Release Notes for Cisco Network Analysis Module Software, 4.0

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These release notes provide general information about Cisco Network Analysis Module (NAM) software release 4.0 including system requirements, limitations and restrictions, new features, product documentation, and known and resolved anomalies.

NAM 4.0 software enables network managers to understand, manage, and improve how applications and services are delivered to end-users.

NAM 4.0 offers flow-based traffic analysis of applications, hosts, and conversations, performance-based measurements on application, server, and network latency, quality of experience metrics for network-based services such as voice over IP (VoIP) and video, and problem analysis using deep, insightful packet captures.

The Cisco NAM includes an embedded, web-based Traffic Analyzer GUI that provides quick access to the configuration menus and presents easy-to-read performance reports on voice, video, and TCP-based traffic.

This version of the release notes adds information about the Cisco NAM 2200 Series appliances. The Cisco NAM 2200 Series appliances, an extension of the Cisco NAM blades, offer next-generation performance, superior scalability, and maximum deployment flexibility to deliver performance monitoring throughout your Cisco network. The Cisco NAM 2200 Series appliances include the Cisco NAM 2220 and Cisco NAM 2204 appliances.

Software Product Numbers

SC-SVC-NAM-4.0

(Cisco Catalyst 6500 Series and Cisco 7600 Series Network Analysis Module Software 4.0)

NME-NAM-SW-4.0

(Cisco Branch Routers Series Network Analysis Module Software 4.0)

NAM 4.0 is a complete software release, not a patch, and includes all functionality from NAM 3.5 and NAM 3.6 including all patches.

Americas Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

NAM 4.0 software supports upgrade paths from the NAM 3.5 and NAM 3.6 releases. For information about upgrading earlier releases of NAM software, see Upgrading NAM Software, page 10.

NAM 4.0 is available as part of new hardware orders or by download from Cisco.com for the following NAM models:

- NAM2204-RJ45
- NAM2204-SFP
- NAM2220
- WS-SVC-NAM-1
- WS-SVC-NAM-1-250S
- WS-SVC-NAM-2
- WS-SVC-NAM-2-250S
- NME-NAM-80S
- NME-NAM-120S

NAM 4.0 is available for NM-NAM devices only by download from Cisco.com.

Throughout this document the following general references apply:

- A reference to a *NAM appliance* indicates any of the following:
  - NAM2220
  - NAM2204-RJ45
  - NAM2204-SFP
- A reference to a *NAM-1 or NAM-2 device* indicates any of the following:
  - WS-SVC-NAM-1
  - WS-SVC-NAM-1-250S
  - WS-SVC-NAM-2
  - WS-SVC-NAM-2-250S
- A reference to *an NME-NAM device* indicates either of the following:
  - NME-NAM-80S
  - NME-NAM-120S
- A reference to *an NM-NAM device* means only an NM-NAM device.

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New Features in NAM 4.0

This section describes the following new features and improvements in NAM 4.0:

- Support for Cisco NAM 2200 Series Appliances
- Intelligent Application Performance
- Enhanced Voice Quality Analytics, page 4
- WAAS Support, page 4
- Support for .pcap Format Capture Export, page 5
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Support for Cisco NAM 2200 Series Appliances

NAM 4.0 software provides support for the Cisco NAM 2200 Series appliances:

- NAM2220
- NAM2204-RJ45
- NAM2204-SFP

The Cisco NAM 2200 Series appliances have been tested with Catalyst 4500 Series switches, Catalyst 6500 Series switches, Cisco 7600 Series routers, and Cisco Nexus 7000 Series switches.

The Cisco NAM 2204-RJ45 appliance supports Catalyst 4500 Series Switches except for the **Monitor > Managed Device > Health** window.

The Cisco NAM 2200 Series appliances provide support for Cisco Nexus 7000. See NAM Appliance Support for Cisco Nexus 7000, page 22 for more information.

Intelligent Application Performance

The NAM 4.0 Intelligent Application Performance (IAP) feature helps you gain a better understanding of your applications' performance and enables you to do the following:

- Troubleshoot application performance problems
- Perform pre-and post-deployment monitoring of application optimization and acceleration services
- Define and assure services levels
- Analyze trends for capacity planning

The IAP feature helps you see how well the network is delivering services to the end user, providing an overall view of what is happening on the network. It monitors the TCP application packets as they travel from the client through the network to the data center and out again, measuring network round trip time, client response time, and server response time.

