strategy for adding selected SSUs to a user’s management domain. This strategy is particularly useful if a container holds numerous SSUs, and you desire all but a few of them to be in the user’s management domain.

7.1 Overview

7.1.1 The OSMF software provides the ability to view or modify the configuration of any SSU that is being managed by the system. The current settings of an SSU can be changed individually, or the entire set of configuration settings can be changed as the SSU is being managed or remanaged. The set of configuration settings is known as a *default configuration*, and several default configurations can be created and stored in the database for subsequent downloading to SSUs.

The OSMF software also provides the ability to download firmware upgrades to the EEPROMS on the various cards within a specified NSU.

7.2 User Classes

To control access to and protect the integrity of the system, three *user classes* are defined for the OSMF system. A user class defines the level of capability that a user is granted when using the system. In the OSMF system, all potential users of the system are assigned to one of three user classes: the “User” class (svusr), the “Administrator” class (svadm), and the “Security” class (svsec).

NOTES

The current version of the OSMF software supports up to five simultaneous user sessions.

The OSMF software supports only one user of the “Security” class (svsec). This user, which has the user name of “svroot,” is created when the OSMF software is installed.

The following table explains the general capabilities granted to users of each user class. User classes that have permission to perform a given procedure in this chapter are listed at the beginning of the procedure:

User Class	Capabilities (General)
User	Users in this user class can view the network map as well as view the synchronization management information in the Alarm Viewer, Event History Log, Performance Monitor, Inventory, and configuration dialog boxes. Users in this class can also create and print event and performance reports.
Administrator	Users in this user class have all of the capabilities of the “User” class, and can additionally modify the inventory database and current configuration of SSUs, and create or delete sync trails.
Security	Users in this user class have all of the capabilities of the “User” and “Administrator” classes, and can modify the network topology, manage default SSU configurations and manage or unmanage SSUs, view the transaction log and produce transaction log reports, download firmware upgrades to SSUs, set the date and time on SSUs, create users on SSUs, and configure management domains for users.

In addition, the Security-class user can restrict users of the “User” and “Administrator” classes to perform the tasks that fall within their level of capability only on an individual network element, location, or network basis. This is the concept of *management domains*.

7.3 Management Domains

NOTE

Management Domains are available only in the Deluxe Edition of the OSMF software. In the Standard Edition of the OSMF software, any valid OSMF user can perform management activities on any SSU, as long as the given management activity is within the level of capability dictated by the user’s user class.

A *management domain* specifies which SSUs a given user has permission to access. Management domains are set up and administered by the Security-class user. For more detailed information on management domains, refer to the chapter entitled *Security Management* in this guide.

7.4 In This Chapter

7.4.1 The information in this chapter can be referenced when performing configuration management operations using the OSMF Software. The following sections are included in this chapter:

7.4.1.1 Managing the Current Configuration of SSUs

This section explains how to view or modify the current configuration settings of an SSU.

7.4.1.2 Managing Default Configurations

This section explains how to manage (create, modify, or delete) default configurations for SSUs.

NOTE

Managing and remanaging SSUs using the default configurations is explained in the chapter entitled *Working with Synchronization Maps* in this guide.

7.4.1.3 SSU Firmware Upgrades

This section explains how to download firmware upgrades to SSUs using the OSMF software.

7.4.1.4 Settings Categories

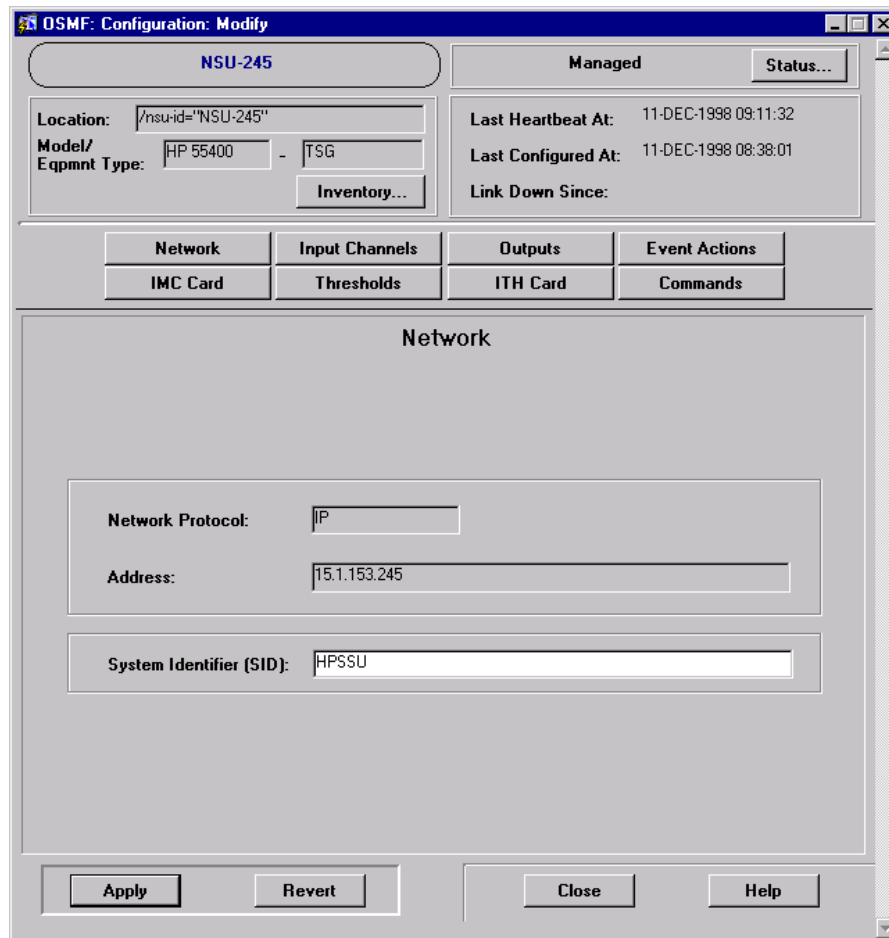
This section explains the configurable SSU parameters that can be modified. The range and default value of each setting is shown where applicable.

7.5 Managing the Current Configuration of SSUs

7.5.1 The OSMF software provides two dialog boxes to aid in managing the current configuration of SSUs. The "Configuration:Modify" dialog box is used for modifying the current configuration of a specified SSU, and the "Configuration:View" dialog box is used for viewing the current configuration of the SSU.

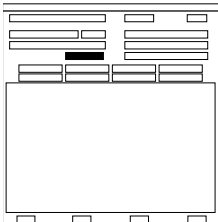
The figure below shows the "Configuration:Modify" dialog box. The "Configuration:View" dialog box is essentially identical, except that you cannot modify SSU settings from within it.

The upper portion of the dialog box shows some basic information about the chosen SSU, such as its selection name, management status, location, etc., and contains eight *context-switch buttons* that determine the character of the lower portion of the dialog box. In the following figure, the "Network" context-switch button has been selected:



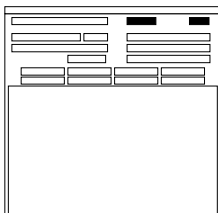


The name of the selected SSU as well as its location is shown here. This area also indicates the SSU's model number and equipment type. These fields cannot be edited; they reflect the SSU that is selected on the synchronization map when the dialog box is called up.



The **Inventory...** button can be clicked to call up a read-only copy of the "Rack Inventory" dialog box. When invoked this way, the "Rack Inventory" dialog box will only contain entries that are pertinent to the selected SSU. Refer to the chapter entitled *Inventory Management* for more information on the "Rack Inventory" dialog box.

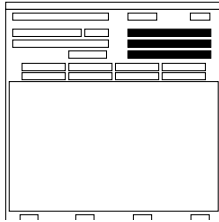
NOTE If the "Rack Inventory" dialog box is invoked using this button, you must close it before you can continue using the "Configuration:Modify" dialog box.



The management status of the selected SSU is shown here. To modify configuration parameters, the status of the selected SSU must be shown as "Managed."

The **Status...** button can be clicked to call up the "Network Element Status" dialog box for the selected SSU. Refer to the chapter entitled *Fault Management* for more information on the "Network Element Status" dialog box.

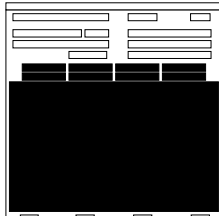
NOTE If the "Network Element Status" dialog box is invoked using this button, you must close it before you can continue using the "Configuration:Modify" dialog box.



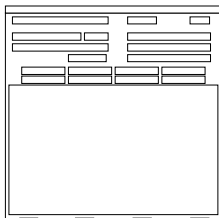
The OSMF software uses a heartbeat task to check the status of the link between the OSMF system and each SSU. “Last Heartbeat At” shows the time and date when the last heartbeat was sent to the selected SSU prior to invoking the dialog box (in the current version of the OSMF software, the heartbeat is sent to all SSUs every 20 seconds).

The time and date when the selected SSU was last configured is shown under “Last Configured At.” If an SSU does not respond to a heartbeat, the OSMF software determines the SSU to be unavailable, and sets the color of its map symbol to blue. In this case, when the Configuration:View dialog box is called up, the time and date that the link went down will be shown under “Link Down Since” (when connectivity to the SSU is intact, the “Link Down Since” field is blank).

NOTE The Configuration:Modify dialog box cannot be invoked while the SSU is unavailable.



The eight context-switch buttons (**Network**, **Input Channels**, **Outputs**, **Event Actions**, **IMC Card**, **Thresholds**, **ITH Card**, and **Commands**) can be clicked to determine the category of configuration settings that can be modified in the lower portion of the dialog box. The section entitled *Settings Categories* in this chapter explains the eight categories of settings.



The **Apply** button can be clicked to cause configuration changes made in the bottom portion of the dialog box to take effect. Clicking the **Revert** button restores the configuration changes to those stored in the database, effectively cancelling changes that were made previous to clicking **Apply**. Note that the **Revert** button applies only to the current screen; once a context switch takes place, changes made to the previous category cannot be undone.

NOTE If you modify a parameter, click **Apply**, and the modification is not accepted (as can happen when the command is invalid, such as when a setting is out of range), the background of the field will turn yellow. In this case, you can either enter the correct parameter, or click **Revert** to restore the previous setting.

7.5.1.1 To View the Current Configuration Settings of an SSU

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input checked="" type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 On the synchronization map, click on (select) the symbol for the SSU that you want to view.

When you click on the SSU symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

- 2 Choose the **View** option from the “Configuration” menu to call up the "Configuration:View" dialog box (the “Configuration” menu item is part of the “OSMF” menu).

The "Configuration:View" dialog box will appear with the “Network” category of settings displayed in the lower portion of the dialog box. The setting category can be changed by clicking one of the eight context-switch buttons.

NOTES

No more than two "Configuration:View" dialog boxes opened per OVW session is recommended.

If the selected SSU is not in the managed state, the configuration settings that appear in the "Configuration:View" dialog box will reflect the SSU settings that were current when the SSU was un-managed; these are not necessarily the current settings on the SSU.

- 3 Click on the appropriate context-switch button to select the desired category of current SSU settings to view:

Context-Switch Button	Description
Network	Those settings that pertain to the network connection between the OSMF system and the SSU are contained in this category.
Input Channels	Those settings that determine the selection, qualification, and measurement of reference input signals are contained in this category.
Outputs	Those settings that pertain to the output signals of the Output Card assemblies are contained in this category.
Event Actions	Those settings that pertain to the designation of severity levels for events are contained in this category.
IMC Card	Those settings that pertain to the local serial data port on the IMC Card are contained in this category.

Context-Switch Button	Description
Thresholds	Those settings that determine the action taken by the system when performance measurement thresholds are crossed, as well as the setting of the threshold values, are contained in this category.
ITH Card	Those settings that pertain to the input qualification functions of the ITH card are contained in this category.
Commands	Those settings that pertain to the designation of security levels necessary to execute given TL1 commands are contained in this category.

- 4 To close the "Configuration:View" dialog box, click the **Close** button.

7.5.1.2 To Modify the Current Configuration Settings of an SSU

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input checked="" type="checkbox"/>
Administrator <input checked="" type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 On the synchronization map, click on (select) the symbol for the SSU that you want to modify.

When you click on the SSU symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

NOTE

The SSU must be available and in the managed state in order to be able to modify the current SSU settings using the OSMF software.

- 2 Choose the **Modify** option from the "Configuration" menu to call up the "Configuration:Modify" dialog box (the "Configuration" menu item is part of the "OSMF" menu).

