



Unisphere Management Center

HP OpenView Integration Pack

User Guide

Release 2.1.x
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About This Guide

Introduction

HP OpenView Integration Pack is powered by the HP OpenView Network Node Manager platform and includes customizations that provide configuration and fault management for the Unisphere ERX edge routers.

This user guide includes:

- An introduction and product overview
- Workstation requirements (hardware and software) for workstations on which HP OpenView Integration Pack is installed
- Installation and removal procedures for HP OpenView Integration Pack
- Description and user procedures for HP OpenView Integration Pack
- An appendix describing MIB files installed with HP OpenView Integration Pack and SNMP traps supported by HP OpenView Integration Pack

Audience

This guide is intended for experienced system and network specialists who will install and use HP OpenView Integration Pack.

Conventions

Table 1 and Table 2 list all the conventions used in this guide. Table 1 defines notice icons. Table 2 lists text conventions.

Table 1 Notice icons




Icon	Meaning	Description
	Information note	Indicates important features or instructions.
	Caution	Indicates that you may risk losing data or damaging your hardware.
	Warning	Alerts you to the risk of personal injury.

Table 2 Text conventions (except for command syntax)

Convention	Description
Commands or Keywords	<ul style="list-style-type: none"> Always appear in bold typeface. <ul style="list-style-type: none"> Command example: bgp dampening Keyword example: show
User Input	<ul style="list-style-type: none"> Always appears in bold Courier typeface. <ul style="list-style-type: none"> Example: user input
Keyboard keys	<ul style="list-style-type: none"> <Enter> key within a procedure, indicates that you press the key. <Ctrl+B> key names linked with a plus sign (+) indicates that you must press two or more keys simultaneously.
type	<ul style="list-style-type: none"> You must type something, such as a command, keyword, or value.
Screen display	<ul style="list-style-type: none"> Appears in plain Courier typeface. Represents information as displayed on your terminal's screen. <ul style="list-style-type: none"> Example: <pre>host1#show ip ospf 2 Routing Process OSPF 2 with Router ID 5.5.0.250 Router is an Area Border Router (ABR)</pre>
Words in <i>italics</i>	<ul style="list-style-type: none"> Emphasize words. <ul style="list-style-type: none"> Example: There are two levels of access, <i>user</i> and <i>privileged</i>. Identify parameters. <ul style="list-style-type: none"> Example: <i>cluster-id</i>, <i>ip-address</i>. Identify chapter, appendix, and book names. <ul style="list-style-type: none"> Example: <i>Appendix A</i>, <i>System Specifications</i>.

Glossary of Terms

Table 3 provides a glossary of terms used in the guide.

Table 3 Glossary of Terms

Convention	Description
BGP	Border Gateway Protocol
CLI	Command Line Interface
DLCI	Data Link Connection Identifier
ERX	Edge Routing Switch
HP	Hewlett-Packard Company
HPOV NNM	HP OpenView Network Node Manager
MIB	Management Information Base
OID	Object Identifier
OSPF	Open Shortest Path First
SNMP	Simple Network Management Protocol
UMC	Unisphere Management Center

References

Table 4 provides a list of related ERX documents from Unisphere Networks. Table 5 provides a reference document from Hewlett Packard Company.

Table 4 Release 3.2.x reference documents available from Unisphere Networks

Guide name & Release Number	Part number
<i>NMC-RX User's Guide, Release 3.2.x</i>	162-00262-00
<i>ERX Configuration Guide, Volume 1, Release 3.2.x</i>	162-00228-00
<i>ERX Configuration Guide, Volume 2, Release 3.2.x</i>	162-00229-00
<i>ERX Command Reference Guide, Release 3.2.x</i>	160-00231-00
<i>ERX Installation and User Guide, Release 3.2.x</i>	160-00230-00
<i>ERX Product Overview Guide, Release 3.2.x</i>	160-00232-00
<i>ERX Quick Start Guide, Release 3.2.x</i>	160-00233-00

Table 5 Reference documents available from Hewlett-Packard Company

Guide name	Part number
<i>Managing Your Network with HP OpenView Network Node Manager (version 6.1, January 2000)</i>	J1240-90035

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Overview

1

HP OpenView Integration Pack provides advanced configuration management of Unisphere ERX edge routers. It is powered by the HP OpenView Network Node Manager platform, and is used in conjunction with the Unisphere NMC-RX element manager.

The Unisphere NMC-RX application configures and manages Unisphere devices in a network managed by HP OpenView (HPOV). The NMC-RX element manager can be launched from HPOV.

Features

HP OpenView Integration Pack provides the following main features:

- The NMC-RX application can be launched from the HPOV network map
- Unisphere ERX router MIB files can be loaded and installed in an SNMP directory
- Custom icons for ERX devices can be used in the network map
- Plain language descriptions of SNMP traps can be generated for Unisphere devices in a network
- Support for SNMP traps for ERX release 3.2.x

System Description

HP OpenView Integration Pack provides integration software that leverages the strengths of HPOV for ERX management.

Figure 1-1 shows an example of a network management system architecture. HP OpenView Integration Pack enables you to manage Unisphere ERX devices from HPOV. From HPOV, network operators can access a network map showing all Unisphere devices discovered on the network. Operators also have access to the alarm browser, the SNMP MIB browser, and the data presenter, and can launch the NMC-RX element manager from HPOV.

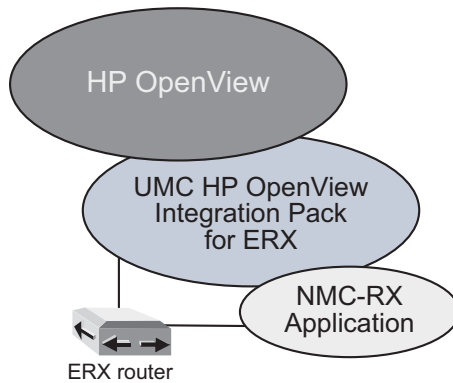


Figure 1-1 Relationship of HP OpenView Integration Pack and associated components

Devices Supported

HP OpenView Integration Pack Release 2.1.x supports Unisphere ERX routers (release 2.x, 3.0.x, 3.1.x, and 3.2.x).

System Requirements

2

HP OpenView Integration Pack and HP OpenView run on the same workstation, either a Sun Solaris or a Windows NT workstation. To run HP OpenView Integration Pack, the workstation must meet specific hardware and software requirements, in addition to the hardware and software requirements for running the HP OpenView application.