NAM 4.0 calculates additional metrics to help you ensure the efficient and effective delivery of applications and services in your network. The following lists some of the new metrics:

- Data transfer time
- Connection duration
- Acknowledgment delay
- Number of open connections
- Number of closed connections
- Number of refused connections
- Number of unresponsive connections

Enhanced Voice Quality Analytics

The enhanced voice quality analytics enable you to quickly identify and troubleshoot voice performance degradation issues and includes the following:

- Standards-based qualitative measurements: MOS based on R-factor (E-Model)
- Real-time monitoring: Reporting of call quality at low levels of granularity
- Enhanced user interface with intuitive reports and monitoring screens
- Improved call quality reports based on both signaling and bearer channel monitoring

WAAS Support

NAM 4.0 provides support for wide-area application services (WAAS) and enables you to measure the application response time and bandwidth improvements WAAS delivers and to view the application delivery improvements at the client-side, the WAN-side, and the server-side. Reports include:

- Total Delay (Response Time) as experienced by the client
- Total Transaction Time as experienced by the client
- Bandwidth usage (bytes/packets) as experienced by the client
- Number of transactions as experienced by the client
- Server Application Delay

- Bandwidth usage (bytes/packets) on optimized (WAN) link
- Server bandwidth usage (bytes/packets)
- WAN Network Delay

Support for .pcap Format Capture Export

NAM 4.0 now enables you to export capture files in **.pcap** format. This enables you to use the capture files with third-party tools.

More Automatic Captures

NAM 4.0 enables you to configure more than one capture that automatically starts and stops when pre-configured thresholds are exceeded. For example, you can configure one capture to begin gathering data when bandwidth utilization of a particular application exceeds a certain level and start a second capture when response time of a particular server exceeds a pre-defined threshold.

System Requirements

This section describes the hardware, software, and browser requirements for NAM 4.0 software:

- Platform Hardware Requirements
- Platform Software Requirements
- Catalyst 6500 NAM-1 and NAM-2 Memory Recommendation
- Browser Requirements
- Catalyst 6500 and Cisco 7600 NAM-1 and NAM-2 Maintenance Image and BIOS Requirements

Platform Hardware Requirements

Table 1 identifies the hardware modules and platforms required to use NAM 4.0.

Table 1 NAM Hardware Compatibility

Module	Cat OS[1]	Cisco IOS	Platform or Devices
WS-SVC-NAM-1 WS-SVC-NAM-1-250S WS-SVC-NAM-2 WS-SVC-NAM-2-250S	SUP720	SUP720 SUP32 RSP720-1G SUP720-10G RSP720-10G	• Catalyst 6500 Series Switches • Cisco 7600 Series Routers
NME-NAM-120S NME-NAM-80S	n/a	n/a	• Cisco 2800 Series Integrated Services Routers (except Cisco 2801) • Cisco 2900 Series Integrated Services Routers (except Cisco 2901) • Cisco 3700 Series Multiservice Access Routers • Cisco 3800 Series Integrated Services Routers • Cisco 3900 Series Integrated Services Routers
NM-NAM	n/a	n/a	• Cisco 2800 Series Integrated Services Routers (except Cisco 2801) • Cisco 3700 Series Multiservice Access Routers • Cisco 3800 Series Integrated Services Routers

1. See Table 3, Minimum Cisco Catalyst 6500 and Cisco 7600 Series IOS and CatOS Versions Required for NAM 4.0, for information about support for various Supervisor cards.

Using NME-NAMs with Cisco Integrated Services Routers

This section describes the requirements to use NME-NAMs with Cisco Integrated Services Router (ISR) and ISR Generation Two (G2) Platforms.

You can deploy the NME-NAM-120S and NME-NAM-80S in any network module slot in the Cisco router platforms indicated in Table 2. A Network Module (NM) Adapter Card, SM-NM-ADPTR, is required to successfully integrate the NME-NAM into supported ISR G2 platforms. The NME-NAM supports the router platforms using NAM 3.6 or later. See Table 4, Minimum Cisco ISR and ISR G2 IOS Versions Required for NAM 4.0, for the minimum IOS software requirements to support NME-NAM. Only one Cisco NAM 4.0 can be installed in a Cisco branch router.