The "Configuration:Modify" dialog box will appear with the "Network" category of settings displayed in the lower portion of the dialog box. The setting category can be changed by clicking one of the eight context-switch buttons.

NOTE

Whenever the "Configuration:Modify" dialog box is invoked, the OSMF software checks if the current configuration of the SSU as stored in the OSMF software database is aligned with the actual hardware profile and configuration of the SSU. When checking the hardware profile, if the OSMF software detects that any output cards had been removed from the SSU, a message box appears in which you are notified that missing output cards have been detected, and asked if you want to delete the cards. If you click **Yes**, the cards are deleted from the database, a command is sent to the SSU to remove the equipment (cards) from the SSU inventory, and then the configuration upload proceeds. If you click **No**, the cards are not deleted from the database, but no further modifications can be made to the settings associated with the output cards.

There can be no more than one "Configuration:Modify" dialog box opened per SSU. No more than two per OVW session is recommended.

- 3 Click on the appropriate context-switch button to select the desired category of SSU settings:

Context-Switch Button	Description
Network	Those settings that pertain to the network connection between the OSMF host and the SSU are contained in this category.
Input Channels	Those settings that determine the selection, qualification, and measurement of reference input signals are contained in this category.
Outputs	Those settings that pertain to the output signals of the Output Card assemblies are contained in this category.
Event Actions	Those settings that pertain to the designation of severity levels for events are contained in this category.
IMC Card	Those settings that pertain to the local serial data port on the IMC Card are contained in this category.
Thresholds	Those settings that determine the action taken by the system when performance measurement thresholds are crossed, as well as the setting of the threshold values, are contained in this category.
ITH Card	Those settings that pertain to the input qualification functions of the ITH card are contained in this category.
Commands	Those settings that pertain to the designation of security levels necessary to execute given TL1 commands are contained in this category.

- 4 Modify the settings as is appropriate.

The section in this chapter entitled *Settings Categories* explains the settings in each category. Each explanation contains the range and default value of the setting where applicable.

- 5 Choose the appropriate action:

- To apply the modifications to the current configuration of the SSU, click the **Apply** button.

NOTE

If, upon clicking **Apply**, the background of any modified field in the dialog box turns yellow, the entered parameter is out of range or otherwise inappropriate, and the value was not set on the SSU. You will need to enter an appropriate value, or you can click the **Revert** button to recall the setting that was in effect when the dialog box was invoked.

- To cancel all setting modifications that have been made in the current instance of the dialog box, and recall the settings that were in effect when the dialog box was invoked, click the **Revert** button *before* clicking the **Apply** button.
- To close the "Configuration:Modify" dialog box, click the **Close** button.

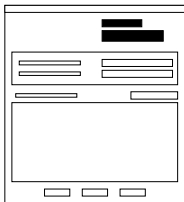
If some parameters have been changed but not applied when the **Close** button is clicked, a question box will appear in which you will be asked if you want to apply the changes.

7.6 Managing Default Configurations

7.6.1 The OSMF software has the ability to maintain a database of default configurations that can be downloaded to SSUs when they are managed or remanaged. There are several dialog boxes that are involved in default configuration management.

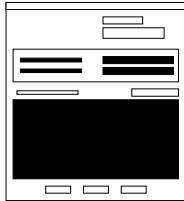
7.6.1.1 “Configuration Defaults: Create” dialog box

The “Configuration Defaults: Create” dialog box is used when creating a *new* configuration default. Configuration defaults can be created from either an existing configuration default, or from the configuration of an existing SSU. The following figure and accompanying descriptions briefly explain the “Configuration Defaults: Create” dialog box:



When a configuration default is created, it must be given a unique identifier (Entry Name for Defaults) so that it can be referenced later during the management or remanagement of SSUs, or when you need to modify or delete the default. The entry name cannot exceed 10 characters in length.

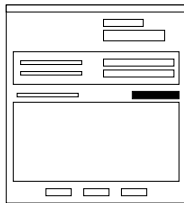
A description *must* be added in the “Description” field. The description cannot exceed 80 characters in length.



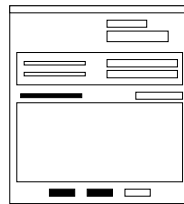
Configuration defaults are created initially from an existing set of configuration settings. The initial set of settings can come from either of two sources: an existing configuration default, or the configuration settings of an existing SSU.

When **Copy From Defaults** is chosen, a drop-down list appears from which you can invoke a sub-box to select the name of an existing configuration default to use as the source for the new default being created. When **Copy From Network Element** is chosen, a drop-down list appears from which you can invoke a sub-box to select the name of an existing SSU to use as the source for the new default.

In either case, a summary (“snapshot”) of the source is displayed in the lower portion of the dialog box. The **Sub-rack** radio buttons are used to select a sub-rack to which the summary applies. Summary information includes the number of input channels, ITH card revision numbers, number of output cards, and output card hardware revisions. If a card does not exist in the selected sub-rack, no revision information is shown.



If you desire more configuration information about the source than is shown in the snapshot summary, you can click the **Preview Source** button. Clicking this button calls up either the “Configuration:View” dialog box (if the source is another SSU), or the “Default Configuration:View” dialog box (if the source is another configuration default). These dialog boxes are read-only, and you can view the current value of any setting within them.



If you desire to change any of the individual settings of the configuration default you are creating, select the **Modify After Creation** check-box. When this check-box is selected, the “Default Configuration : Modify” dialog box will be invoked after the default is created. Within the “Default Configuration : Modify” dialog box, you can modify any of the individual settings of the configuration default before saving it. If **OK** is clicked without first selecting **Modify After Creation**, the configuration default will be created with the exact same settings as the source. Clicking **Cancel** will close the dialog box without creating the configuration default.

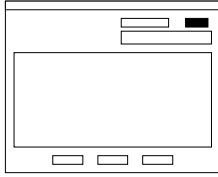
7.6.1.2 “View Defaults,” “Modify Defaults,” and “Delete Defaults” dialog boxes

Viewing, modifying, or deleting an *existing* configuration default is a multi-step process involving at least two dialog boxes. Either the “View Defaults,” “Modify Defaults,” or “Delete Defaults” dialog box is the first dialog box used in the process of viewing, modifying, or deleting an existing default. In the dialog box, you choose the existing default that you want to view, modify, or delete, and then call up a second dialog box, where the respective operation is performed.

The following figure shows the “Delete Defaults” dialog box. The “View Defaults” and “Modify Defaults” dialog boxes are similar. The accompanying descriptions briefly explain the various features of the dialog boxes:

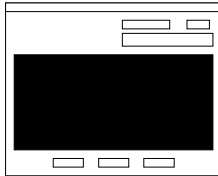


The name of the configuration default that you desire to view, modify, or delete is chosen from the “Default Entry Name” drop-down list. The “Description” field contains the brief (80 characters maximum) description of the default that was entered when the default was created. In the “Modify Defaults” dialog box, the information in the “Description” field can be modified. In the other two dialog boxes, it is a read-only field.

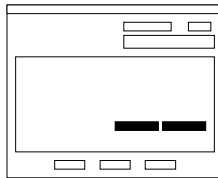


NOTE *The **Preview...** button appears only in the “Delete Defaults” dialog box.*

Once the desired configuration default has been chosen from the “Default Entry Name” drop-down list, clicking the **Preview...** button calls up the “Default Configuration : View” dialog box, where you can view the individual settings of the default prior to deleting it.



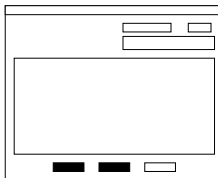
A summary (“snapshot”) of the chosen configuration default is displayed in the lower portion of the dialog box. The **Sub-rack** radio buttons are used to select a sub-rack to which the summary applies. Summary information includes the number of input channels, ITH card revision numbers, number of output cards, and output card hardware revisions. If a card does not exist in the selected sub-rack, no revision information is shown.



NOTE *The **Add Card** and **Delete Card** buttons appear only in the “Modify Defaults” dialog box.*

These buttons are useful when an existing configuration default closely matches a default you wish to create, with the exception of more or less output cards.

When you click an appropriate “Output Card” radio button and then click **Delete Card**, the card is deleted from the default configuration. When you click the **Add Card** button, you are prompted for the sub-rack (Rack), card slot (Card), and hardware revision (H/W Revision). The system then creates an output card entry in the specified location with default settings, which can then be modified appropriately.



The leftmost of these buttons will be labeled either “View,” “Modify,” or “Delete,” depending on the dialog box invoked.

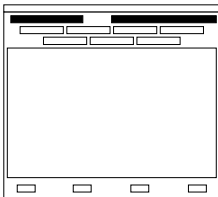
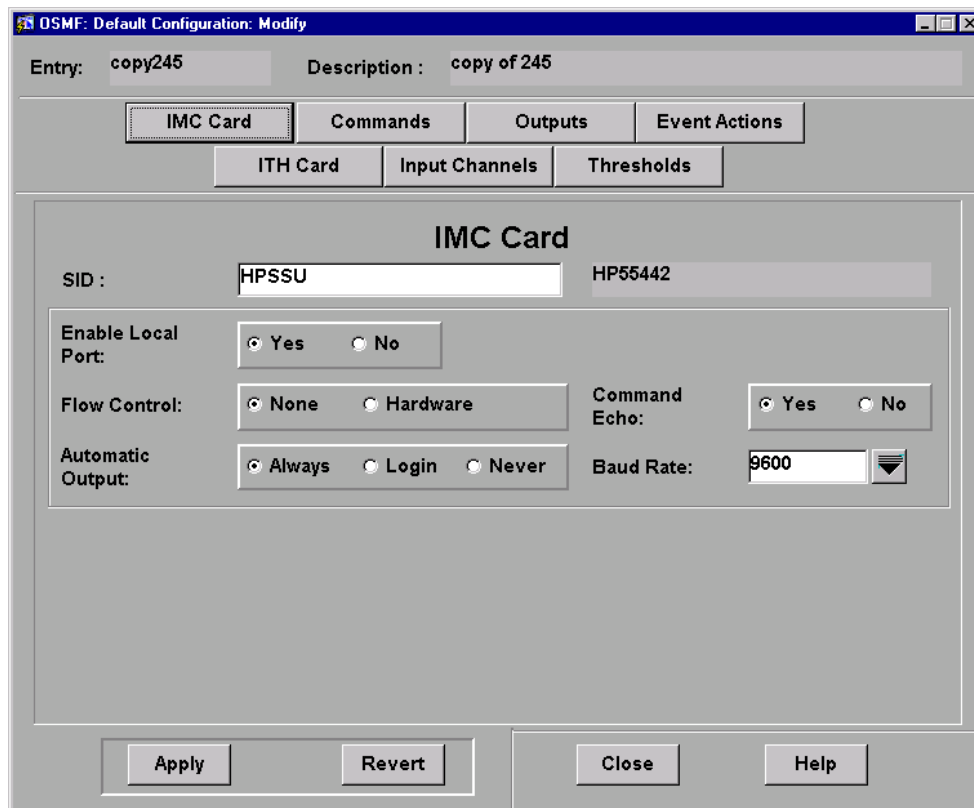
The **View** button invokes the “Default Configuration : View” dialog box, where you can view but not modify the individual settings of the default. The **Modify** button invokes the “Default Configuration : Modify” dialog box, where you can modify the individual settings of the default. The **Delete** button is used to begin the deletion process. A question box appears first before the default is deleted.

Clicking the **Cancel** button will close the dialog box without any further action being taken.

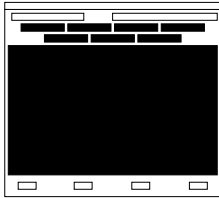
7.6.1.3 “Default Configuration : View” and “Default Configuration : Modify” dialog boxes

After either the “View Defaults” or “Modify Defaults” dialog box is used to choose an existing default, either the “Default Configuration : View” or “Default Configuration : Modify” dialog box is invoked, where the individual settings of the default can be viewed or modified.

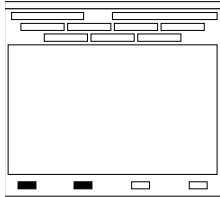
The following figure shows the “Default Configuration : Modify” dialog box. The “Default Configuration : View” dialog box is essentially identical, except that you cannot modify settings from within it. The accompanying descriptions briefly explain the various features of these dialog boxes:



The name of the configuration default being viewed or modified is shown in the “Entry” field. The “Description” field contains the description of the default as it was entered earlier. These fields are read-only fields.



The seven context-switch buttons (**IMC Card**, **Commands**, **Outputs**, **Event Actions**, **ITH Card**, **Input Channels**, and **Thresholds**) can be clicked to determine the category of configuration default settings to be modified in the lower portion of the dialog box. The section entitled *Settings Categories* in this chapter explains the categories of settings.