Note: To run HP OpenView Integration Pack in conjunction with UMC Micromuse Netcool/OMNibus Integration Pack, you must install HP OpenView Integration Pack on a Sun Solaris workstation.

Hardware Requirements

This section describes the hardware requirements for a Sun Solaris or Windows NT workstation on which you install HP OpenView Integration Pack.

The workstation on which you install HP OpenView Integration Pack must be the same workstation that runs HP OpenView. The workstation must meet all hardware requirements for HP OpenView and must meet the following additional hardware requirements:

- CD-ROM drive
- 10 MB free hard disk space

Software Requirements

This section describes the software requirements for a Sun Solaris or Windows NT workstation on which you install HP OpenView Integration Pack.

If you intend to configure nodes by using the Unisphere NMC-RX element manager software, you must also install version 3.2.x to configure version 3.2.x Unisphere ERX routers.

The workstation on which you install HP OpenView Integration Pack must be the same workstation that runs HP OpenView. The workstation must meet all software requirements for HP OpenView, and must have the following software installed:

Sun Solaris Workstations

- Sun Solaris, version 2.7
- HP OpenView Network Node Manager for Solaris, version 6.1

Windows NT Workstations

- Windows NT 4.0 Service Pack 4+
- HP OpenView Network Node Manager for Windows NT, version 6.1

Verify that you have awk installed before installing the HP OpenView Integration Pack on your Windows NT workstation. Awk can be downloaded from a number of web sites, including:

- > <http://cm.bell-labs.com/cm/cs/awkbook/index.html>
- > <http://www.crossmyt.com/hc/htmlchek/awk-perl.html#miscawk>
- > <http://www.faqs.org/faqs/computer-lang/awk/faq/>

If you will not be launching the NMC-RX application through HPOV Integration Pack, you do not need to install awk on your machine.

Installing and Uninstalling HP OpenView Integration Pack

3

You can install HP OpenView Integration Pack on either Sun Solaris or Windows NT workstations that meet system requirements.

Installing HPOV Integration Pack on a Sun Solaris Workstation

The HP OpenView Integration Pack CD-ROM includes an installation program that installs HP OpenView Integration Pack on your local Sun workstation.

Before installing HP OpenView Integration Pack on your workstation, you must first install HP OpenView NNM.

The NMC-RX element management system does not need to be installed for the HP OpenView Integration Pack to run. However, if you do install or uninstall the NMC-RX application after installing the HP OpenView Integration Pack, you must fully reinstall the HP OpenView Integration Pack.

To install HP OpenView Integration Pack on a Sun workstation:

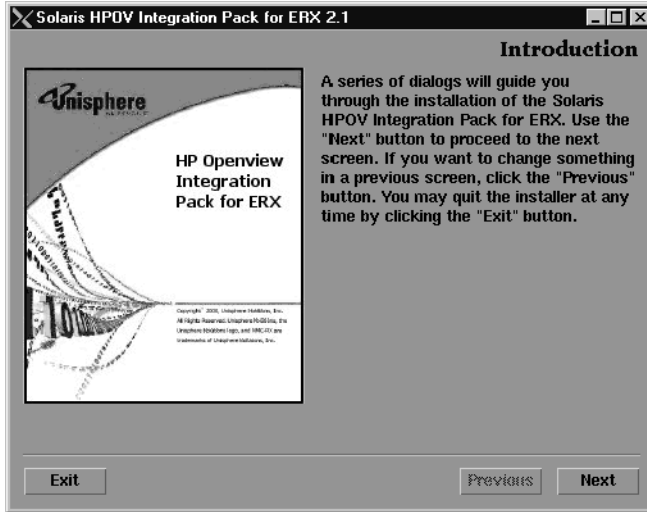
- 1 Log in to the Sun workstation as root user.
- 2 Mount the HP OpenView Integration Pack CD-ROM in the CD drive. If the volume manager daemon is running, the CD will automatically be mounted to the directory /cdrom/cdrom0.
- 3 Navigate to the directory /cdrom/cdrom0 by using the command:

```
cd /cdrom/cdrom0
```

- 4 Run the installer with the command:

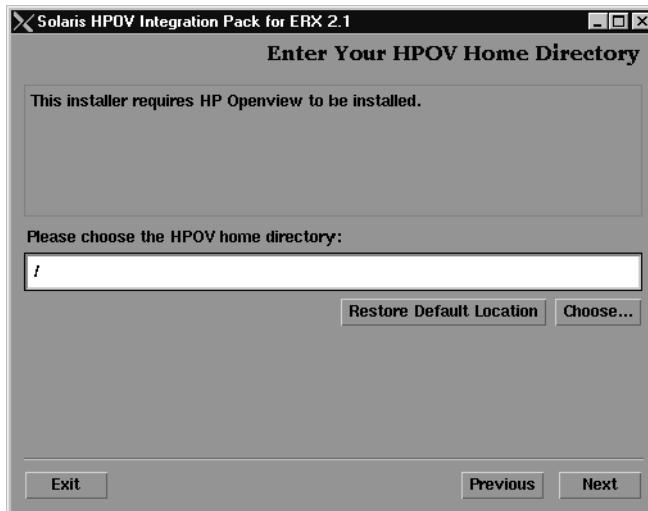
```
./CMinstal.bin
```

The Introduction dialog box appears.



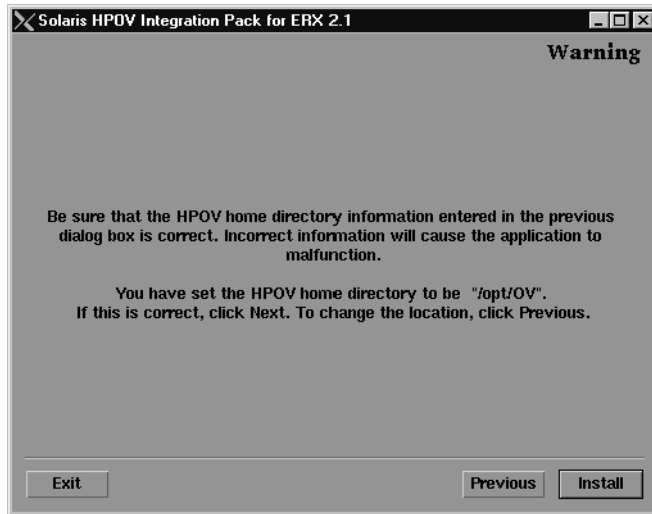
- 5 Click Next.