Table 2 Supported Routers

Router Platform	Network Module Adapter Card Required?
Cisco 3945 ISR	Yes
Cisco 3925 ISR	Yes
Cisco 2951 ISR	Yes
Cisco 2921 ISR	Yes
Cisco 2911 ISR	Yes
Cisco 3845 ISR	No
Cisco 3825 ISR	No
Cisco 2851 ISR	No
Cisco 2821 ISR	No
Cisco 2811 ISR	No
Cisco 3745 MSR	No
Cisco 3725 MSR	No

To install an NME-NAM-120S network module in supported ISR G2 platforms using the NM Adapter Card, see *Installing Cisco Network Modules and Service Modules*, section "Using Network Modules in Service Module Slots on Cisco 2900 Series and Cisco 3900 Series Routers":

http://www.cisco.com/en/US/docs/routers/access/interfaces/nm/hardware/installation/guide/InstNetM.html

Platform Software Requirements

Table 3, Minimum Cisco Catalyst 6500 and Cisco 7600 Series IOS and CatOS Versions Required for NAM 4.0, lists the minimum IOS requirements for NAM 4.0.

Table 3 Minimum Cisco Catalyst 6500 and Cisco 7600 Series IOS and CatOS Versions Required for NAM 4.0

Chassis	Supervisor Card	SXF	SXH	SXI	SRA	SRB	SRC	Other	CatOS
Catalyst 6500 Switches	SUP32	12.2(18) SXF	12.2(33) SXH(1)	12.2(33) SXI					
	SUP 32 PISA							12.2(18) ZY(1)	
	SUP720	12.2(18) SXF	12.2(33) SXH(1)	12.2(33) SXI					CatOS 8.2(1)
	SUP720-10GE		12.2(33) SXH(1)	12.2(33) SXI					

Table 3 Minimum Cisco Catalyst 6500 and Cisco 7600 Series IOS and CatOS Versions Required for NAM 4.0 (continued)

Chassis	Supervisor Card	SXF	SXH	SXI	SRA	SRB	SRC	Other	CatOS
7600 Series Routers	SUP32	12.2(18) SXF			12.2(33) SRA(1)	12.2(33) SRB(1)	12.2(33) SRC		
	SUP720	12.2(18) SXF			12.2(33) SRA(1)	12.2(33) SRB(1)	12.2(33) SRC		
	RSP720-1G						12.2(33) SRC		
	RSP720-10GE							12.2(33) SRD	

Table 4 lists the Minimum Cisco ISR and ISR G2 IOS Versions Required for NAM 4.0 on both the NME-NAM-120S and the NME-NAM-80S.

Table 4 Minimum Cisco ISR and ISR G2 IOS Versions Required for NAM 4.0

Router Platform	IOS Version
Cisco 2800 Series Integrated Services Routers	12.4(9)T
Cisco 2900 Series Integrated Services Routers	15.0(1)M
Cisco 3700 Series Multiservice Access Routers	12.4(9)T
Cisco 3800 Series Integrated Services Routers	
Cisco 3900 Series Integrated Services Routers	15.0(1)M

The minimum Cisco ISR IOS version required for NAM 4.0 on NM-NAM is Cisco IOS Software 12.3(7)T or Cisco IOS Software 12.4(1).

NAM and IOS Software Requirements for Virtual Switch System

Table 5 lists the NAM and IOS software requirements for NAM blades used in a Cisco Virtual Switch System (VSS) environment.

Table 5 NAM and IOS Software Requirements for VSS

NAM	NAM Software	IOS Software
WS-SVC-NAM-1	NAM 3.6.1a or later	IOS 12.2(33) SXH(1) or later
WS-SVC-NAM-2		
WS-SVC-NAM-1-250S	NAM 3.6.1b or later	
WS-SVC-NAM-2-250S		

Catalyst 6500 NAM-1 and NAM-2 Memory Recommendation

To optimize the performance of NAM software, particularly of NAM 4.x releases given new features that can have large table sizes, Cisco offers a field-installable memory upgrade kit that can be purchased for WS-SVC-NAM-1 and WS-SVC-NAM-2 devices. The memory upgrade kit comes with 2GB of DRAM. Its part number is MEM-C6KNAM-2GB=.

Cisco has characterized that the memory upgrade can increase the number of hosts and conversations that can be monitored by up to a factor of two (the improvement can vary depending on packet sizes monitored, burstiness of traffic, NAM features enabled, switch/router features enabled, and so on). The memory upgrade not only can improve the number of hosts and conversations monitored, but also, as a result of the foregoing, can increase the number of concurrent flows that can be monitored. This can result in improved NAM performance when the NAM is deployed in places in the network where it can see a large number of concurrent flows.