The **Apply** button can be clicked to cause the configuration default setting changes made in the dialog box to take effect. Clicking the **Revert** button restores the setting changes to those already stored in the database, effectively cancelling changes that were made previous to clicking **Apply**. Note that the **Revert** button applies only to the current screen; once a context switch takes place, changes made to the previous category cannot be undone.

7.6.1.4 To Create a Configuration Default



Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 Choose the **Create** option from the “Configuration Defaults” menu to call up the “Configuration Defaults: Create” dialog box (the “Configuration Defaults” menu item is part of the “OSMF” menu).
- 2 Enter a unique identifier into the “Entry Name for Defaults” field of the “Configuration Defaults: Create” dialog box. The identifier cannot exceed ten characters in length.

This identifier will later be used when the configuration default is used during management or remanagement of SSUs. It is also required when modifying or deleting the default.

- 3 Enter a description into the “Description” field of the dialog box. Note that the description is *not* optional. The description can be up to 80 characters in length.
- 4 In the “Creation Mode” area of the dialog box, choose the desired source for the new configuration default.

New configuration defaults are created by initially copying the settings of an existing configuration (known as the “source”), then modifying the settings as necessary and saving the default. You can choose either of two sources:

- *Copy From Defaults* - Use this option to select the settings of an existing configuration default to use as the source for the new default being created. Click on the **Copy From Defaults** radio button to select it, then click the “down-arrow” () symbol, choose the identifier of the desired source configuration default in the sub-box that appears, and click **OK** in the sub-box to set the selected default as the source.
 - *Copy From Network Element* - Use this option to select the configuration data of an existing SSU to use as the source for the new default being created. Click on the **Copy From Network Element** radio button to select it, then click the “down-arrow” () symbol, choose the name of the desired source SSU in the sub-box that appears, and click **OK** in the sub-box to set the selected SSU as the source.
- 5 Preview the current source settings, if desired.
 - A summary (“snapshot”) of the source can be previewed in the lower portion of the dialog box, where you can verify that the number of input channels, number of output cards, ITH card revision numbers, and output card hardware revision information is compatible with the default you wish to create. Use the **Sub-rack** radio buttons to view the information for the various sub-racks, if there are any.
 - Click the **Preview Source...** button to call up either the “Configuration:View” dialog box (if the source is another SSU), or the “Default Configuration : View” dialog box (if the source is

another configuration default). You can preview the current value of all source settings within these dialog boxes.


- 6 If you want to modify the new configuration default immediately after creating it, ensure that the “Modify After Creation” check-box is selected.
- 7 Click **OK** to create the configuration default.

If the “Modify After Creation” check-box was *not* selected prior to clicking **OK**, a “created successfully” confirmation box appears as the settings of the source are saved directly as the new configuration default. If the “Modify After Creation” check-box *was* selected prior to clicking **OK**, the settings of the source are saved as the new configuration default, and after **OK** is clicked in the “created successfully” confirmation box, the “Default Configuration : Modify” dialog box appears.

- 8 Within the “Default Configuration : Modify” dialog box, make changes to the settings of the configuration default as is necessary, then save the modified settings. Refer to the task *To View or Modify an Existing Configuration Default* for details on modifying the settings.

7.6.1.5 To View or Modify an Existing Configuration Default

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 Choose either the **View** or **Modify** option (as appropriate) from the “Configuration Defaults” menu to call up either the “View Defaults” or “Modify Defaults” dialog box (the “Configuration Defaults” menu item is part of the “OSMF” menu).
- 2 In the dialog box, click the “down-arrow” () symbol adjacent to the “Default Entry Name” field to invoke a “Select Configuration Defaults” sub-box in which you can select the existing configuration default that you want to view or modify:
 - a. Select (click on) the name of the default from the scrollable list of existing defaults in the sub-box, or if the list is long, use the **Find** button in the sub-box to search for the name of the default.
 - b. Click **OK** in the sub-box to set the default name selected as the default to be viewed or modified.
- 3 If you are modifying a configuration default, you can modify the “Description” field in the dialog box if appropriate. You can also delete one or more output cards from the configuration default, or add the default settings of one or more output cards to the default.

To delete an output card from the configuration default:

- a. Click the “Output Cards” radio button for the output card that you want to delete.
- b. Click the **Delete Card** button, then click **OK** when the message “Output card X of rack Y deleted” appears.

To add an output card to the configuration default:

- a. Click the **Add Card** button.
- b. Enter the following information in the dialog box that appears:

Field	Description
Rack	Enter the sub-rack where you want the card to be created.
Card	Enter the card slot where you want the card to be created.
Hardware Revision	Enter the hardware revision of the card you want to create.

- c. Click **OK**.

NOTE

When you add output cards, they are created with factory default setting values, but you can modify those settings as appropriate in the steps that follow.

- 4 Click the lower leftmost button (which will be either **View** or **Modify**) to invoke either the “Default Configuration : View” or “Default Configuration : Modify” dialog box.

The pertinent dialog box will appear with the “IMC Card” category of settings displayed in the lower portion of the dialog box. The setting category can be changed by clicking one of the seven context-switch buttons.

NOTE

If a database lock has been placed on the configuration default, as when another user is in the process of deleting or modifying the default, the message `Warning! The default-entry is locked for update` will be displayed. During the time the lock is in place, you can view the configuration default settings, but not make modifications.

- 5 Click on the appropriate context-switch buttons to select the desired categories of settings to view or modify:

Context-Switch Button	Description
IMC Card	Those settings that pertain to the local serial data port on the IMC Card are contained in this category.
Commands	Those settings that pertain to the designation of security levels necessary to execute given TL1 commands are contained in this category.
Outputs	Those settings that pertain to the output signals of the Output Card assemblies are contained in this category.

Context-Switch Button	Description
Event Actions	Those settings that pertain to the designation of severity levels for events are contained in this category.
ITH Card	Those settings that pertain to the input qualification functions of the ITH card are contained in this category.
Input Channels	Those settings that determine the selection, qualification, and measurement of reference input signals are contained in this category.
Thresholds	Those settings that determine the action taken by the system when performance measurement thresholds are crossed, as well as the setting of the threshold values, are contained in this category.

- 6 If you are modifying a configuration default, modify the settings as is appropriate, and choose the appropriate actions:

NOTE

The section in this chapter entitled *Settings Categories* explains the settings in each category. Each explanation contains the range and default value of the setting where applicable.


- To apply the modifications made to the configuration default settings, click the **Apply** button.
- To cancel all setting modifications that have been made in the current instance of the dialog box, and recall the settings that were in effect when the dialog box was invoked, click the **Revert** button *before* clicking the **Apply** button.
- To close the “Default Configuration : Modify” dialog box, click the **Close** button.

If some settings have been changed but not applied when the **Close** button is clicked, a confirmation box will appear in which you will be asked if you want to apply the changes.

- 7 If you are viewing the configuration default settings, click the **Close** button after you have finished viewing.

7.6.1.6 To Delete an Existing Configuration Default

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

- 1 Choose the **Delete** option from the “Configuration Defaults” menu to call up the “Delete Defaults” dialog box (the “Configuration Defaults” menu item is part of the “OSMF” menu).
- 2 In the dialog box, click the “down-arrow” () symbol adjacent to the “Default Entry Name” field to invoke a “Select Configuration Defaults” sub-box in which you can select the existing configuration default that you want to delete:

- a. Select (click on) the name of the default from the scrollable list of existing defaults in the sub-box, or if the list is long, use the **Find** button in the sub-box to search for the name of the default.
 - b. Click **OK** in the sub-box to set the default name selected as the default to be deleted.
- 3 If desired, click the **Preview...** button in the “Delete Defaults” dialog box to invoke the “Default Configuration : View” dialog box.

In this dialog box, you can view the configuration default settings to ensure that you, in fact, want to delete the selected configuration default. When you are finished viewing the configuration default settings, click the **Close** button to close the “Default Configuration : View” dialog box.

- 4 Choose the appropriate action in the “Delete Defaults” dialog box:
 - If, after previewing the configuration default settings, you decide that you do not want to delete the configuration default, click the **Cancel** button.
 - If you decide that you do want to delete the configuration default, click the **Delete** button, then click **Yes** to the question “Delete the default entry ‘*entry_name*’ from the database?” to delete the default.
- 5 If you do not wish to delete any other configuration defaults, click the **Cancel** button to close the “Delete Defaults” dialog box.

7.7 SSU Firmware Upgrades

7.7.1 The OSMF software contains functionality that enables the downloading of firmware upgrades to SSUs from the OSMF system. The firmware code, which is stored as a file on the OSMF system or elsewhere on the network, is downloaded to a specified IMC or ITH card on a specified SSU using the “Firmware Download” dialog box.

7.7.1.1 The Firmware Download Process

The executable firmware for an IMC or ITH card is stored in the card’s *main memory* on a set of *EEPROM* memory chips (EEPROM is an acronym for Electrically Erasable, Programmable Read Only Memory). At times, it might be necessary to upgrade the firmware on a card, in which case the firmware download process will be employed.

The firmware download process is designed so that the former version of firmware (the version being updated) can be restored should a failure in the process occur. The full firmware download process consists of the following nine operations, or steps, which correlate to buttons in the “Firmware Download” dialog box:

- *Activate SWDL Mode* - The specified card on the specified SSU is put into firmware download mode, also known as SWDL mode. In this mode, the card ceases any activity that is not associated with firmware downloading, and accepts only commands associated with the firmware download process.
- *Copy Main to Backup* - The version of firmware currently on the card’s main memory EEPROMS (the version to be upgraded) is copied to the backup memory EEPROMS on the card.
- *Verify Backup* - The card performs a verification check on the firmware code in backup memory to ensure that it is not corrupted.
- *Delete Main* - The card’s main memory EEPROMS are erased.
- *Activate BTT Mode* - The card is put into bulk text transfer mode. In this mode, the card is ready to accept segments of firmware code.
- *Download New Code* - Lines of code - one line at a time - are transferred from a firmware file stored on the OSMF workstation to the card’s main memory EEPROMS. As each line transfers successfully, the next line is transferred until the end of the firmware file is reached, or until certain parameters set within the “Firmware Download” dialog box dictate that the transfer must end.
- *Cancel BTT Mode* - The card is taken out of bulk text transfer mode.
- *Verify Main* - The card performs a verification check on the new firmware code in main memory to ensure the validity of the code instructions. *Note that the OSMF system makes no attempt to verify firmware files stored on it; this is the first time that the validity of the code instructions is verified.*
- *Cancel SWDL Mode* - The card is taken out of firmware download mode (SWDL mode), hence, normal card operation resumes. After this step in the process completes successfully, the card begins functioning using the upgraded software.

7.7.1.2 Recovery from Firmware Download Process Failures

Should the firmware download process fail at any step, you can initiate a recovery process in which you ultimately can restore the former (pre-upgrade) copy of firmware to the card's main memory, and restore the card to normal operating mode using the former copy of firmware.

The recovery process involves stepping backward through certain steps of the firmware download process. For example, if the firmware download process fails at the *Verify Main* stage, recovery might consist of copying code from backup memory to main memory, and cancelling SWDL mode, if you wish to re-establish card operation using the former version of firmware.

You are given two recovery options, and you are prompted through the recovery process so that you can choose to accept or decline each step in the process. The two recovery options are as follows:

- *Possible Steps* - If this recovery option is chosen, all possible recovery steps are presented, and it is up to you to accept or decline the steps that might not be necessary. The possible recovery steps, which will always be presented when *Possible Steps* is chosen, are as follows (the steps are presented in the order shown):

ACTIVATE_SWDL_MODE (activate firmware download mode)

ACTIVATE_BTT_MODE (activate bulk text transfer mode)

CANCEL_BTT_MODE (cancel bulk text transfer mode)

COPY_BKUP_TO_MAIN (copy firmware in backup memory to main memory)

CANCEL_SWDL_MODE (cancel firmware download mode)

- *Situation Requires* - If this recovery option is chosen, you are presented only with those steps that are necessary, given the current status of the card. For example, if the firmware download process fails at the *Verify Main* stage, you will not be presented with the ACTIVATE_SWDL_MODE, ACTIVATE_BTT_MODE, and CANCEL_BTT_MODE steps, since the firmware download process had already cancelled BTT mode, and the card was not yet taken out of SWDL mode. You are still given the option to accept or decline each step presented.