The Enter Your HPOV Home Directory dialog box appears.



- 6 Enter the HPOV home directory or click Choose to select the desired folder, and click Next.

A warning dialog box appears, confirming the home directory location.



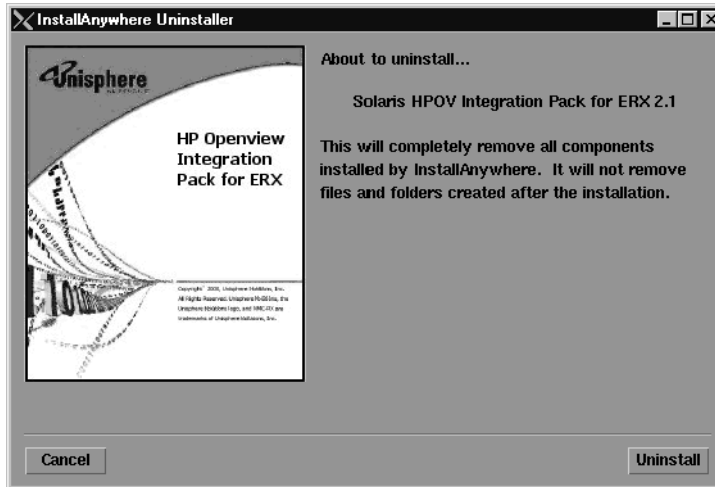
- 7 Click Previous to change the location, or Install to begin installing the software.
- 8 When the Install Complete dialog box appears, click Done.

Uninstalling HPOV Integration Pack from a Sun Solaris Workstation

To uninstall HPOV Integration Pack from a Sun Solaris workstation:

- 1 Log in to the Sun workstation as root user.
- 2 Navigate to directory /opt/OV/bin by typing the command:
`cd /opt/OV/bin`
- 3 Run the uninstaller by using the command:
`./CMuninstall.bin`

The installAnywhere Uninstaller dialog box appears.



- 4 Click Uninstall.
- 5 Click Exit when the Uninstall Complete dialog box appears.

The HP OpenView Integration Pack is now removed from your workstation.

Installing HPOV Integration Pack on a Windows NT Workstation

The HP OpenView Integration Pack CD-ROM includes an installation program that installs HP OpenView Integration Pack on your local workstation.

Before installing HP OpenView Integration Pack on your workstation, you must first install HP OpenView NNM.

The NMC-RX element management system does not need to be installed for the HP OpenView Integration Pack to run. However, if you do install or uninstall the NMC-RX application after installing the HP OpenView Integration Pack, you must fully reinstall the HP OpenView Integration Pack.

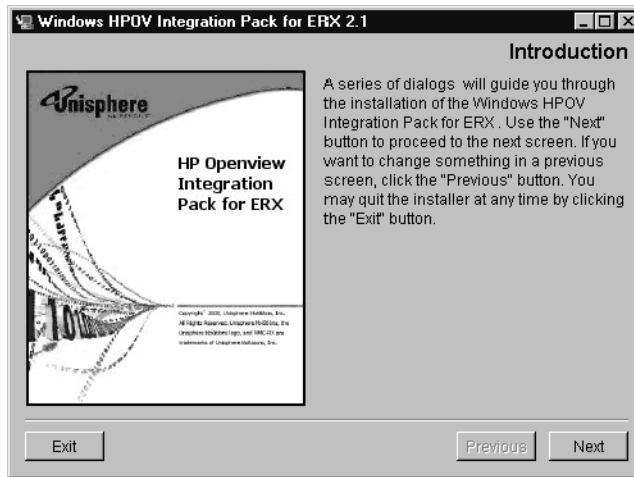


Note: Before installing HP OpenView, ensure that you followed all pre-installation steps, such as installing Microsoft SNMP Agent.

To install the HP OpenView Integration Pack on a Windows NT workstation:

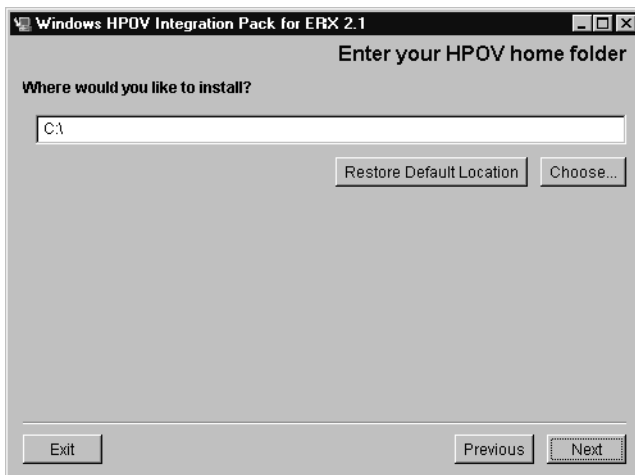
- 1 Insert the HP OpenView Integration Pack CD-ROM in your CD drive.
- 2 Double-click the My Computer icon, navigate to your CD-ROM drive and double-click CMinstal.exe.

After several status dialog boxes appear, the Introduction dialog box appears.



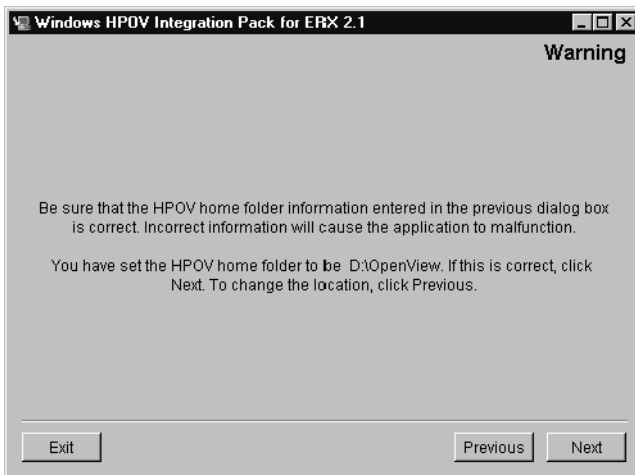
- 3 Click Next.

The Enter Your HPOV Home Folder dialog box appears.