You can find information about how to upgrade your memory in the document *NAM Memory Upgrade Install Note* at the following URL:

http://www.cisco.com/en/US/docs/switches/lan/catalyst6500/hardware/Config_Notes/78_18630.html

No memory upgrade kit is offered for the WS-SVC-NAM-1-250S and WS-SVC-NAM-2-250S, which already ship from factory with 2GB DRAM.

Browser Requirements

Table 6 describes the browser requirements for all platforms. We recommend you use the Internet Explorer browser, but Firefox is also supported.

Table 6 Browser Requirements

Browser	Versions	Client Platform	JVM Support[1]
Internet Explorer	6.0 (with Service Pack 2) 7.0	• Windows • Windows Vista • Windows XP Professional	• Java Plug-In 1.5.0_11
Firefox	2.0 3.0	• Windows • Windows XP Professional • Solaris • Linux (RHEL)	

1. A Java plug-in might be required to use the Java Virtual Machine (JVM).

Note Although Traffic Analyzer does not require a Java plug-in, you might be required to use the Java Virtual Machine (JVM). The Java plug-in versions listed have been tested for browsers that require a plug-in for the JVM. We recommend JRE Version 5.0 Update 6.

Catalyst 6500 and Cisco 7600 NAM-1 and NAM-2 Maintenance Image and BIOS Requirements

Note This section applies only to the WS-SVC-NAM-1 and WS-SVC-NAM-2 blades being upgraded from NAM application image 3.6 to NAM 4.0.

Table 7 lists the minimum versions of NAM maintenance image, the maintenance image filename, and the BIOS image required for NAM-1 and NAM-2 when using NAM application image 4.0(1).

Table 7 NAM Maintenance Images

Module	Version (minimum)	Maintenance Image	BIOS Version
WS-SVC-NAM-1	2.1(3)	c6svc-nam-maint.2-1-3.bin.gz	4.0-Rel 6.0.9 or later
WS-SVC-NAM-2			

Before upgrading WS-SVC-NAM-1 or WS-SVC-NAM-2 from NAM 3.6 release to NAM 4.0, the BIOS image in the NAM must be checked to determine whether it is running version 6.0.9 or later. If it is, NAM 3.6 can be upgraded to NAM 4.0 without upgrading the BIOS image. If it is not, the BIOS image must be upgraded. If the BIOS is not upgraded before installing NAM 4.0, NAM 4.0 will cause the NAM to lock up.

The BIOS image is bundled with the NAM's maintenance image. The maintenance image must first be upgraded and then the BIOS image. The new BIOS will take effect only after the NAM is rebooted following the maintenance image and BIOS image upgrades.

The Upgrading NAM Software section of these Release Notes provides information on:

- How to identify the version of the Catalyst 6500 and Cisco 7600 NAM's BIOS image
- How to upgrade the Catalyst 6500 and Cisco 7600 NAM's Maintenance image
- How to upgrade the Catalyst 6500 and Cisco 7600 NAM's BIOS image
- How to upgrade the NAM's Application Image

Upgrading NAM Software

This section provides the following topics:

- Supported Upgrades, page 11
- Before You Begin
- Upgrading NAM Software, page 13
- Upgrading Catalyst 6500 and Cisco 7600 NAM-1 and NAM-2 BIOS Image, page 17

Note Before upgrading NAM software from version 3.6 to NAM 4.0 on the Catalyst 6500 and Cisco 7600 NAM-1 and NAM-2 (WS-SVC-NAM-1 and WS-SVC-NAM-2), ensure that the NAM maintenance image software and BIOS versions are at the proper level to use NAM 4.0. See Catalyst 6500 and Cisco 7600 NAM-1 and NAM-2 Maintenance Image and BIOS Requirements for further information.

Supported Upgrades

NAM 4.0 supports upgrades from the NAM 3.5 and NAM 3.6 software releases (with any patches) on the following NAM devices:

- WS-SVC-NAM-1
- WS-SVC-NAM-2
- WS-SVC-NAM-1-250S
- WS-SVC-NAM-2-250S
- NM-NAM
- NME-NAM-80S
- NME-NAM-120S

NAM 4.0 does not support upgrades from NAM 3.4 or below. However you can reinstall NAM 4.0. See the next section, Reinstalling NAM Software.