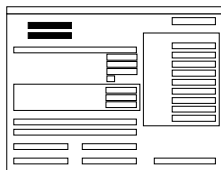
7.7.1.3 Recovery from Firmware Download Process Interruptions

It is possible that the firmware download process can get interrupted, as when a network failure or other abnormal condition occurs. In such situations, the firmware code already downloaded to the card's main memory is typically valid, albeit incomplete. The OSMF software accommodates these situations.

A firmware download mode exists in which you can specify that partial code be *appended* to the existing code in the card's main memory (in a normal firmware download situation, the card's main memory is erased prior to the commencement of downloading).

7.7.1.4 “Firmware Download” dialog box

The following figure and accompanying descriptions briefly explain the “Firmware Download” dialog box:



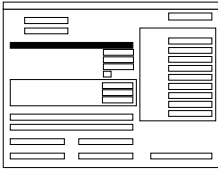
The name of the SSU to where the firmware is to be downloaded (the “target SSU”) is entered into the “Selection Name” field. When the dialog box is invoked, this field contains the name of the SSU that is selected on the map.

Use the “Card Aid” selection box to select the card to where the firmware is to be downloaded (the “target card”). The possible selections appear in the form:

rack-card

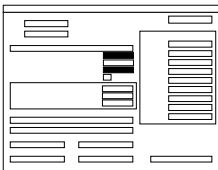
where *rack* is S0 for the master subrack, or S1, S2, S3, or S4 for the expansion subracks, and *card* is the IMC or ITH card identifier.

As an example, to target the ITH-2 card on the second expansion subrack of SSU-223, enter SSU-223 into the “Selection Name” field, and select S2-ITH2 in the “Card Aid” selection box.



The versions of firmware to be downloaded to SSUs using OSMF are stored as files on the OSMF system. There can be several different versions of firmware for IMC and ITH cards stored on the system at any time.

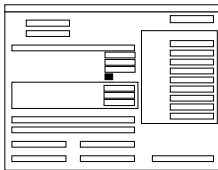
The name of the specific file containing the firmware to be downloaded to the target card is entered in the “Firmware Code File Name” field. Note that the full path to the file must be entered into this field with the filename.



The information entered into these fields is used when specifying a portion of the firmware file to download to the target. This is useful when a single file contains multiple versions of firmware, or when continuing to download firmware from a point in the file after an interruption.

The value entered into the “Download Lines” field determines the number of lines of firmware code that will be downloaded. If the number entered is large (such as the default value of 100000000), the entire file can be downloaded. The value entered into the “Skip Lines” field determines the line of firmware code in the file at which to start downloading. The default value of 0 indicates that firmware will download starting with the first line of firmware code in the file (“Skip Lines” is always referenced to the beginning of the file).

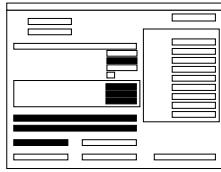
NOTE Lines of firmware code are delimited by the newline (\n) delimiter.



The “Directly Download New Code” check-box determines whether or not a newly initiated firmware download process begins with step 1, or step 6.

If the check-box is selected, the firmware download process begins at step 6, thereby skipping the step where main memory is erased. This is useful when you need to append code to the code that is already stored in main memory, as when the original transfer was interrupted.

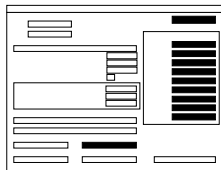
If the check-box is not selected, the firmware download process begins at step 1. This is the normal firmware download mode, where the code being downloaded replaces the code previously stored in main memory.



The “In Steps Of” field determines how often the “Chars Downloaded” (characters downloaded) “Lines Already Downloaded,” and “Last OK Memory Address” fields are updated. Should the firmware download operation fail, the total number of characters and lines to be accepted by the target card, as well as the address of the last accepted line of code, will be displayed in these fields.

The “Response / Status” fields show the status of the current step (In Progress, Done, etc.), and any error messages that are generated. The current operation mode can also be displayed by clicking the **Current Mode** button. There are three operation modes:

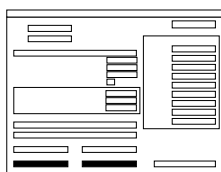
- *NORMAL* - The card is in the normal functioning mode of operation.
- *SWDL* - The card is in firmware download mode. In this mode, the card ceases any activity that is not associated with firmware downloading.
- *SWDL BTT* - The card is in bulk text transfer mode. In this mode, the card will accept segments of firmware code.



These buttons are used to control the firmware download process.

The firmware download process consists of nine steps. The buttons in the “Manual Operation” portion of the dialog box are used to manually step through the process. If the **Automatic** button is clicked, the firmware download process proceeds through the nine steps automatically. Should the process fail, the button representing the step at which the failure occurred will be selected, with all other buttons de-emphasized (grayed out). The process can be aborted at any time by clicking the **Abort** button, however, the current step will complete before the process aborts.

NOTE The firmware download process must be aborted before recovery can take place.



Once the firmware download process has been aborted, the **Recover** button can be clicked to initiate the recovery process. The recovery process entails rolling back certain steps in the firmware download process. Ultimately, the original copy of firmware can be restored and the card can be restored to normal operating mode if desired. You control which steps of the firmware download process you wish to roll back.

The **Reset** button is used to reset the dialog box. Basically, the firmware download process is reset to the first step. Note that aborting and then resetting while firmware downloading is in process might leave the target card in an undesired state.

7.7.1.5 To Download Firmware

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

Use this procedure when you intent to *totally replace* the current firmware on the target card. This procedure accommodates the situation where the contents of the firmware file are downloaded in full, as well as the situation where a portion of the firmware file is downloaded.

To *append* code to the firmware already stored on the target card, as when continuing the download process after an interruption, go to the procedure entitled *To Continue the Firmware Download Process After an Interruption*.

NOTES

A normal firmware download scenario might involve downloading firmware to all three applicable cards (NIMC, ITH-1, and ITH-2) on an SSU. If this is the case, it is recommended that you download the firmware upgrade to the NIMC card first.

If you will be downloading firmware to the ITH cards, note that you can only download firmware to the ITH card that is in standby mode. If the target ITH card is not in standby mode, you can force the other card to the active state, thereby effectively forcing the target card to the standby state. Note that during the downloading of firmware to an ITH card, the target SSU is running in unprotected ITH card mode. Refer to the procedure *To View the Status Summary of an SSU* in the *Fault Management* chapter for information on forcing an ITH card active.

- 1 Before continuing with this procedure, ensure that the firmware code to be downloaded is stored as a file on the OSMF system, or accessible elsewhere on the network. Note the following:
 - Record the file name as well as the full directory path to the file. You will need to enter it in the procedure.
 - The Security-class user (“svroot”) should have ownership of the firmware file and have read permission on the file.
 - The firmware download procedure allows downloading of the entire file, or only a portion of the file. If you will be downloading a portion of the file, you will need to know the line number of the first line of code to be downloaded, as well as the number of lines to be downloaded.
 - You must take whatever means are necessary to ensure the validity of the firmware code instructions to be downloaded. The OSMF system takes no automatic measures to ensure the validity of the firmware code before it is downloaded.
- 2 On the synchronization map, click on (select) the symbol for the SSU that is the intended target for the firmware download.

When you click on the SSU symbol, the area around the periphery of the symbol darkens, indicating that it is selected.

- 3 Choose the **Firmware Download** menu item from the “OSMF” menu to call up the “Firmware Download” dialog box.
- 4 Enter the following information into the “Firmware Download” dialog box:

Field	Description
Selection Name	This is the selection name of the target SSU. If an SSU symbol was selected on the synchronization map prior to invoking the dialog box, the selection name of the selected SSU will appear in this field. Note that after the dialog box is invoked, you can choose any other SSU as the target SSU by entering its name into the “Selection Name” field.
Card Aid	This is the rack and identifier of the target card. You must choose the card aid from the drop-down list that appears. The possible selections are in the following form: <i>rack-card</i> where <i>rack</i> is S0 for the master subrack, or S1, S2, S3, or S4 for the expansion subracks, and <i>card</i> is the IMC or ITH card identifier (for example, to target the ITH-2 card on the second expansion subrack, select S2 - ITH2).
Firmware Code File Name	This is the name of the file containing the firmware code to be downloaded. Note that the full path to the file must be entered into this field with the filename.
In Steps Of	This field determines how often the status fields (“Chars Downloaded,” “Lines Already Downloaded,” and “Last OK Memory Address”) are updated.

- 5 Ensure that the “Directly Download New Code” check-box *is not* selected.

When this check-box is not selected, the target card’s main memory EEPROMS are erased prior to the commencement of downloading.

- 6 Enter the following file information accordingly:

- *If The Entire File is to be Downloaded:*

Field	Description
Download Lines	Do not change. Leave this value set to the default value (10000000).
Skip Lines	Do not change. Leave this value set to the default value (0).

- *If a Portion of the File is to be Downloaded:*

Field	Description
Download Lines	Enter the total number of lines to be downloaded from the file. For example, if the entire file consists of 10000 lines and the portion of it you wish to download is 756 lines long, enter 756.

Field	Description
Skip Lines	Enter a value that is <i>one less</i> than the number of the first line of the file portion that you wish to download. For example, if the portion of a file you wish to download begins on line 100 of the file, enter 99.

7 Begin the firmware download process using either automatic or manual mode:

NOTE

The paragraph entitled *The Firmware Download Process* at the beginning of this section describes each step in the firmware download process.

- *To Use the Automatic Mode* - Click the **Automatic** button. The firmware download process will proceed through the nine steps automatically. As each step begins, the appropriate button in the dialog box will appear selected, with all other buttons de-emphasized (grayed out).
- *To Use the Manual Mode* - Click the **Activate SWDL Mode** button. In manual mode, you will need to click each button in the “Manual Operation” portion of the dialog box to progress through the steps in the process. As each step completes, a message explaining that the step is done will be shown in the “Response / Status” field. Ensure that the current step completes with a status of DONE before going to the next step.

NOTE

Activating or canceling firmware download (SWDL) mode for an IMC card takes much longer than the equivalent operation for an ITH card.

- 8 After steps 1 through 9 complete, the message “Firmware Download Completed Successfully. Now doing steps 1 and 9 to remove NVRAM alarm” appears. Click **OK** in this message box to complete the firmware download process.
- 9 Perform the following actions, depending upon whether the process completes successfully, fails, or is interrupted:
- *If the Firmware Download Process Successfully Completes* - If you plan to download firmware to another card, click the **Reset** button to reset the dialog box, then repeat this procedure as necessary. If you plan to download firmware to another SSU, or you will be closing the “Firmware Download” dialog box, read the following important note (to close the “Firmware Download” dialog box, click the **Exit** button).
 - *If the Firmware Download Process Fails* - Continue with the sub-procedure entitled *Failure Recovery*.
 - *If the Firmware Download Process is Interrupted* - Continue with the following procedure, entitled *To Continue the Firmware Download Process After an Interruption*.

Important!

After you have finished downloading firmware to all applicable cards on a given target SSU, you must unmanage and then remanage the target SSU before beginning the firmware download process with another SSU (refer to the chapter entitled *Working With Synchronization Maps* in this manual for unmanage/remange procedures). This action synchronizes the firmware version number stored in the system with the firmware version number in the target SSU. It also synchronizes the alarms in the SSU with the alarms in the database.

NOTE

If the firmware download process fails or is interrupted, the following information can be helpful in diagnosing the failure:

- Information displayed in the “Chars Downloaded,” “Lines Already Downloaded,” and “Last OK Memory Address” fields .
- The error message text that appears when the process fails.

Also, the information in the “Lines Already Downloaded” field might be useful in the following procedure if the firmware download process is interrupted.

7.7.1.6 To Continue the Firmware Download Process After an Interruption

Users of these user classes can perform this task:	This feature is available in these editions of OSMF software:
User <input type="checkbox"/>	Standard Edition <input type="checkbox"/>
Administrator <input type="checkbox"/>	Deluxe Edition <input checked="" type="checkbox"/>
Security <input checked="" type="checkbox"/>	

This procedure assumes that you already started the firmware download process, and it was interrupted for some reason.

NOTE

In order to continue the firmware download process after the process has been interrupted, you need to know the number of lines of code that have already been downloaded. This information can be calculated from the “Lines Already Downloaded” and “Skip Lines” fields in the “Firmware Download” dialog box. Note that these fields might be reset when **Reset** is clicked, or the dialog box is closed.

If the last line to be downloaded is not the end of the file, you also need to know exactly how many more lines from the file need to be downloaded.