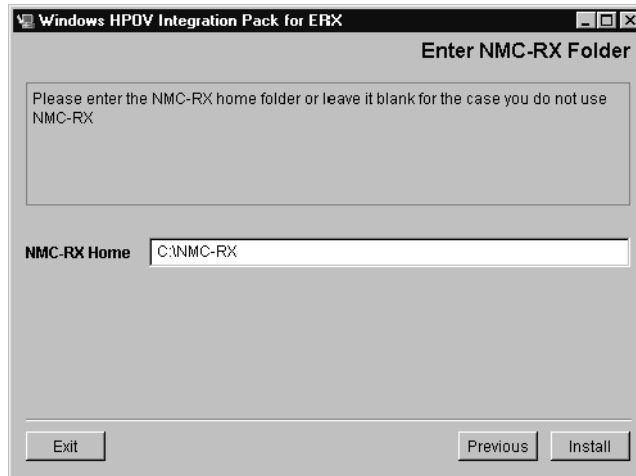


- 4 Enter the same drive and folder name on which HP OpenView was installed, and click Next.

A warning dialog box appears.



- 5 Click Previous to change the location, or click Next to continue. The Enter NMC-RX Folder dialog box appears.



- 6 Enter the same drive and folder name on which the NMC-RX application was installed, or leave it blank if you do not use it.
- 7 Click Install to begin installing the software.
- 8 When the System Environment Changed dialog box appears, click Done.

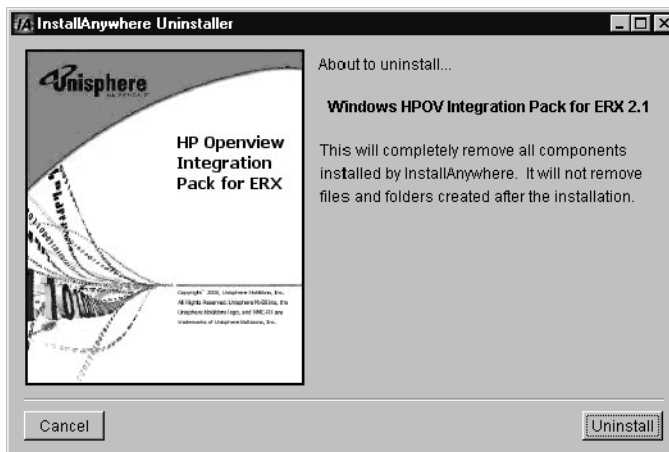
Your installation is complete. It is recommended that you reboot your workstation prior to running the HP OpenView Integration Pack.

Uninstalling HPOV Integration Pack from a Windows NT Workstation

To remove HP OpenView Integration Pack from a Windows NT workstation:

- 1 Double-click the My Computer icon and navigate to the directory in which you installed HP OpenView Integration Pack.
- 2 Navigate to the bin folder under the home directory, and double-click CMuninstall.bat.

The About to Uninstall dialog box appears.



- 3 Click Uninstall.
- 4 Click Exit when the Uninstall Complete dialog box appears. The HP OpenView Integration Pack is now removed from your workstation.

Using HP OpenView Integration Pack

HP OpenView Integration Pack provides the following main features:

- The NMC-RX application can be launched from the HPOV network map.
- Unisphere ERX router MIB files can be loaded and installed in an SNMP directory.
- Custom icons for ERX devices can be used in the network map.
- *Plain language* descriptions of SNMP traps can be generated for Unisphere devices in a network.
- Support for SNMP traps for ERX release 3.2.x.

Unisphere Icons

HP OpenView Integration Pack contains custom icons for the ERX edge routers. These icons appear on the HP OpenView network map and are installed in the following directory:

- Sun Solaris: `$OV_BITMAPS/C/Unisphere`
- Windows NT: `%OV_BITMAPS%\C\Unisphere`



Note: For the definition of the OpenView environment variables (`$OV_BITMAPS` for Solaris and `%OV_BITMAPS%` for Windows NT), refer to the HP OpenView manuals.

HP OpenView Integration Pack recognizes ERX edge routers during autodiscovery. When HP OpenView Integration Pack recognizes an edge router, it displays the appropriate icon (see Figure 4-1).

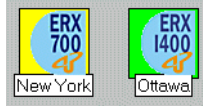


Figure 4-1 Custom icons for Unisphere ERX-700/1400 routers

SNMP Trap Descriptions

HP OpenView Integration Pack supplies plain language translations of SNMP traps (alarms) generated by Unisphere ERX edge routing switches. These plain language descriptions appear automatically in the HP OpenView alarm browser when HP OpenView receives events from Unisphere ERX edge routers.

Figure 4-2 shows an example of the HP OpenView Integration Pack plain language translation for some ERX edge router alarms.

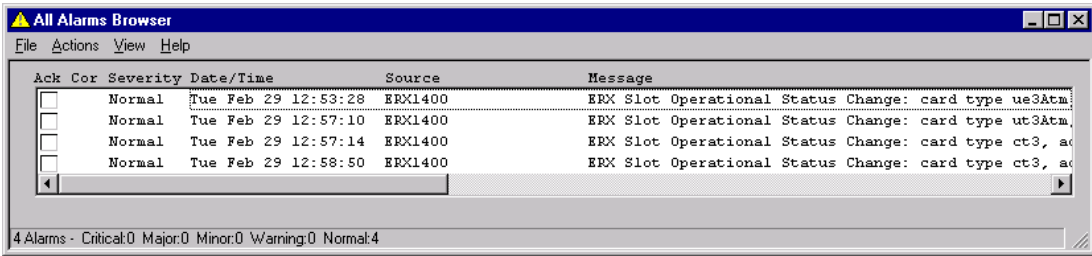


Figure 4-2 Example of HP OpenView Integration Pack plain language alarm descriptions

See *Appendix A, MIBs and Traps*, for a complete list of alarms that can be generated by ERX edge routers. Plain language descriptions can be viewed in the following files:

- Sun Solaris: \$OV_CONTRIB/Unisphere/trapd.conf
- Windows NT: %OV_CONTRIB%\Unisphere\trapd.conf

Browsing MIBs and Collecting SNMP Statistics

An operator can:

- Browse SNMP MIBs.

For more information, see the Hewlett-Packard guide, *Managing Your Network with HP OpenView Network Node Manager*, “*Customizing Events: Doing It Your Way.*”

- Collect SNMP statistics.

For more information, see the Hewlett-Packard guide, *Managing Your Network with HP OpenView Network Node Manager*, “*Using Event Data.*”

For more information on MIBs and traps supported by HP OpenView Integration Pack, see *Appendix A, MIBs and Traps*.