Reinstalling NAM Software

Although you cannot upgrade from a version prior to NAM 3.4, you can do a re-install instead using the **upgrade** command and the ***--install*** option. See the *Catalyst 6500 Series Switch and Cisco 7600 Series Router Network Analysis Module Installation and Configuration Note* at the following URL for more information:

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.0/switch/configuration/guide/swinstcfg.html

When you re-install software with NAM 4.0, you will lose your previous configuration; however, and you will have to use the NAM GUI to restore your configuration.

Before You Begin

Before you begin the upgrade process, we recommend that you perform a complete backup of your current NAM configuration. Doing so will record your current configuration which will be helpful if you have difficulties duplicating your previous configuration after the software upgrade.

To back up your current configuration, from the NAM command line, enter a **config upload** command like the following:

config upload ftp://server/path

The **config upload** command sends a copy of the NAM running configuration to the destination you specify. The information is stored in a back-up configuration file with an ending suffix of **.config** as in ***NAM_host*-c6svc-nam-3.6.1b.config**. The destination address should be a valid server name and directory path.

NAM 4.0 has a new architecture that will cause you to lose some of the configuration you have currently set in your NAM. When you upgrade from NAM 3.6 or NAM 3.5 to NAM 4.0, due to the new architecture, the settings for alarms, reports, and capture files will not be upgraded to NAM 4.0. We highly recommend that you record these configurations in a final database backup so you maintain an archive of your final configuration before your software upgrade using the **config upload** command.

Table 8 provides information about configurations you might have issues with following your upgrade.

Note This issue is being tracked with CSCsw41758.

Table 8 Configurations in Jeopardy After Software Upgrade to NAM 4.0

Settings	Post Upgrade Condition
Alarm Settings	Configuration is not carried over in NAM 4.0. See Alarm Settings, page 12 for more information.
Capture File Settings	Capture File Settings are carried over in NAM 4.0, but you will lose active captures that are configured as *Capture to Buffer*. To save current data, click **Save to File** or the current data will be lost. See Capture File Settings, page 12 for more information.
Reports	Report configuration is carried over in NAM 4.0, and all reports will work properly except for those configured to gather data about the ALL SPAN data source on NAM-1 and NAM-1-250S devices. This data source is renamed DATA PORT in NAM 4.0.
Voice and RTP Monitoring	Settings for voice monitoring and RTP stream monitoring will be disabled when NAM is upgraded to NAM 4.0. See Voice and RTP Monitoring, page 13 for more information.
Application Response Time	Configuration is set to default values and will need to be reconfigured using the NAM GUI. See Application Response Time, page 13 for more information.

Alarm Settings

Due to changes in the NAM configuration file, alarms settings will not be carried over during the NAM 4.0 software upgrade. When you have completed the upgrade, go to the **Setup** > **Alarms** window and configure your desired alarm settings. We recommend that you record your settings for alarms before you begin the software upgrade to NAM 4.0.

Capture File Settings

Capture files will be retained after you upgrade to NAM 4.0, but you will lose active data still in memory for those captures configured as *Save to Buffer*.

Click **Save to File** to save current capture data in a file on disk.

Reports

Reports you have configured in NAM 3.6 will be carried over after you upgrade to NAM 4.0 and all reports will work properly except for those configured for the ALL SPAN data source on NAM-1 and NAM-1-250S devices. This data source is renamed in NAM 4.0 as the DATA PORT data source. After you upgrade to NAM 4.0, you need to recreate any reports set up for the ALL SPAN data source to use the DATA PORT data source instead.

Voice and RTP Monitoring

Settings for voice monitoring and RTP stream monitoring will be disabled when NAM is upgraded to NAM 4.0 due to architectural changes. We recommend that you record your settings for voice monitoring and RTP monitoring before you begin the software upgrade to NAM 4.0.

Application Response Time

The configuration you set up for application response time (ART) at the **Setup > Response Time > Configuration** window will be set to the default values after you complete the software upgrade to NAM 4.0. Use the information in the configuration file to reconfigure these settings.

Upgrading NAM Software

If you are upgrading a NAM-1 or a NAM-2 module, follow the software upgrade procedures described in the chapter Administering the Network Analysis Module in the following documents:

- For NAM-1 and a NAM-2 modules installed in an IOS switch:

  http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.0/switch/configuration/guide/advcfg.html#wp1035516

- For NAM-1 and a NAM-2 modules installed in a CatOS switch:

  http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.0/switch/configuration/guide/advcfg.html#wp1036152

If you are upgrading an NME-NAM, follow the software upgrade procedures described in the section Upgrading the NAM Software-Full Image of the *Cisco Branch Router Series (NME-NAM) Installation and Configuration Note*.