- 1 If the “Firmware Download” dialog box is not already open, choose the **Firmware Download** menu item from the “OSMF” menu to open it.
- 2 Enter the following information into the “Firmware Download” dialog box, as is necessary:

Field	Description
Selection Name	This is the selection name of the target SSU.
Card Aid	This is the rack and identifier of the target card. The possible selections are in the following form: <i>rack-card</i> where <i>rack</i> is S0 for the master subrack, or S1, S2, S3, or S4 for the expansion subracks, and <i>card</i> is the IMC or ITH card identifier.
Firmware Code File Name	This is the name of the file containing the firmware code to be downloaded.

Field	Description
In Steps Of	This field determines how often the status fields (“Chars Downloaded,” “Lines Already Downloaded,” and “Last OK Memory Address”) are updated.

- 3 Ensure that the “Directly Download New Code” check-box is selected.

When this check-box is selected, the target card’s main memory EEPROMS are not erased prior to the commencement of downloading, and the firmware code subsequently downloaded is appended to the code already in main memory.

- 4 Enter the following file information:

Field	Description
Download Lines	Enter the total number of lines to be downloaded from the file. If the number of lines to be downloaded is to the end of the file, the default value can be used (100000000).
Skip Lines	Enter a value that is <i>one less</i> than the number of the first line of the remainder of the file portion that you wish to download.

- 5 Click the **Automatic** button to continue the firmware download process using the automatic mode.

The firmware download process will proceed through the remaining steps automatically. As each step begins, the appropriate button in the dialog box will appear selected, with all other buttons de-emphasized (grayed out).

- 6 After steps 1 through 9 complete, the message “Firmware Download Completed Successfully. Now doing steps 1 and 9 to remove NVRAM alarm” appears. Click **OK** in this message box to complete the firmware download process.
- 7 Perform the following actions, depending upon whether the process completes successfully, fails, or is interrupted:
- *If the Firmware Download Process Successfully Completes* - If you plan to download firmware to another card, click the **Reset** button to reset the dialog box, then return to the procedure entitled *To Download Firmware*. If you plan to download firmware to another SSU, or you will be closing the “Firmware Download” dialog box, read the following important note (to close the “Firmware Download” dialog box, click the **Exit** button).
 - *If the Firmware Download Process Fails* - Continue with the sub-procedure entitled *Failure Recovery*.
 - *If the Firmware Download Process is Interrupted Again* - Return to the beginning of this procedure.

Important! After you have finished downloading firmware to all applicable cards on a given target SSU, you must unmanage and then remanage the target SSU before beginning the firmware download process with another SSU (refer to the chapter entitled *Working With Synchronization Maps* in

this manual for unmanage/remanage procedures). This action synchronizes the firmware version number stored in the system with the firmware version number in the target SSU. It also synchronizes the alarms in the SSU with the alarms in the database.

NOTE

If the firmware download process fails or is interrupted, the following information can be helpful in diagnosing the failure:

- Information displayed in the “Chars Downloaded,” “Lines Already Downloaded,” and “Last OK Memory Address” fields .
 - The error message text that appears when the process fails.
-

Failure Recovery

The recovery process allows you to step backward through certain steps of the firmware download process so that you can re-attempt the procedure at an appropriate point, or even step backward through the entire process, thus restoring the firmware to its pre-upgrade version. As you progress through the recovery process, you are prompted to accept or decline each step.

- 1 Click the **Abort** button to ensure that the firmware download process has been stopped, then click the **Recover** button to initiate the recovery process.

When you click the **Recover** button, you are presented with two recovery options:

- *Possible Steps* - This option presents you with all possible recovery steps, including steps that might not be necessary for recovery given the current state of the target card.
 - *Situation Requires* - This option presents you only with the steps that are necessary for recovery given the current state of the target card.
- 2 Choose the recovery option that is appropriate for your situation.

After you choose the recovery option, you are prompted to accept or decline the first step in the recovery process.

- 3 Accept (click **YES**) or decline (click **Skip**) each step in the process, until the recovery process is complete.
 - If you chose the *Possible Steps* recovery option, you will always be prompted through all steps in the recovery process. It will be up to you to accept or decline each step as is appropriate. Inappropriately answering to a prompt (such as accepting the prompt to activate BTT mode when the card is currently in BTT mode) can cause an error or warning box to appear, but will likely not cause a catastrophic problem.
 - If you chose the *Situation Requires* recovery option, you will be prompted through only pertinent steps of the recovery process. You still need to accept or decline each step as is appropriate.

NOTE

If you choose to accept a particular step, and the step fails, you will still be prompted to accept or decline the next step. If you are not sure of the steps to accept, you can accept them all, as failure of any particular step will not cause a catastrophic problem.

The possible firmware download recovery steps are as follows:

- `ACTIVATE_SWDL_MODE` (activate firmware download mode)
- `ACTIVATE_BTT_MODE` (activate bulk text transfer mode)
- `CANCEL_BTT_MODE` (cancel bulk text transfer mode)
- `COPY_BKUP_TO_MAIN` (copy firmware in backup memory to main memory)
- `CANCEL_SWDL_MODE` (cancel firmware download mode)

NOTE

The `ACTIVATE_SWDL_MODE` and `ACTIVATE_BTT_MODE` steps are typically used when a card is removed and re-inserted, and the IMC card gets out of sync with the actual mode of the card. In this case, you might have to perform one or both of the steps as the initial steps of recovery.

7.8 Settings Categories

7.8.1 This section explains the settings in each category as well as the range and default value of each setting where applicable.

7.8.1.1 Network

The OSMF software communicates with SSUs via a network connection. There are several networking settings that are configurable in this dialog box. The following table describes these settings.

Setting	Description	DB ¹	Associated Entry in Programming Manual
Network Protocol	The protocol used by the SSU for communication with the OSMF software over the network. Currently, the OSMF software supports Internet Protocol (IP), or X.25. <i>This field is not editable.</i>	C	<i>Not Applicable</i>
Address	The network address of the selected SSU. <i>This field is not editable.</i>	C	<i>Not Applicable</i>
System Identifier ² (SID)	<p>The system identifier code (SID) for the SSU.</p> <p>Commands sent over the network can optionally include a target identifier (TID) as a parameter. If a TID is included, it must match the SID entered here or the command will not be accepted by the SSU. The default is “HPSSU,” but can be changed to any string of up to 20 alphanumeric characters.</p> <p>NOTE The SID should not contain any spaces. If a SID that contains spaces is entered, the spaces will be removed (stripped) from the SID.</p>	B	SET-SID (command)

1 Some of these settings are pertinent for a currently managed SSU, but not as a default setting. This column indicates whether the setting is pertinent to both currently managed SSUs and defaults (B), or to currently managed SSUs only (C). Settings that are not pertinent as default settings will not appear in the configuration defaults dialog boxes.

2 In the configuration defaults dialog boxes, this setting appears in the “IMC Card” settings category.

7.8.1.2 Input Channels

An SSU can accept up to nine reference input signals. One input, the PRC (primary reference clock) input, can be a 5 MHz or 10 MHz signal. The remaining inputs can be any combination of 2048 kbps or 2048 kHz signals.

There are several settings related to the selection, qualification, and measurement of reference input signals that are configurable in this dialog box. The following table describes these settings.

- The Input Channel setting under *Input Selection* in the following table selects the specific input channel to which the remainder of the settings will apply.
- The *Input-Specific Settings* apply specifically to the input channel selected with the Input Channel parameter.

Setting	Description	DB ¹	Associated Entry in Programming Manual
<i>Input Selection</i>			
Input Channel	The Input-Specific Settings in the remainder of the dialog box will pertain to the input channel selected here.	B	<i>None</i>
<i>Input-Specific Settings</i>			
Enable Input	If set to Yes, the selected input channel will be enabled and can be considered as a reference source. If set to No, the selected input channel will not be considered as a reference source. The default is “Yes.”	B	ENABLE (keyword)
Input Priority	The Input Priority level determines which input gets chosen as the reference source when all other factors are equal. The qualified input channel with the lowest numerical priority value is considered to have highest priority. The range is 1 to 9. The default for a given input channel is the channel number plus one (for example, if the selected input channel is channel 4, its default priority level is 5).	B	PRIORITY (keyword)
Input Format	Sets the input format (2 Mbps (2048 Kbps E1) or 2 MHz (2048 KHz square wave)) that the system expects at the selected input channel. If the input format for the channel has been set via a switch on the ITH card, this setting will over-ride it.	B	FORMAT (keyword)
SSM Quality Level	Sets the quality level of the selected input if it is a non-E1 input or an E1 input that does not carry SSM information. The valid quality levels are as follows: 0 - Quality unknown (existing synchronization network). 2 - Rec. G.811-PRC level. 4 - G.812 transit-Transit node (<i>default</i>). 8 - G.812 Local-Local node. 11 - Synchronous Equipment Timing Source (SETS) 15 - Do not use for synchronization.	B	QLEVEL (keyword)

Setting	Description	DB ¹	Associated Entry in Programming Manual
Tracking Time Constant	Sets the loop tracking time constant for the selected input. The valid time constants are 192, 768, 3072, 12288, and 49152. The default depends on the type of ITH card installed: 768 for Stratum 2 Quartz ITH card. 192 for Local or Transit Node ITH cards. 3072 for Stratum 2 Rubidium ITH card.	B	TCONST (keyword)
Input Signal Mode	E1 input signals can be monitored for correct CCS/CAS information. If correct information is not detected, the input is disqualified. This setting is ignored for non-E1 format input signals. If CCS is selected, the system will monitor the selected input for correct Common Channel Signaling information. If CAS is selected, the selected input is monitored for correct Channel Associated Signaling information. The default is CCS.	B	SIGMODE (keyword)
SSM Priority Grouping	Assigns the selected input to a numerical Priority Group. This setting is significant when SSM synchronization mode is being used and equally-qualified inputs have the same, numerically lowest SSM value. In that case, the input with the lowest Priority Group setting is chosen as the active reference source. The range is 0 to 8 and the default is 3.	B	SSMPRI (keyword)
Current SSM Value	If the Read SSM Bits setting is Yes, this is the SSM value read from the active input reference source. If the Read SSM Bits setting is No, this is the value of the Quality Level setting. <i>This field is not editable.</i>	C	CURRSSM (keyword)
Cutoff Quality	Sets the Quality Cutoff for the selected input. When SSM synchronization mode is being used, inputs with an SSM value that is greater than the Quality Cutoff setting will not be considered for use as a reference source. The range is 0 to 15 and the default is 15.	B	QCUTOFF (keyword)
PRC Signal	If the selected input channel is the PRC channel, this setting tells the system whether to expect a 5 MHz signal or a 10 MHz signal. If set to 5 MHz, the system will expect a 5 MHz signal. If set to 10 MHz, the system will expect a 10 MHz signal. The default is 10 MHz.	B	PRC5MHZ (keyword)
Enable CRC4 Input Criteria	Determines if the system should check the selected input channel for valid CRC4 information. If correct CRC4 information is not detected, the input is disqualified. This setting is ignored for non-E1 format input signals. If set to Yes, CRC4 input criteria checking is enabled. If set to No, CRC4 input criteria checking is disabled. The default is No.	B	CRC4 (keyword)
Auto-Upload Performance Data	This setting enables or disables automatic uploading of performance data to the OSMF software from the measurement performed on the selected input channel. A setting of Yes enables automatic uploading of the data. Note that additional settings under “Thresholds” are required to enable the SSU to send performance data to the OSMF software. The default is “No.”	B	AUTOPM (keyword)
Read SSM Bits	Determines if the system will read the SSM bits from the selected input, or use the value of the Quality Level setting. If set to Yes, the system will read the SSM bits from the selected input. If set to No, the system will use the value of the Quality Level setting. The default is “No.”	B	SSMENB (keyword)

Setting	Description	DB ¹	Associated Entry in Programming Manual
SSM Bits	Selects the bit to use for the synchronization status in the non-frame aligned word of the specified input signal. The possible settings are SA4 (default), SA5, SA6, SA7, and SA8.	B	SSMBIT (keyword)
Input Source	<p>Specifies the signal source for the selected input channel. If the signal source <i>is not</i> another SSU or GPS in the network topology, a description can be entered into this field. If this is the case, the “Validate” check-box (below) must not be selected.</p> <p>If the signal source is the output of another SSU or GPS, a string specifying the output can be specified here, in which case a managed sync trail will be created between the source and destination SSU or GPS symbols on the map.</p> <hr/> <p>NOTE If this input is not enabled (see the “Enable Input” setting, above), the sync trail will have a status of “critical” on the map. If this input is enabled, the sync trail will have a status of “normal.”</p> <hr/> <p>The syntax for specifying an SSU output port is as follows: <code>ssu\$rack\$card\$port</code> Where:</p> <ul style="list-style-type: none"> • <code>ssu</code> is the label of the SSU containing the output port that is the signal source. • <code>rack</code> is “0” if the rack containing the output card that is the source is the master subrack, or 1, 2, or 3 as appropriate if the output card is in one of the expansion subracks. • <code>card</code> is the slot (A, B, C, D, or E) that the output card is installed in. • <code>port</code> is the number (1 through 16) of the output port that is the signal source. <p>The syntax for specifying a GPS output is as follows: <code>gps\$port</code> Where:</p> <ul style="list-style-type: none"> • <code>gps</code> is the label of the Primary Reference Source (GPS) containing the output that is the signal source. • <code>port</code> is the number (1 through 4) of the output port that is the signal source. <hr/> <p>NOTE Self-referencing, that is specifying an output on the same SSU as the signal source, must be avoided. The OSMF software can detect self-referencing provided the sync trail path does not pass through any other SSUs.</p>	C	<i>None</i>
Select...	Instead of entering the signal source information in the “Input Source” field, you can click this button and choose the GPS or SSU, rack, card, and port in the dialog box that appears.	C	<i>None</i>
Validate	If selected, the software ensures that the sync source information entered into the “Input Source” field is in the proper format for specifying the output of another SSU or a GPS. The default is “selected.” If the source is not an SSU or a GPS, the “Validate” check-box must not be selected.	C	<i>None</i>

1 Some of these settings are pertinent for a currently managed SSU, but not as a default setting. This column indicates whether the setting is pertinent to both currently managed SSUs and defaults (B), or to currently managed SSUs only (C). Settings that are not pertinent as default settings will not appear in the configuration defaults dialog boxes.