Configuring ERX Routers with the NMC-RX Application

HP OpenView Integration Pack allows you to configure and manage ERX devices with Unisphere’s NMC-RX element management system software. HP OpenView Integration Pack installs menus that allow you to launch the NMC-RX application directly from HP OpenView. Once launched, you can configure and manage ERX edge routers with the NMC-RX application.



Note: HP OpenView Integration Pack also allows you to configure ERX devices directly by the Unisphere command line interface. For more information on configuring ERX routers, see the ERX Configuration Guides.

For more information on configuring or managing any of these parameters on Unisphere ERX edge routers, see the *NMC-RX User Guide* or the *NMC-RX Online Help*.

Launching the NMC-RX Application

To launch the NMC-RX application from HP OpenView:

- 1 Ensure that the following NMC-RX components are running:
 - Sybase Adaptive Server Anywhere database
 - Polling Server
 - ConfigSync Server
- 2 Select an ERX edge router node on the HP OpenView network map.

- 3 Right-click on the ERX node and select NMC-RX from the menu. NMC-RX launches and displays the NMC-RX Device Workshop. You can now configure your ERX edge routers.



Note: Refer to your NMC-RX User Guide or the NMC-RX Online Help for information on configuring your ERX devices using the NMC-RX application.

MIBs and Traps



This appendix lists the Management Information Base (MIB) files and the SNMP traps installed with HP OpenView Integration Pack on Sun Solaris and Windows NT workstations for ERX edge routers.

MIB Files for ERX Devices

Refer to the following tables for a list of MIB files supported in ERX Release 3.2.x:

- Table A-1: Standard MIB files
- Table A-2: Redstone MIB files
- Table A-3: Unisphere MIB files

MIBs Installation Directories

On Sun Solaris workstations, all MIBs are installed in the directory:

- `$OV_SNMP_MIBS/Vendor/Unisphere`

On Windows NT workstations, all MIBs are installed in the directory:

- `%OV_SNMP_MIBS%\Vendor\Unisphere`

On both Sun Solaris and Windows NT workstations, the MIBs are consolidated in the following files:

- `Unisphere_MIBS_rs`
- `Unisphere_MIBS_std`
- `Unisphere_MIBS_unis`

If some standard MIBs have already been loaded by other applications, `Unisphere_MIBS_std` (which contains many standard MIBs) will not

be loaded into HPOV Integration Pack. You must navigate to the directory below the MIBs installation directory and load the remaining standard MIBs manually.

Table A-1 Standard MIB files for ERX edge routers

rfc1158.mib	rfc2096.mi2	rfc2737.mi2
rfc1213.mib	rfc2115.mi2	rfc2790.mi2
rfc1215.mib	rfc2233.mi2	rfc2851.mi2
rfc1406.mib	rfc2358.mi2	rfc2863.mi2
rfc1407.mib	rfc2493.mi2	rfc2925n.mi2
rfc1471.mib	rfc2495.mi2	rfc2925p.mi2
rfc1472.mib	rfc2496.mi2	rfc2925t.mi2
rfc1473.mib	rfc2513.mi2	rfc2932.mi2
rfc1595.mi2	rfc2514.mi2	rfc2933.mi2
rfc1657.mi2	rfc2515.mi2	rfc2934.mi2
rfc1695.mi2	rfc2558.mi2	ianaiftype.mi2
rfc1724.mi2	rfc2571.mi2	af-nm-0095_001_mib.mi2
rfc1850.mi2	rfc2572.mi2	ianaaddressfamilynumbers.mi2
rfc1850t.mi2	rfc2573n.mi2	iana-RtProto-Mib.mi2
rfc1903.mi2	rfc2573p.mi2	draft-ietf-atommib-atm2-15.mi2
rfc1907.mi2	rfc2573t.mi2	draft-ietf-idmr-dvmp-mib-11.mib
rfc2011.mi2	rfc2574.mi2	draft-ietf-idmr-pim-mib-10.mi2
rfc2012.mi2	rfc2575.mi2	
rfc2013.mi2	rfc2576.mi2	

Table A-2 Redstone MIB files for ERX edge routers

rsaaa.mi2	rsft1.mi2	rsppoe.mi2
rsacctng.mi2	rshdlc.mi2	rsradclient.mi2
rsaddrpool.mi2	rshost.mi2	rsrouter.mi2
rsatm.mi2	rsif.mi2	rsrxsys.mi2
rsautoconf.mi2	rsigmp.mi2	rsslep.mi2
rsbgp.mi2	rsip.mi2	rssmds.mi2
rsbridgeEthernet.mi2	rsippolicy.mi2	rssmi.mi2
rscbf.mi2	rsiptunnel.mi2	rssnmp.mi2
rscli.mi2	rsisis.mi2	rssonet.mi2
rscops.mi2	rsl2f.mi2	rsssclient.mi2
rsdhcp.mi2	rsl2tp.mi2	rssubscriber.mi2
rsdns.mi2	rslog.mi2	rstc.mi2
rsds1.mi2	rsnslookup.mi2	rstmpl.mi2
rsds3.mi2	rsospf.mi2	rstmplip.mi2
rsDvmp.mib	rspim.mi2	rstmplppp.mi2
rsethernet.mi2	rsping.mi2	rstmplpppoe.mi2
rsfilexfer.mi2	rspolicy.mi2	rstraceroute.mi2
rsfr.mi2	rsppp.mi2	

Table A-3 Unisphere MIB files for ERX edge routers

dvmrpEnt.mib	usDatahdlc.mi2	usDataSep.mi2
usDataaaa.mi2	usDatahost.mi2	usDataSmds.mi2
usDataacctng.mi2	usDataif.mi2	usDataSnmP.mi2
usDataaddrpool.mi2	usDataigmp.mi2	usDataSnmPAgent.mi2
usDataatm.mi2	usDataip.mi2	usDataSOnet.mi2
usDataAutoconf.mi2	usDataippolicy.mi2	usDataSscclient.mi2
usDataabgp.mi2	usDataiptunnel.mi2	usDataSubscriber.mi2
usDatabridgeEthernet.mi2	usDataisis.mi2	usDataTc.mi2
usDatacbf.mi2	usDataI2f.mi2	usDataTmpl.mi2
usDatacli.mi2	usDataI2tp.mi2	usDataTmplip.mi2
usDatacops.mi2	usDataIog.mi2	usDataTmplppp.mi2
usDatadhcp.mi2	usDataMibs.mi2	usDataTmplpppoe.mi2
usDataDns.mi2	usDataSlookup.mi2	usErXRegistry.mi2
usDataDns1.mi2	usDataospf.mi2	usErXSystem.mi2
usDataDns3.mi2	usDataPim.mi2	usProducts.mi2
usDataDvmrp.mi2	usDataPolicy.mi2	usDataPing.mi2
usDataEthernet.mi2	usDataPpp.mi2	usDataTraceroute.mi2
usDataExperiment.mi2	usDataPppoe.mi2	usSmi.mi2
usDatafileXfer.mi2	usDataRadclient.mi2	
usDatafr.mi2	usDataRegistry.mi	
usDataft1.mi2	usDataRouter.mi2	

SNMP Traps for ERX Devices

This section lists SNMP traps that support ERX edge routers. Traps for the ERX edge routers are defined in SMIv2 MIB definition language.