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.0/branch_router/configuration/guide/BR_incfg_120.html#wp1060546

If you are upgrading an NM-NAM, follow the software upgrade procedures described in the section Upgrading the NAM Software-Full Image of the *NM-NAM Feature Guide*.

http://www.cisco.com/en/US/docs/ios/12_3/12_3x/12_3xd/feature/guide/nm_nam.html#wp1046561

Note You can apply the NAM 4.0 Crypto K9 patch, **nam-app.4-0.cryptoK9.patch.1-0.bin**, on top of NAM 4.0 using NAM CLI command **patch**.

Viewing Software Version Information

To display the NAM version information, use the **show version** command. The following is an example of the **show version** command and the information it returns:

```
Root@localhost#  show version

NAM application image version: 4.0(1)
Maintenance image version: 2.1(5)
BIOS Version: 4.0-Rel 6.0.9
PID: WS-SVC-NAM-1-250S
Memory size: 2048MB
Disk size: 250GB
```

```
Installed patches:

No patches are installed on this system.

Root@localhost#
```

For more detailed information about the **show version** command, see the *Network Analysis Module Command Reference Guide, 4.0* at the following URL:

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.0/command/reference/guide/cmdspart6.html#wp1056860

Upgrading the NAM Maintenance Image Software

To upgrade the NAM maintenance image software, follow these steps.

Note This section applies only to the WS-SVC-NAM-1 and WS-SVC-NAM-2 blades running a maintenance image before version 2.1(3) which are being upgraded from NAM application image 3.6 to NAM 4.0.

Step 1 Copy the NAM maintenance software image to a directory accessible to FTP.

You can download the latest version of the NAM maintenance image from the following URL:

http://www.cisco.com/cgi-bin/tablebuild.pl/ws-svc-nam

The most recent NAM maintenance image software available to download is 2.1(5), and its filename is **c6svc-nam-maint.2-1-5.bin.gz**.

Step 2 Log in to the switch through the console port or through a Telnet session.

Step 3 If the NAM is running in the application image, go to Step 5. If the NAM is not running in the application image, enter this command in the privileged mode:

```
Router# hw-module module 9 reset hdd:1
Device BOOT variable for reset = hdd:1
Warning:Device list is not verified.

Proceed with reload of module? [confirm]
% reset issued for module 9
Router#
00:31:11:%SNMP-5-MODULETRAP:Module 9 [Down] Trap
00:31:11:SP:The PC in slot 9 is shutting down. Please wait ...
00:31:25:SP:PC shutdown completed for module 9
00:31:25:%C6KPWR-SP-4-DISABLED:power to module in slot 9 set off (admin
request)
00:31:28:SP:Resetting module 9 ...
00:31:28:%C6KPWR-SP-4-ENABLED:power to module in slot 9 set on
00:33:26:%SNMP-5-MODULETRAP:Module 9 [Up] Trap
00:33:26:%DIAG-SP-6-BYPASS:Module 9:Online Diagnostics is Bypassed
00:33:26:%OIR-SP-6-INSCARD:Card inserted in slot 9, interfaces are now
online
```

Step 4 After the NAM is back online, establish a console session with the NAM and log in to the root account.

Step 5 Upgrade the NAM maintenance image software as follows:

```
root@localhost# upgrade ftp-url
```

where *ftp-url* is the FTP location and name of the NAM software image file.

Note If the FTP server does not allow anonymous users, use the following syntax for the *ftp-url* value: *ftp://user@host//absolute-path/filename*. Enter your password when prompted.

Step 6 Follow the screen prompts during the upgrade.

Step 7 After completing the upgrade, log out of the NAM.