7.8.1.3 Outputs

An SSU can contain a master rack and four expansion racks. Each rack can contain up to five Output Cards (or ten in protected mode, where Output Cards are installed in redundant pairs). Each Output Card provides signals to 16 output ports.

Output Cards are typically installed in redundant pairs. Paired slots in the racks are labeled A, B, C, D, and E, with redundant boards being installed in each pair of slots. If boards are not installed as redundant pairs, only one board will be installed per pair of slots.

There are several Output Card settings that are configurable in this dialog box. The following table describes these settings.

- The settings under *Card Selection* in the following table are used to select a specific Output Card or redundant pair of Output Cards to which the remainder of the settings will apply. For example, if you want to modify settings for the Output Cards in the slots labeled “D” in the master sub-rack, select Master Subrack under “Rack,” and select D under “Output Card.”
- The settings under *Card-Specific Settings* affect all outputs of the selected Output Card or pair of redundant Output Cards.
- *Port-Specific Settings* apply independently to each output port of the selected Output Card. The output ports are shown in the left-most column of the bottom portion of the dialog box. Those settings in the same row as the listed port apply to that port. Note that this portion of the dialog box can be scrolled to show all output ports (up to a total of sixteen ports per card).

NOTE Configuration settings shown in the dialog box will pertain to both Output Cards of a redundant pair.

Setting	Description	DB ¹	Associated Entry in Programming Manual
<i>Card Selection</i>			
Rack	The output card settings in the remainder of this dialog box will pertain to the card selected under Output Card that is installed in the output rack specified here. If Master Sub-rack is selected, the settings in the remainder of the dialog box will pertain to the card specified under Output Card that is installed in the master sub-rack. If Expansion Rack is selected, the settings in the remainder of the dialog box will pertain to the card specified under Output Card that is installed in the specified expansion rack. When Expansion Rack is selected, a drop-down list appears in which you specify the expansion rack (up to four expansion racks are supported).	B	None
Output Card	Output cards are installed into slots labeled A, B, C, D, or E in the master sub-rack or expansion racks. This setting, along with the Output Rack setting above, are used to select the output card to which the settings in the remainder of the dialog box pertain.	B	None

Setting	Description	DB ¹	Associated Entry in Programming Manual
<i>Card-Specific Settings</i>			
output card model	Indicates the model number of the Output Card specified above. <i>This field is not editable.</i>	B	<i>Not Applicable</i>
SSM Bits	Selects the bit to use for the synchronization status in the non-frame aligned word of the specified Output Card's output signal. The possible settings are SA4 (default), SA5, SA6, SA7, and SA8.	B	SSMBIT (keyword)
SA Bits (TS0)	Sets certain bits in the non-frame aligned word on 2048 kbps outputs. There are four choices: 0x0xxxxx, 0x1xxxxx, 1x0xxxxx, and 1x1xxxxx.	B	SABITS (keyword)
Output Type	If E1 Framed Data is selected, the output signal of the selected Output Card is the usual framed 2048 kbps signal. If AIS is selected, the output is forced to an unframed, all-ones Alarm Indication Signal (AIS).	B	AIS (keyword)
Holdover Action	Selects the action that the selected Output Card will take if the SSU should go into holdover mode: Continue - The card continues to produce an output signal while in holdover mode. This is the default mode. AIS - The card produces an Alarm Indication Signal (AIS) while in holdover mode. Note that this option is only valid for formatted E1 Output Cards. Squelch Card - The output of the card is squelched while in holdover mode.	B	HLDACT (keyword)
Traffic (TS1-TS31)	Specifies the data pattern that is carried in the traffic time slots of 2048 kbps outputs (55481A Output card only). The value entered must produce a traffic pattern that contains no more than one zero. These values are 127, 191, 223, 239, 247, 251, 253, and 254. The default value, which is 255, produces an all ones pattern. <i>Note that if an HP55481A card is paired with a 55481B card, or if a value is entered that produces a pattern that contains more than one zero, this value will be set to 255 (all ones).</i>	B	TRAFFIC (keyword)
TRSC SSM	Determines whether the SSM value at the input channel will be passed through to the output, or an SSM value that is based on the quality of the reference source used by the TRSC card will be inserted into the output. If "Insert" is selected, the TRSC card will insert an SSM value based on the quality of its reference source. If "No Insert" is selected, the TRSC output SSM bits will be identical to the SSM bits at that TRSC input channel. <i>Refer to the document entitled 55400A Supplemental Documentation for more information on this setting.</i> The default is "No Insert."	B	TRSCSSM (keyword)
<i>Port-Specific Settings</i>			
Channel	These indicate the specific output channels on the selected Output Card (channels 1 through 16) or TRSC card (channels 1 through 8) that the adjacent settings pertain to. This area of the dialog box can be scrolled to show all output channels. The settings (Disable and Destination) to the right of each channel pertain specifically to that channel.	B	<i>None</i>
Disable	If selected, the specified output channel will be disabled. The default is "not selected" (not disabled).	B	SQUELCH (keyword)

Setting	Description	DB ¹	Associated Entry in Programming Manual
Destination	If the selected output channel has been specified as a signal source for another SSU, the destination SSU label and input channel will be shown here in the form <i>ssu_label\$input_channel</i> . <i>This field is not editable.</i>	C	<i>Not Applicable</i>

¹ Some of these settings are pertinent for a currently managed SSU, but not as a default setting. This column indicates whether the setting is pertinent to both currently managed SSUs and defaults (B), or to currently managed SSUs only (C). Settings that are not pertinent as default settings will not appear in the configuration defaults dialog boxes.

7.8.1.4 Event Actions

The SSU generates event messages to report ongoing or transient conditions that have occurred or are occurring within the SSU or the network. Events are classified as either alarm or non-alarm events. In general, alarm events result from a standing condition that has immediate or potential impact on the operation or performance of the SSU.

Every event has a default severity level assigned to it, and the severity level of certain events can be changed in this dialog box. You can also specify whether or not a given event is recorded in the event logs on the ITH cards.

Setting	Description	DB ¹	Associated Entry in Programming Manual
Event Type	The lower portion of the dialog box is a scrolling list that shows the various events that can potentially be generated by the SSU. This list can be extensive. This drop-down list allows you to filter events so that only those of a certain category appear in the lower portion of the dialog box. If this parameter field is blank, no categories are selected to be filtered (all events are displayed).	B	<i>None</i>
Code	This column shows all event codes of the types selected under Event Type (above). They are listed in alphabetical order.	B	<i>None</i>
Description	This column provides a short description of the associated event code.	B	<i>None</i>
Severity	This column shows the severity level assigned for the associated event, which can be changed <i>for certain events</i> ² . The following severity levels are available; the default level depends on the individual event: FAIL - The associated event will generate a Critical alarm indication. Refer to the SSU programming documentation for more information. MAJOR - The associated event will generate a Major alarm indication and generate an alarm event message. MINOR - The associated event will generate a Minor alarm indication and generate an alarm event message. NON ALARM - The associated event will not generate an alarm indication but will generate a non-alarm event message, which is placed in the Event History Log. NONE - The associated event will not generate an alarm indication or event message.	B	SET-ATTR-TSG (command)
Log	An event log is maintained independently on each ITH card. It contains a chronological record of the those events that have occurred and have been configured to be entered into the log. Selecting the button in this column for the associated event configures it to be entered into the log. The default setting depends on the event. NOTE This setting has no relation to the events that are logged by the OSMF software.	B	ED-EQPT-TSG (command)

1 Some of these settings are pertinent for a currently managed SSU, but not as a default setting. This column indicates whether the setting is pertinent to both currently managed SSUs and defaults (B), or to currently managed SSUs only (C). Settings that are not pertinent as default settings will not appear in the configuration defaults dialog boxes.

2 Certain ongoing events that represent normal operating conditions as well as transient events cannot have a severity level other than “No Alarm” assigned to them to prevent generation of alarms under normal operating conditions. In the context of a current SSU configuration, if you select a severity level that is invalid for the given event and attempt to apply it, a message box will appear containing the message “This event cannot generate an alarm,” and the background of the field might turn yellow, indicating that another selection must be made.

7.8.1.5 IMC Card

An SSU contains only one Network Information Management Card (NIMC) which is installed in the Master Sub-rack. The IMC card allows communications to take place between the SSU and a controller connected locally to a serial data port. There are several IMC Card settings pertaining to the local serial data port that are configurable in this dialog box. The following table describes these settings.

Setting	Description	DB ¹	Associated Entry in Programming Manual
IMC Card Model	Indicates the model number of the IMC installed. <i>This field is not editable.</i>	B	<i>Not Applicable</i>
Software Rev	Indicates the revision number of the IMC software currently installed. <i>This field is not editable.</i>	C	<i>Not Applicable</i>
Enable Local Port	If set to Yes, the local serial data port on the IMC card will be enabled. If set to No, the local port will be disabled.	B	ED-CID-SECU (command)
Flow Control	Affects the control of data flow over the local serial data port on the IMC card. If set to None, no flow control is incorporated. If set to Hardware, hardware CTS/RTS (clear-to-send/request-to-send) signals are incorporated for flow control. Note that although you can select flow control here, it is recommended that it be set via hardware switches on the IMC card. Refer to the <i>55400A Synchronization Supply Unit User's Manual</i> for more information.	B	LCLFLOW (keyword)
Automatic Output	Automatic messages are generated when a variety of alarmed and non-alarmed conditions occur (the conditions that cause automatic messages can be either factory-configured or custom-configured). The Automatic Output setting determines the condition under which these messages are reported to a terminal connected to the local serial data port on the IMC card: Always - Automatic messages are always reported to the local port. This is the default. Login - Automatic messages are reported only when logged in to the local port. Never - Automatic messages are never reported to the local port.	B	LCLAO (keyword)
Command Echo	If set to Yes, the SSU will echo TL1 commands to the terminal that is connected to the local serial data port on the IMC card. If set to No, the SSU will not echo commands.	B	LCLECHO (keyword)
Baud Rate	Sets the baud rate of the local serial data port on the IMC card. Note that although you can select the baud rate here, it is recommended that it be set via hardware switches on the IMC card. Refer to the <i>55400A Synchronization Supply Unit User's Manual</i> for more information.	B	LCLBAUD (keyword)

¹ Some of these settings are pertinent for a currently managed SSU, but not as a default setting. This column indicates whether the setting is pertinent to both currently managed SSUs and defaults (B), or to currently managed SSUs only (C). Settings that are not pertinent as default settings will not appear in the configuration defaults dialog boxes.

7.8.1.6 Thresholds

As one of the means of qualifying input references, SSUs constantly monitor the phase deviation of their inputs. Each SSU uses this phase deviation information to calculate five different performance measurements (TDEV, MRTIE, LMRTIE, FFOFF, and SPRD). These performance measurements are calculated for several time periods, known also as observation points. Measurement thresholds can be set for each observation point and the action taken by the system when the threshold is reached can be set also.