Loading traps

HPOV does not support both SNMP v1 and SNMP v2 traps for BGP and OSPF traps under the same configuration. Only one can be loaded at a time. There are a total of 18 traps in these two classes.

Scripts that load each version are located in the following bin directory or folder:

- Sun Solaris: \$OV_BIN
- Windows NT: %OV_BIN%

To load SNMP v1 traps, run this script:

- Sun Solaris: cmloadv1trap
- Windows NT: cmloadv1trap.bat

To load SNMP v2 traps, run this script:

- Sun Solaris: cmloadv2trap
- Windows NT: cmloadv2trap.bat



Note: After v2 traps are loaded, you can return to v1 traps by running the v1 script.

Table A-4 Traps

Trap	OID	Alarm Type	Severity
dsx1LineStatusChange	.1.3.6.1.2.2.1.10.18.15.0.1	Status Alarms	Normal
dsx3LineStatusChange	.1.3.6.1.2.2.1.10.30.15.0.1	Status Alarms	Normal
frDLCIStatusChange	.1.3.6.1.2.2.1.10.32.0.1	Status Alarms	Normal
ospfVirtIfStateChange	.1.3.6.1.2.2.1.14.16.2.0.1 .1.3.6.1.2.2.1.14.16.2.1 (v2)	Status Alarms	Critical
ospfNbrStateChange	.1.3.6.1.2.2.1.14.16.2.0.2 .1.3.6.1.2.2.1.14.16.2.2 (v2)	Status Alarms	Minor
ospfVirtNbrStateChange	.1.3.6.1.2.2.1.14.16.2.0.3 .1.3.6.1.2.2.1.14.16.2.3 (v2)	Status Alarms	Minor
ospflfConfigError	.1.3.6.1.2.2.1.14.16.2.0.4 .1.3.6.1.2.2.1.14.16.2.4 (v2)	Configuration Alarms	Critical
ospfVirtIfConfigError	.1.3.6.1.2.2.1.14.16.2.0.5 .1.3.6.1.2.2.1.14.16.2.5 (v2)	Configuration Alarms	Critical
ospflfAuthFailure	.1.3.6.1.2.2.1.14.16.2.0.6 .1.3.6.1.2.2.1.14.16.2.6 (v2)	Error Alarms	Critical
ospfVirtIfAuthFailure	.1.3.6.1.2.2.1.14.16.2.0.7 .1.3.6.1.2.2.1.14.16.2.7 (v2)	Error Alarms	Critical
ospflfRxBadPacket	.1.3.6.1.2.2.1.14.16.2.0.8 .1.3.6.1.2.2.1.14.16.2.8 (v2)	Error Alarms	Minor
ospfVirtIfRxBadPacket	.1.3.6.1.2.2.1.14.16.2.0.9 .1.3.6.1.2.2.1.14.16.2.9 (v2)	Error Alarms	Minor
ospfTxRetransmit	.1.3.6.1.2.2.1.14.16.2.0.10 .1.3.6.1.2.2.1.14.16.2.10 (v2)	Status Alarms	Warning
ospfVirtIfTxRetransmit	.1.3.6.1.2.2.1.14.16.2.0.11 .1.3.6.1.2.2.1.14.16.2.11 (v2)	Status Alarms	Warning
ospfOriginateLsa	.1.3.6.1.2.2.1.14.16.2.0.12 .1.3.6.1.2.2.1.14.16.2.12 (v2)	Status Alarms	Normal
ospfMaxAgeLsa	.1.3.6.1.2.2.1.14.16.2.0.13 .1.3.6.1.2.2.1.14.16.2.13 (v2)	Status Alarms	Warning
ospfLsdbOverflow	.1.3.6.1.2.2.1.14.16.2.0.14 .1.3.6.1.2.2.1.14.16.2.14 (v2)	Error Alarms	Critical
ospfLsdbApproachingOverflow	.1.3.6.1.2.2.1.14.16.2.0.15 .1.3.6.1.2.2.1.14.16.2.15 (v2)	Error Alarms	Major