Step 8 Boot into the maintenance image to reset the NAM maintenance image software with a command like the following:

```
Router# hw-module module 9 reset cf:1
Device BOOT variable for reset = cf:1
Warning:Device list is not verified.

Proceed with reload of module? [confirm]
% reset issued for module 9

Router#
00:16:06:%SNMP-5-MODULETRAP:Module 9 [Down] Trap
00:16:06:SP:The PC in slot 9 is shutting down. Please wait ...
00:16:21:SP:PC shutdown completed for module 9
00:16:21:%C6KPWR-SP-4-DISABLED:power to module in slot 9 set off (admin request)
00:16:24:SP:Resetting module 9 ...
00:16:24:%C6KPWR-SP-4-ENABLED:power to module in slot 9 set on
00:18:21:%SNMP-5-MODULETRAP:Module 9 [Up] Trap
00:18:21:%DIAG-SP-6-BYPASS:Module 9:Online Diagnostics is Bypassed
00:18:21:%OIR-SP-6-INSCARD:Card inserted in slot 9, interfaces are now online
Router#
```

Step 9 (Optional) Verify the initial configuration after the NAM comes back online by logging into the NAM root account as follows:

```
root@localhost# show ip
```

Step 10 (Optional) Reboot into the application image as follows:

```
Router# hw-module module 9 reset
```

This example shows how to upgrade the NAM maintenance image software:

```
Router#
Router# hw-module module 9 reset hdd:1
Device BOOT variable for reset = hdd:1
Warning:Device list is not verified.

Proceed with reload of module? [confirm]
% reset issued for module 9
Router#
00:31:11:%SNMP-5-MODULETRAP:Module 9 [Down] Trap
00:31:11:SP:The PC in slot 9 is shutting down. Please wait ...
00:31:25:SP:PC shutdown completed for module 9
00:31:25:%C6KPWR-SP-4-DISABLED:power to module in slot 9 set off (admin
request)
00:31:28:SP:Resetting module 9 ...
00:31:28:%C6KPWR-SP-4-ENABLED:power to module in slot 9 set on
00:33:26:%SNMP-5-MODULETRAP:Module 9 [Up] Trap
00:33:26:%DIAG-SP-6-BYPASS:Module 9:Online Diagnostics is Bypassed
00:33:26:%OIR-SP-6-INSCARD:Card inserted in slot 9, interfaces are now
online
Router#
```

```
Router# session slot 9 proc 1
The default escape character is Ctrl-^, then x.
You can also type 'exit' at the remote prompt to end the session
Trying 127.0.0.91 ... Open

Cisco Network Analysis Module (WS-SVC-NAM-2)

login:root
Password:

Cisco Network Analysis Module (WS-SVC-NAM-2) Console,  4.0
Copyright (c) 2008 by cisco Systems, Inc.

WARNING! Default password has not been changed!
root@localhost.cisco.com#

root@localhost.cisco.com# upgrade ftp://host/pub/c6svc-nam-maint.2-1-5.bin.gz

Downloading image...
ftp://host/pub/c6svc-nam-maint.2-1-5.bin.gz (11065K)
-                         [##########################]   11065K |  837.65K/s
11331153 bytes transferred in 13.21 sec (837.64k/sec)

Uncompressing the image...

Verifying the image...

Applying the Maintenance image.
This may take several minutes...

Upgrade of Maintenance image completed successfully.
root@hostname.cisco.com# exit

Router# hw-module module 9 reset cf:1
Device BOOT variable for reset = cf:1
Warning:Device list is not verified.

Proceed with reload of module? [confirm]
% reset issued for module 9
Router#
02:27:19:%SNMP-5-MODULETRAP:Module 9 [Down] Trap
02:27:19:SP:The PC in slot 9 is shutting down. Please wait ...
02:27:36:SP:PC shutdown completed for module 9
02:27:36:%C6KPWR-SP-4-DISABLED:power to module in slot 9 set off (admin
request)
02:27:39:SP:Resetting module 9 ...
02:27:39:%C6KPWR-SP-4-ENABLED:power to module in slot 9 set on
02:29:37:%SNMP-5-MODULETRAP:Module 9 [Up] Trap
02:29:37:%DIAG-SP-6-BYPASS:Module 9:Online Diagnostics is Bypassed
02:29:37:%OIR-SP-6-INSCARD:Card inserted in slot 9, interfaces are now
online
Router#
```

Upgrading Catalyst 6500 and Cisco 7600 NAM-1 and NAM-2 BIOS Image

Note This section applies only to the WS-SVC-NAM-1 and WS-SVC-NAM-2 blades running a BIOS image before version 6.0.9 and which are being upgraded from NAM application image 3.6 to NAM 4.0.

Note The BIOS image is bundled with the NAM's maintenance image. The maintenance image must first be upgraded, and then the BIOS image.