The measurement threshold settings are configurable in this dialog box. The following table describes these settings.

- The settings under *Measurement Selection* in the following table are used to select a specific input channel and measurement type to which the remainder of the threshold settings will apply. For example, if you want to modify the threshold settings that will apply to the Time Deviation measurement on input channel 3, select 3 under “Input Channel,” and select TDEV under “Measurement Type.”
- *Observation Point Settings* apply to the individual measurement observation points. The observation points are shown in the left-most column of the bottom portion of the dialog box. Those settings in the same row as the listed observation point apply to that point.

Setting	Description	DB ¹	Associated Entry in Programming Manual
<i>Measurement Selection</i>			
Input Channel	The threshold settings in the remainder of the dialog box will pertain to the input channel selected here.	B	<i>None</i>
Measurement Type	Selects the performance measurement type for which the settings below will apply.	B	<i>None</i>
<i>Observation Point Settings</i>			
Averaging Time / Observation Time	These are the measurement time periods, or observation points, for the performance measurement selected. The measurement time period is Averaging Time or Observation Time, depending on the measurement. The settings (Threshold Value, CRI, PM, RPT) to the right of each observation point pertain to that point. <i>These observation points themselves are not editable.</i>	B	<i>Not Applicable</i>
Threshold Value	Specifies the measurement threshold value for the specified measurement time period (observation point). The action taken when the threshold is crossed is determined by the setting of CRI and RPT. The range and default values depend on the measurement type: TDEV - range: 0 to 800,000 ns; default: 0 ns MRTIE -range: 0 to 1,900,000,000 ns; default: 0 ns LMRTIE - range: 0 to 1,900,000,000; default: 0 ns FFOFF - range: 0 to 7,300,000 ppm; default: 0 ppm SPRD - range: 0 to 7,300,000 ppm; default: 0 ppm	B	SET-TH-TSG (command)
CRI	If selected, the input will be disqualified if the threshold value is exceeded and the INDISQ and INMEAS events will be generated. This setting is blanked if the SPRD measurement is selected. The default is “not selected.”	B	ED-SYNC-TSG (command)

Setting	Description	DB ¹	Associated Entry in Programming Manual
PM	<p>If selected, the data for the specified Averaging/Observation Time will be uploaded to the OSMF software if auto-upload² is set. Performance data will be automatically forwarded from the SSU to the OSMF performance log database for each Averaging/Observation Time for which “PM” has been set, whether or not the Performance Monitor dialog box is open. The default is “not selected.”</p> <p>NOTES</p> <p>When PM is selected for an observation time of 1 second for the LMRTIE measurement, or an averaging time of 1 or 4 seconds for the FFOFF measurement, data is logged into the OSMF software database almost continuously. The result of this is that the database could become full, so care should be exercised when selecting PM for these observation/averaging times.</p> <p>If “PM” is selected for more than one time interval for a given Measurement Type and Input Channel, and the data is sent for all time intervals at the same time³, all of that data will have the same time stamp.</p>	B	ED-SYNC-TSG (command)
RPT	If selected, a non-alarm event (MEASRP) will be generated whenever the threshold is crossed in either direction. The default is “not selected.”	B	ED-SYNC-TSG (command)

1 Some of these settings are pertinent for a currently managed SSU, but not as a default setting. This column indicates whether the setting is pertinent to both currently managed SSUs and defaults (B), or to currently managed SSUs only (C). Settings that are not pertinent as default settings will not appear in the configuration defaults dialog boxes.

2 Refer to the “Auto-Upload Performance Data” setting under *Input Channels* in this chapter.

3 For example, in the case of the MRTIE measurement, available data for all chosen observation times will be updated (that is, sent from the SSU to the OSMF software) every 15 minutes.

7.8.1.7 ITH Card

An SSU always contains two redundant Input Track-and-Hold (ITH) cards. The active ITH card qualifies reference inputs, selects an input, and filters jitter and wander from it before passing it to the Output Cards. Should all input references fail, the SSU goes into Holdover mode, and the oscillator on the active ITH card takes over as the system reference.

There are several ITH Card settings that are configurable in this dialog box. The following table describes these settings.

NOTE Configuration settings shown in the dialog box will pertain to both ITH Cards of the redundant pair.

Setting	Description	DB ¹	Associated Entry in Programming Manual
Model (ITH-1, ITH-2)	Indicates the model numbers of the Input Track-and-Hold (ITH) cards installed. <i>This field is not editable.</i>	B	<i>Not Applicable</i>
Software Revision (ITH-1, ITH-2)	Indicates the revision number of the ITH software currently installed. <i>This field is not editable.</i>	C	<i>Not Applicable</i>
Sync Mode	When more than one input is qualified, Sync Mode determines the method used to choose which qualified input to use as the reference: Forced - The input specified under Input Channel in Manual/Forced Mode is used, and if it becomes disqualified, the SSU goes into holdover mode. Manual - The input specified under Input Channel in Manual/Forced Mode is used, and if it becomes disqualified, the SSU goes into Auto sync mode until the specified input is re-qualified. Auto - If more than one input is qualified and the SSU must choose a qualified input to use, the PRC input has highest priority, followed by input 1, 2, etc. SSM - If more than one input is qualified, the SSU employs the Synchronization Status Message selection algorithm to choose the input. Basically, in SSM mode, the qualified channel with the lowest SSM value is used as the reference.	B	SYNCMODE (keyword)
Input Channel in Manual/Forced Mode	The input channel to be used when the input selection mode (Sync Mode) is set to Manual or Forced. See Sync Mode, above.	B	MANCHAN (keyword)
Enable Revertive Mode	If set to No, the currently selected active input will remain selected until it is disqualified, even if an input with a higher priority becomes qualified. If set to Yes, the SSU will always select the qualified input with the highest priority as the active input. Revertive mode is only applicable to Auto and SSM sync modes.	B	REVERT (keyword)
Discontinue Time	The time for which an input can be severely errored (such as experiencing a complete drop-out) before being disqualified. The range is 1 to 15 seconds and the default is 2 seconds.	B	DSCTIME (keyword)
Wait Time	The wait time determines how long the performance of an input signal must remain above acceptable performance levels before it is qualified. The range is 0 to 1000 seconds and default is 30 seconds.	B	WTRSS (keyword)

Setting	Description	DB ¹	Associated Entry in Programming Manual
Pull-In Range	Specifies how far off in fractional frequency the input signal can be from the absolute local oscillator frequency before being disqualified. The range is 10 to 10000 parts-per-billion (ppb) and default is 4600 ppb (with a Rubidium standard, default is 16 ppb).	B	PIRANGE (keyword)
Incl Channel in Spread	The inputs selected here will be included in the frequency spread (SPRD) performance measurement.	B	SPRDCHN (keyword)
Holdover SSM	Sets the assumed SSM value of an E1 output when in holdover mode (if Holdover Action is set to produce an output in holdover mode). The valid settings are as follows: 0 - Quality unknown (existing synchronization network). 2 - Rec. G.811-PRC level. 4 - G.812 transit-Transit node. 8 - G.812 Local-Local node. 11 - Synchronous Equipment Timing Source (SETS) (<i>default</i>) 15 - Do not use for synchronization.	B	HFQLEVL (keyword)
High Slip Limit	Sets the detection threshold for the slip rate. <i>Refer to the document entitled 55400A Supplemental Documentation for more information on this setting.</i> The range is 10 to 20000 parts-per-billion (ppb), and the default is 4600 ppb.	B	HSLIMIT (keyword)

¹ Some of these settings are pertinent for a currently managed SSU, but not as a default setting. This column indicates whether the setting is pertinent to both currently managed SSUs and defaults (B), or to currently managed SSUs only (C). Settings that are not pertinent as default settings will not appear in the configuration defaults dialog boxes.

7.8.1.8 Commands

The OSMF software communicates with the SSUs it manages using TL1 commands. Users can also communicate directly with SSUs by sending TL1 commands and interpreting TL1 responses via the SSU's local port using a dedicated terminal or local craft terminal. User access to these commands can be configured in this dialog box.

Every TL1 command has a default security level assigned to it. The security level determines the user class that is authorized to execute a given command. The security level of certain commands can be changed in this dialog box. The following table describes the settings in the dialog box:

Setting	Description	DB ¹	Associated Entry in Programming Manual
Command	This column shows all of the available TL1 commands. They are listed in alphabetical order.	B	<i>None</i>
Description	This column includes a short description of the TL1 command.	B	<i>None</i>
Security Level	This column shows the security level currently assigned to the command, which can be changed <i>for certain commands</i> . The default severity level depends on the individual command.	B	ED-CMD-SECU (command)

¹ Some of these settings are pertinent for a currently managed SSU, but not as a default setting. This column indicates whether the setting is pertinent to both currently managed SSUs and defaults (B), or to currently managed SSUs only (C). Settings that are not pertinent as default settings will not appear in the configuration defaults dialog boxes.

A

User-Editable Field Parameters

A.1 In this Appendix

A.1.1 This appendix lists the Data Type, Range (where applicable) and Format (where applicable), and Default Value for the user-editable field parameters found in the OSMF dialog boxes. *User editable fields* are those fields within the dialog boxes that require typed input.

NOTE

This appendix does not list user-editable field parameter data for the standard OpenView dialog boxes, that is, those dialog boxes that are invoked from the OpenView menus. Refer to the OpenView documentation for information on parameter settings associated with those dialog boxes.

The list on the following page shows, at a glance, the dialog boxes that do and do not contain user-editable field parameters.

Dialog Boxes That Contain User-Editable Field Parameters	Dialog Boxes That Do Not Contain User-Editable Field Parameters
<p>Network Element Management Dialog Boxes</p> <ul style="list-style-type: none"> • OSMF:Manage • OSMF:Remanage <p>Fault Management Dialog Boxes</p> <ul style="list-style-type: none"> • Network Element Status • OSMF:Alarm Viewer:Filtering Criteria • OSMF:Alarm Viewer:Network Element Filter • OSMF:Alarm Viewer:Location Filter • OSMF:Alarm Viewer:Event Type Filter • OSMF:Alarm Details • OSMF:Event History Log:Filtering Criteria • OSMF:Event History Log:Network Element Filter • OSMF:Event History Log:Location Filter • OSMF:Event History Log:Event Type Filter • Runtime Parameter Form (<i>event reports</i>) • OSMF:Event History Log Previewer <p>Performance Management Dialog boxes</p> <ul style="list-style-type: none"> • OSMF:Performance Monitor • Runtime Parameter Form (<i>performance reports</i>) • OSMF:Performance Report (<i>previewer</i>) <p>Inventory Management Dialog Boxes</p> <ul style="list-style-type: none"> • OSMF:Inventory • Filtering Criteria • Output Card Inventory • Filtering Criteria • Rack Inventory • Filtering Criteria <p>Security Management</p> <ul style="list-style-type: none"> • OSMF:Management Domains • Select User <p>Configuration Managment Dialog Boxes</p> <ul style="list-style-type: none"> • OSMF:Configuration:Modify 	<p>Fault Management Dialog Boxes</p> <ul style="list-style-type: none"> • OSMF:Alarm Viewer • OSMF:Alarm Viewer:Preferences • OSMF:Alarm Viewer:Sorting Criteria • OSMF:Event History Log • OSMF:Event History Log:Sorting Criteria • OSMF:Event History Log Details <p>Inventory Management Dialog Boxes</p> <ul style="list-style-type: none"> • Details (<i>Inventory dialog box</i>) • Sorting Criteria (<i>Inventory dialog box</i>) • Sorting Criteria (<i>Output Card Inventory dialog box</i>) • Sorting Criteria (<i>Rack Inventory dialog box</i>)

A.2 Network Element Management

A.2.1 This section lists the user-editable field parameters for the dialog boxes associated with the Network Element Management functions of the OSMF software. The dialog boxes listed in this section are typically accessed when performing the SSU/GPS management procedures in Chapter 2 of this manual.

A.2.1.1 OSMF:Manage

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Address	String	Format is determined by the network protocol: <ul style="list-style-type: none"> • IP Address - IP Dot Notation. • X.25 - Numerical string between 5 and 15 characters long. 	(blank)
Password	String	Up to 10 characters. Must match the svsec password on the SSU.	(blank)

A.2.1.2 OSMF:Remanage

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Password	String	Up to 10 characters. Must match the svsec password on the SSU.	(blank)

A.3 Fault Management

A.3.1 This section lists the user-editable field parameters for the dialog boxes associated with the Fault Management functions of the OSMF software. The dialog boxes listed in this section are typically accessed when performing the alarm management, event management, and report generation procedures in Chapter 3 of this manual.