Table A-4 Traps

Trap	OID	Alarm Type	Severity
ospflfStateChange	.1.3.6.1.2.2.1.14.16.2.0.16 .1.3.6.1.2.2.1.14.16.2.16 (v2)	Status Alarms	Normal
bgpEstablished	.1.3.6.1.2.2.1.15.7.0.1 .1.3.6.1.2.2.1.15.7.1 (v2)	Status Alarms	Normal
bgpBackwardTransition	.1.3.6.1.2.2.1.15.7.0.2 .1.3.6.1.2.2.1.15.7.2 (v2)	Status Alarms	Minor
RMON_Rise_Alarm	.1.3.6.1.2.2.1.16.0.1	Threshold Alarms	Warning
RMON_Falling_Alarm	.1.3.6.1.2.2.1.16.0.2	Threshold Alarms	Warning
RMON_Packet_Match	.1.3.6.1.2.2.1.16.0.3	Status Alarms	Normal
atmIntfPvcFailuresTrap	.1.3.6.1.2.2.1.37.1.14.2.1.0.1	Status Alarms	Critical
entConfigChange	.1.3.6.1.2.2.1.47.2.0.1	Status Alarms	Critical
acctngFileNearlyFull	.1.3.6.1.2.2.1.60.2.0.1	Status Alarms	Minor
acctngFileFull	.1.3.6.1.2.2.1.60.2.0.2	Error Alarms	Critical
pingProbeFailed	.1.3.6.1.2.2.1.80.0.1	Error Alarms	Minor
pingTestFailed	.1.3.6.1.2.2.1.80.0.2	Error Alarms	Critical
pingTestCompleted	.1.3.6.1.2.2.1.80.0.3	Status Alarms	Normal
traceRoutePathChange	.1.3.6.1.2.2.1.81.0.1	Status Alarms	Warning
traceRouteTestFailed	.1.3.6.1.2.2.1.81.0.2	Error Alarms	Critical
traceRouteTestCompleted	.1.3.6.1.2.2.1.81.0.3	Status Alarms	Normal
pimNeighborLoss	.1.3.6.1.2.3.61.1.0.1	Status Alarms	Minor
rsAtmVpPingTestCompleted	.1.3.6.1.2.4.1.2773.2.8.3.0.1	Status Alarms	Normal
rsAtmVcPingTestCompleted	.1.3.6.1.2.4.1.2773.2.8.3.0.2	Status Alarms	Normal
rsRXSysSlotOperStatusChange	.1.3.6.1.2.4.1.2773.2.17.0.1	Status Alarms	Critical
rsRXSysPowerStatusChange	.1.3.6.1.2.4.1.2773.2.17.0.2	Status Alarms	Critical
rsRXSysTempFanStatusChange	.1.3.6.1.2.4.1.2773.2.17.0.3	Status Alarms	Critical
rsRXSysTempStatusChange	.1.3.6.1.2.4.1.2773.2.17.0.4	Status Alarms	Critical
rsRXSysHighMemUtil	.1.3.6.1.2.4.1.2773.2.17.0.5	Status Alarms	Major
rsRXSysAbatedMemUtil	.1.3.6.1.2.4.1.2773.2.17.0.6	Status Alarms	Major
rsAddressPoolHighAddrUtil	.1.3.6.1.2.4.1.2773.2.21.3.0.1	Threshold Alarms	Major
rsAddressPoolAbatedAddrUtil	.1.3.6.1.2.4.1.2773.2.21.3.0.2	Threshold Alarms	Major
rsAddressPoolNoAddresses	.1.3.6.1.2.4.1.2773.2.21.3.0.3	Status Alarms	Major
rsFileXferTrap	.1.3.6.1.2.4.1.2773.2.23.2.0.1	Status Alarms	Minor
rsLogMsgThresholdTrap	.1.3.6.1.2.4.1.2773.2.28.0.1	Status Alarms	Normal
rsCliSecurityAlert	.1.3.6.1.2.4.1.2773.2.30.0.1	Status Alarms	Minor
rsPingProbeFailed	.1.3.6.1.2.4.1.2773.2.39.0.1	Status Alarms	Minor

Table A-4 Traps

Trap	OID	Alarm Type	Severity
rsPingTestFailed	.1.3.6.1.2.4.1.2773.2.39.0.2	Status Alarms	Critical
rsPingTestCompleted	.1.3.6.1.2.4.1.2773.2.39.0.3	Status Alarms	Normal
rsTraceRoutePathChange	.1.3.6.1.2.4.1.2773.2.41.0.1	Status Alarms	Minor
rsTraceRouteTestFailed	.1.3.6.1.2.4.1.2773.2.41.0.2	Status Alarms	Critical
rsTraceRouteTestCompleted	.1.3.6.1.2.4.1.2773.2.41.0.3	Status Alarms	Normal
rsDvmrpRouteHogNotificationTrap	.1.3.6.1.2.4.1.2773.2.44.1.1.0.1	Status Alarms	Normal
usdAtmVpPingTestCompleted	.1.3.6.1.2.4.1.4874.2.2.8.3.0.1	Status Alarms	Normal
usdAtmVcPingTestCompleted	.1.3.6.1.2.4.1.4874.2.2.8.3.0.2	Status Alarms	Normal
usdERXSysSlotOperStatusChange	.1.3.6.1.2.4.1.4874.2.2.17.0.1	Status Alarms	Critical
usdERXSysPowerStatusChange	.1.3.6.1.2.4.1.4874.2.2.17.0.2	Status Alarms	Critical
usdERXSysTempFanStatusChange	.1.3.6.1.2.4.1.4874.2.2.17.0.3	Status Alarms	Critical
usdERXSysTempStatusChange	.1.3.6.1.2.4.1.4874.2.2.17.0.4	Status Alarms	Critical
usdERXSysHighMemUtil	.1.3.6.1.2.4.1.4874.2.2.17.0.5	Status Alarms	Major
usdERXSysAbatedMemUtil	.1.3.6.1.2.4.1.4874.2.2.17.0.6	Status Alarms	Major
usdAddressPoolHighAddrUtil	.1.3.6.1.2.4.1.4874.2.2.21.3.0.1	Threshold Alarms	Major
usdAddressPoolAbatedAddrUtil	.1.3.6.1.2.4.1.4874.2.2.21.3.0.2	Threshold Alarms	Major
usdAddressPoolNoAddresses	.1.3.6.1.2.4.1.4874.2.2.21.3.0.3	Status Alarms	Major
usdFileXferTrap	.1.3.6.1.2.4.1.4874.2.2.23.2.0.1	Status Alarms	Minor
usdLogMsgThresholdTrap	.1.3.6.1.2.4.1.4874.2.2.28.0.1	Status Alarms	Normal
usdCliSecurityAlert	.1.3.6.1.2.4.1.4874.2.2.30.0.1	Status Alarms	Minor
usdPingProbeFailed	.1.3.6.1.2.4.1.4874.2.2.39.0.1	Status Alarms	Minor
usdPingTestFailed	.1.3.6.1.2.4.1.4874.2.2.39.0.2	Status Alarms	Critical
usdPingTestCompleted	.1.3.6.1.2.4.1.4874.2.2.39.0.3	Status Alarms	Normal
usdTraceRoutePathChange	.1.3.6.1.2.4.1.4874.2.2.41.0.1	Status Alarms	Minor
usdTraceRouteTestFailed	.1.3.6.1.2.4.1.4874.2.2.41.0.2	Status Alarms	Critical
usdTraceRouteTestCompleted	.1.3.6.1.2.4.1.4874.2.2.41.0.3	Status Alarms	Normal
usdDvmrpRouteHogNotificationTrap	.1.3.6.1.2.4.1.4874.2.2.44.1.1.0.1	Threshold Alarms	Minor
usdCrxModuleOperStatusChange	.1.3.6.1.2.4.1.4874.2.2.55.0.1	Status Alarms	Major
usdCrxPowerStatusChange	.1.3.6.1.2.4.1.4874.2.2.55.0.2	Status Alarms	Critical
usdCrxTempStatusChange	.1.3.6.1.2.4.1.4874.2.2.55.0.3	Status Alarms	Critical
atmfM4IfAisAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.1	Status Alarms	Major
atmfM4IfLcdAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.2	Status Alarms	Major
atmfM4IfLofAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.3	Status Alarms	Major
atmfM4IfLopAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.4	Status Alarms	Major