A.3.1.1 Network Element Status

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Refresh Interval	Integer	20 to 999 seconds	20 seconds

A.3.1.2 OSMF:Alarm Viewer

There are no user-editable field parameters associated with this dialog box.

A.3.1.3 OSMF Alarm Viewer:Preferences

There are no user-editable field parameters associated with this dialog box.

A.3.1.4 OSMF:Alarm Viewer:Sorting Criteria

There are no user-editable field parameters associated with this dialog box.

A.3.1.5 OSMF:Alarm Viewer:Filtering Criteria

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Time ("from" field)	String	DD-Mon-YYYY HH24:MI	(blank)
Time ("to" field)	String	DD-Mon-YYYY HH24:MI	(blank)

A.3.1.6 OSMF:Alarm Viewer:Network Element Filter

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Find	String	Up to 30 characters. ¹	%

¹ The following are special search strings:

- % This is a substitution for any printable character string of any length, that is, "%" matches any string of zero or more printable characters, except for null.
- The underscore character matches to any single printable character.
- \- The backslash followed by the underscore searches for strings containing the underscore (-).

A.3.1.7 OSMF:Alarm Viewer:Location Filter

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Find	String	Up to 30 characters. ¹	%

¹ The following are special search strings:

- % This is a substitution for any printable character string of any length, that is, "%" matches any string of zero or more printable characters, except for null.
- The underscore character matches to any single printable character.
- \- The backslash followed by the underscore searches for strings containing the underscore (-).

A.3.1.8 OSMF:Alarm Viewer:Event Type Filter

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Find	String	Up to 30 characters. ¹	%

¹ The following are special search strings:

- % This is a substitution for any printable character string of any length, that is, "%" matches any string of zero or more printable characters, except for null.
- The underscore character matches to any single printable character.
- \- The backslash followed by the underscore searches for strings containing the underscore (-).

A.3.1.9 OSMF:Alarm Details

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Remarks	String	Up to 80 characters.	(blank)

A.3.1.10 OSMF:Event History Log

There are no user-editable field parameters associated with this dialog box.

A.3.1.11 OSMF:Event History Log:Sorting Criteria

There are no user-editable field parameters associated with this dialog box.

A.3.1.12 OSMF:Event History Log:Filtering Criteria

The user-editable field parameters associated with this dialog box are the same as those listed for the "OSMF:Alarm Viewer:Filtering Criteria" dialog box.

A.3.1.13 OSMF: Event History Log:Network Element Filter

The user-editable field parameters associated with this dialog box are the same as those listed for the "OSMF:Alarm Viewer:Network Element Filter" dialog box.

A.3.1.14 OSMF: Event History Log:Location Filter

The user-editable field parameters associated with this dialog box are the same as those listed for the "OSMF:Alarm Viewer:Location Filter" dialog box.

A.3.1.15 OSMF: Event History Log:Event Type Filter

The user-editable field parameters associated with this dialog box are the same as those listed for the "OSMF:Alarm Viewer:Event Type Filter" dialog box.

A.3.1.16 OSMF:Event History Log Details

There are no user-editable field parameters associated with this dialog box.

A.3.1.17 Runtime Parameter Form (event reports)

Parameter	Data Type	Range (min-max) or Format	Default Value
Report Header	String	0 to 50 characters	(blank)
Network Elements	String	Up to 2,000 characters.	(blank), or the SSU names that were selected on the map, separated by "!".
Time ("from" field)	String	MM/DD/YYYY HH24:MI:SS	(blank)
Time ("to" field)	String	MM/DD/YYYY HH24:MI:SS	(blank)
Maximum No of Events	Integer	0 to 99999	(blank)

A.3.1.18 OSMF:Event History Log Previewer

Parameter	Data Type	Range (min-max) or Format	Default Value
Page	Integer	First to last page of report.	1

A.4 Performance Management

A.4.1 This section lists the user-editable field parameters for the dialog boxes associated with the Performance Management functions of the OSMF software. The dialog boxes listed in this section are typically accessed when performing the performance management and report generation procedures in Chapter 4 of this manual.

A.4.1.1 OSMF:Performance Monitor

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Refresh Interval	Integer	30 to 9999 seconds	300 seconds

A.4.1.2 Runtime Parameter Form (performance reports)

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Time ("from" field)	String	MM/DD/YYYY HH24:MI:SS	(blank), or oldest time stamp in the entire performance log.
Time ("to" field)	String	MM/DD/YYYY HH24:MI:SS	(blank), or most recent time stamp in the entire performance log.

A.4.1.3 OSMF:Performance Report (previewer)

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Page	Integer	First to last page of report.	1

A.5 Inventory Management

A.5.1 This section lists the user-editable field parameters for the dialog boxes associated with the Inventory Management functions of the OSMF software. The dialog boxes listed in this section are typically accessed when performing the inventory database management and resource association procedures in Chapter 5 of this manual.

A.5.1.1 OSMF:Inventory

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Serial No	String	1 to 80 characters	(blank)
Eqp Code/Type	String	0 to 80 characters	"OUTPUT_CARD"
Description	String	1 to 80 characters	"None"
Date Incorporated	String	DD-MON-YYYY	Current date
Warranty End Date	String	DD-MON-YYYY	Current date + 365 days
Date Removed	String	DD-MON-YYYY	(blank)
Hardware Revision	String	0 to 80 characters	(blank)
Resource State	String	0 to 80 characters	"SPARE"
Bidder	String	0 to 80 characters	"HP"

A.5.1.2 Details

There are no user-editable field parameters associated with this dialog box.

A.5.1.3 Sorting Criteria

There are no user-editable field parameters associated with this dialog box.

A.5.1.4 Filtering Criteria

The user-editable field parameters associated with this dialog box are the same as those listed for the "Inventory" dialog box, with the exception that the default value for all of the fields is (blank).

A.5.1.5 Output Card Inventory

Parameter	Data Type	Range (min-max) or Format	Default Value
Serial No 1	String	0 to 80 characters	(blank)
Serial No 2	String	0 to 80 characters	(blank)

A.5.1.6 Sorting Criteria

There are no user-editable field parameters associated with this dialog box.

A.5.1.7 Filtering Criteria

Parameter	Data Type	Range (min-max) or Format	Default Value
Selection Name	String	0 to 80 characters	(blank)
Rack	Integer	0 to 9, but relevant values are 0, 1, 2, 3, and 4.	(blank)
Card	String	Any single character, but relevant values are A, B, C, D, and E.	(blank)
HW Rev 1	String	0 to 80 characters	(blank)
HW Rev 2	String	0 to 80 characters	(blank)
Serial No 1	String	0 to 80 characters	(blank)
Serial No 2	String	0 to 80 characters	(blank)

A.5.1.8 Rack Inventory

Parameter	Data Type	Range (min-max) or Format	Default Value
IMC Serial No	String	0 to 80 characters	(blank)
ITH1 Serial No	String	0 to 80 characters	(blank)
ITH2 Serial No	String	0 to 80 characters	(blank)
Rack Serial No	String	0 to 80 characters	(blank)

A.5.1.9 Sorting Criteria

There are no user-editable field parameters associated with this dialog box.

A.5.1.10 Filtering Criteria

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Selection Name	String	0 to 80 characters	(blank)
Rack	Integer	0 to 9, but relevant values are 0, 1, 2, 3, and 4.	(blank)
IMC Serial no	String	0 to 80 characters	(blank)
ITH1 Serial No	String	0 to 80 characters	(blank)
ITH2 Serial No	String	0 to 80 characters	(blank)
Rack Serial No	String	0 to 80 characters	(blank)
IMC SW Rev	String	0 to 80 characters	(blank)
ITH1 SW Rev	String	0 to 80 characters	(blank)
ITH2 SW Rev	String	0 to 80 characters	(blank)
IMC HW Rev	String	0 to 80 characters	(blank)
ITH1 HW Rev	String	0 to 80 characters	(blank)
ITH2 HW Rev	String	0 to 80 characters	(blank)

A.6 Security Management

A.6.1 This section lists the user-editable field parameters for the dialog boxes associated with the Security Management functions of the OSMF software. The dialog boxes listed in this section are typically accessed when performing the management domain procedures in Chapter 6 of this manual.

A.6.1.1 OSMF: Management Domains

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Find (locations)	String	Up to 20 characters. ¹	%
Find (network elements)	String	Up to 20 characters. ¹	%

¹ The following are special search strings:

- % This is a substitution for any printable character string of any length, that is, “%” matches any string of zero or more printable characters, except for null.
- The underscore character matches to any single printable character.
- _ The backslash followed by the underscore searches for strings containing the underscore (-).

A.6.1.2 Select User

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Find	String	Up to 10 characters. ¹	%

¹ The following are special search strings:

- % This is a substitution for any printable character string of any length, that is, “%” matches any string of zero or more printable characters, except for null.
- The underscore character matches to any single printable character.
- _ The backslash followed by the underscore searches for strings containing the underscore (-).

A.7 Configuration Management

A.7.1 This section lists the user-editable field parameters for the dialog boxes associated with the Configuration Management functions of the OSMF software. The dialog boxes listed in this section are typically accessed when performing the procedures in Chapter 7 of this manual.

A.7.1.1 OSMF:Configuration:Modify [Network]

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
System Identifier (SID)	String	1 to 20 characters ¹	"HPSSU"

¹ The entered string should not contain any white space characters (spaces, tabs, carriage returns, or newlines). If these characters are included in the string, they will be removed by the Configuration:Modify dialog box.

A.7.1.2 OSMF:Configuration:Modify [Input Channels]

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Cutoff Quality	Integer	0 to 15	15
SSM Quality Level	Integer	0 to 15, but relevant values are 0, 2, 4, 8, 11, and 15.	4
Input Priority	Integer	0 to 9	1
Tracking Time Constant	Integer	The relevant values are 172, 768, 3072, 12288, and 49152.	768 ¹
SSM Bits	String	The relevant values are SA4, SA5, SA6, SA7, and SA8. ²	SA4
SSM Priority Grouping	Integer	0 to 8	3
Input Source	String	0 to 100 characters; the format is: <ul style="list-style-type: none"> • <i>ssu_name\$rack\$card\$port</i> <i>or</i> • <i>gps_name\$port</i> 	(blank)

¹ The defaults and the allowed values are not currently defined on the basis of oscillator type.

² The dialog box lets you enter any value for SSM Bits, but the value entered is validated against these values when you attempt to navigate out of the "OSMF:Configuration:Modify" dialog box.

A.7.1.3 OSMF:Configuration:Modify [Outputs]

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
SSM Bits	String	The relevant values are SA4, SA5, SA6, SA7, and SA8. ¹	SA4

¹ The dialog box lets you enter any value for SSM Bits, but the value entered is validated against these values when you attempt to navigate out of the “OSMF:Configuration:Modify” dialog box.

A.7.1.4 OSMF:Configuration:Modify [Event Actions]

There are no user-editable field parameters associated with this dialog box.

A.7.1.5 OSMF:Configuration:Modify [IMC Card]

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Baud Rate	Integer	0 to 99999, but relevant values are 1200, 2400, 9600, and 19200.	9600

A.7.1.6 OSMF:Configuration:Modify [Thresholds]

Parameter	Data Type	Range (min-max) <i>or</i> Format	Default Value
Threshold Value	Float-type number (24.6 format).	TDEV - 0 to 800,000 ns MRTIE - 0 to 1,900,000,000 ns LMRTIE - 0 to 1,900,000,000 ns FFOFF - 0 to 7,300,000 ppm SPRD - 0 to 7,300,000 ppm	TDEV - 0 ns MRTIE - 0 ns LMRTIE - 0 ns FFOFF - 0 ppm SPRD - 0 ppm

A.7.1.7 OSMF:Configuration:Modify [ITH Card]

Parameter	Data Type	Range (min-max) or Format	Default Value
Discontinue Time	Integer	0 to 99, but the relevant range is 1 to 15 seconds.	2 seconds
Wait Time	Integer	0 to 9999, but the relevant range is 0 to 1000 seconds	30 seconds
Pull-In Range	Integer	0 to 99999, but the relevant range is 0 to 10000 ppb	4600 ppb (16 ppb with a Rubidium standard).
Holdover SSM	Integer	0 to 99, but relevant values are 0, 2, 4, 8, 11, and 15.	11
High Slip Limit	Integer	0 to 99999, but the relevant range is 1 - 10000	4600

A.7.1.8 OSMF:Configuration:Modify [Commands]

There are no user-editable field parameters associated with this dialog box.