Table A-4 Traps

Trap	OID	Alarm Type	Severity
atmfM4IfLosAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.5	Status Alarms	Major
atmfM4IfPayloadMismatchAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.6	Status Alarms	Major
atmfM4IfXmissionErrAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.7	Status Alarms	Major
atmfM4IfPathTraceMismatchAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.8	Status Alarms	Major
atmfM4IfRdiAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.9	Status Alarms	Major
atmfM4IfSignalLabelMismatchAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.10	Status Alarms	Major
atmfM4VpITpAisAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.11	Status Alarms	Major
atmfM4VpITpRdiAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.12	Status Alarms	Major
atmfM4VpcTpAisAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.13	Status Alarms	Major
atmfM4VpcTpRdiAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.14	Status Alarms	Major
atmfM4VclTpAisAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.15	Status Alarms	Major
atmfM4VclTpRdiAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.16	Status Alarms	Major
atmfM4VccTpAisAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.17	Status Alarms	Major
atmfM4VccTpRdiAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.18	Status Alarms	Major
atmfM4HwBackPlaneAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.19	Status Alarms	Major
atmfM4HwCallEstErrAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.20	Status Alarms	Major
atmfM4HwCongestionAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.21	Status Alarms	Major
atmfM4HwExtIfDevProbAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.22	Status Alarms	Major
atmfM4HwLineCardAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.23	Status Alarms	Major
atmfM4HwMultiplexerAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.24	Status Alarms	Major
atmfM4HwPowerAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.25	Status Alarms	Major
atmfM4HwProcessorAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.26	Status Alarms	Major
atmfM4HwProtectionPathAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.27	Status Alarms	Major
atmfM4HwReceiverFailAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.28	Status Alarms	Major
atmfM4HwPIUnitMissingAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.29	Status Alarms	Major
atmfM4HwPIUnitProbAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.30	Status Alarms	Major
atmfM4HwPIUnitMismatchAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.31	Status Alarms	Major
atmfM4HwTimingProbAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.32	Status Alarms	Major
atmfM4HwXmitterFailAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.33	Status Alarms	Major
atmfM4HwTrunkCardAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.34	Status Alarms	Major
atmfM4HwStorageCapacityAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.35	Status Alarms	Major
atmfM4HwMemoryMismatchAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.36	Status Alarms	Major
atmfM4HwCorruptDataAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.37	Status Alarms	Major
atmfM4HwSwEnvironAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.38	Status Alarms	Major

Table A-4 Traps

Trap	OID	Alarm Type	Severity
atmfM4HwSwDownloadFailAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.39	Status Alarms	Major
atmfM4HwVersionMismatchAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.40	Status Alarms	Major
atmfM4HwFanFailAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.41	Status Alarms	Major
atmfM4HwDoorOpenAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.42	Status Alarms	Major
atmfM4HwFuseFailAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.43	Status Alarms	Major
atmfM4HwHighTempAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.44	Status Alarms	Major
atmfM4SwVersionMismatchAlarm	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.45	Status Alarms	Major
atmfM4VplTpUp	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.46	Status Alarms	Normal
atmfM4VplTpDown	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.47	Status Alarms	Major
atmfM4VclTpUp	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.48	Status Alarms	Normal
atmfM4VclTpDown	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.49	Status Alarms	Major
atmfM4VplXConnUp	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.50	Status Alarms	Normal
atmfM4VplXConnDown	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.51	Status Alarms	Major
atmfM4VclXConnUp	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.52	Status Alarms	Normal
atmfM4VclXConnDown	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.53	Status Alarms	Major
atmfM4HwUnitUp	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.54	Status Alarms	Normal
atmfM4HwUnitDown	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.55	Status Alarms	Major
atmfM4AtmCellIfCreated	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.56	Status Alarms	Normal
atmfM4AtmCellIfDeleted	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.57	Status Alarms	Normal
atmfM4VpcTpCreated	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.58	Status Alarms	Normal
atmfM4VpcTpDeleted	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.59	Status Alarms	Normal
atmfM4VccTpCreated	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.60	Status Alarms	Normal
atmfM4VccTpDeleted	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.61	Status Alarms	Normal
atmfM4VplXConnCreated	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.62	Status Alarms	Normal
atmfM4VplXConnDeleted	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.63	Status Alarms	Normal
atmfM4VclXConnCreated	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.64	Status Alarms	Normal
atmfM4VclXConnDeleted	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.65	Status Alarms	Normal
atmfM4HwUnitCreated	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.66	Status Alarms	Normal
atmfM4HwUnitDeleted	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.67	Status Alarms	Normal
atmfM4InstalledSwCreated	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.68	Status Alarms	Normal
atmfM4InstalledSwDeleted	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.69	Status Alarms	Normal
atmfM4IfChanged	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.70	Status Alarms	Normal
atmfM4VplTpChanged	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.71	Status Alarms	Normal
atmfM4VclTpChanged	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.72	Status Alarms	Normal

Table A-4 Traps

Trap	OID	Alarm Type	Severity
atmfM4VplXConnChanged	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.73	Status Alarms	Normal
atmfM4VclXConnChanged	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.74	Status Alarms	Normal
atmfM4HwUnitChanged	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.75	Status Alarms	Normal
atmfM4InstalledSwChanged	.1.3.6.1.2.4.1.353.5.1.3.1.2.0.76	Status Alarms	Normal
dvmrpNeighborLoss	.1.3.6.1.2.4.1.4874.3.2.1.1.1.1.0.1	Status Alarms	Minor
dvmrpNeighborNotPruning	.1.3.6.1.2.4.1.4874.3.2.1.1.1.1.0.2	Error Alarms	Minor
coldStart	.1.3.6.1.2.6.3.1.1.5.1	Error Alarms	Major
warmStart	.1.3.6.1.2.6.3.1.1.5.2	Error Alarms	Major
linkDown	.1.3.6.1.2.6.3.1.1.5.3	Status Alarms	Major
linkUp	.1.3.6.1.2.6.3.1.1.5.4	Status Alarms	Normal
authenticationFailure	.1.3.6.1.2.6.3.1.1.5.5	Status Alarms	Minor
eggNeighborLoss	.1.3.6.1.2.6.3.1.1.5.6	Status Alarms	Warning