The NAM maintenance image software also provides upgrade software for your BIOS. If the **show version** command indicates a BIOS version below 4.0-Rel 6.0.9, see one of the following sections for information about how to perform a BIOS upgrade:

- Using IOS Commands
- Using CatOS Commands

Using IOS Commands

Step 1 Boot the NAM to the maintenance image. Enter the following command from the Supervisor CLI:

hw-module module <module-number> reset cf:1

Step 2 After the NAM has booted the new maintenance image, session into the NAM module with the following Supervisor CLI command:

session slot <module-number> processor 1

Step 3 Log in as user *root* with the default password *cisco*.

Step 4 Enable the *guest* account (disabled by default) for the maintenance image. Enter the following command at the NAM maintenance CLI:

enable-guest

Note You can only perform the BIOS upgrade procedure from the *guest* account.

Step 5 Log out of the NAM CLI.

Step 6 Log in again as the user *guest*.

The default password for the *guest* account is *cisco*.

Warning **While the new BIOS is being programmed, the procedure should not be interrupted in any way. Do not turn power off or shut down the NAM until the programming is complete.**

A message such as `BIOS programming complete` displays when the procedure is finished, usually in less than two minutes.

Step 7 While logged into the *guest* account, enter the following command to begin the BIOS upgrade procedure:

upgrade-bios

Step 8 When prompted for the filename of the BIOS file to be programmed. Enter the following filename:

B01MQ009.ROM

Note In the above filename, use the *digit 0*, not the *letter O,* except for the **.ROM** extension which does use the *letter O*.

The following output shows an example of this procedure:

```
-------------------------------------------------------
guest@nam-test.cisco.com#upgrade-bios
Enter filename of BIOS file to be programmed: B01MQ009.ROM
Write BIOS File B01MQ009.ROM to Flash

WARNING: Removing or powering down this module during BIOS programming may resul t in the
module unable to come online!

Erasing old BIOS...
Programming new BIOS...DONE
Verifying new BIOS...DONE

BIOS programming complete
guest@nam-test.cisco.com#
-------------------------------------------------------
```

Step 9 Log out of the NAM CLI (returning to the Supervisor CLI), and enter a command like the following to boot the NAM Application image:

hw-module module <module-number> reset hdd:1

Step 10 Enter the **show version** command to verify the BIOS was successfully installed.

show version

The output of the **show version** command should look something like the following:

```
BIOS Version: 4.0-Rel 6.0.9
```

This **show version** command output indicates that the most recent BIOS version (4.0-Rel 6.0.9) is installed.

You can now reboot the NAM Application image and resume normal NAM operation.

Using CatOS Commands

This version updates the BIOS using CatOS commands.

Step 1 Boot the NAM to the maintenance image. Enter the following command from the Supervisor CLI:

reset <module-number> cf:1

Step 2 After the NAM has booted the new maintenance image, session into the NAM module with the following Supervisor CLI command:

session <module-number>

Step 3 Log in as user *root* with the default password *cisco*.

Step 4 Enable the *guest* account (disabled by default) for the maintenance image. Enter the following command at the NAM maintenance CLI:

enable-guest

Note You can only perform the BIOS upgrade procedure from the *guest* account.

Step 5 Log out of the NAM CLI.

Step 6 Log in again as the user *guest*.

The default password for the *guest* account is *cisco*.

Warning **While the new BIOS is being programmed, the procedure should not be interrupted in any way. Do not turn power off or shut down the NAM until the programming is complete.**

A message such as `BIOS programming complete` displays when the procedure is finished, usually in less than two minutes.

Step 7 While logged into the *guest* account, enter the following command to begin the BIOS upgrade procedure:

upgrade-bios

Step 8 When prompted for the filename of the BIOS file to be programmed. Enter the following filename:

B01MQ009.ROM

Note In the above filename, use the *digit 0*, not the *letter O,* except for the **.ROM** extension which does use the *letter O*.

The following shows an example of the BIOS upgrade output:

```
------------------------------------------------------------
guest@nam-test.cisco.com#upgrade-bios
Enter filename of BIOS file to be programmed: B01MQ009.ROM
Write BIOS File B01MQ009.ROM to Flash

WARNING: Removing or powering down this module during BIOS programming may resul t in the
module unable to come online!

Erasing old BIOS...
Programming new BIOS...DONE
Verifying new BIOS...DONE

BIOS programming complete
guest@nam-test.cisco.com#
------------------------------------------------------------
```

Step 9 Log out of the NAM CLI (returning to the Supervisor CLI), and enter a command like the following to boot the NAM Application image:

reset <module-number> hdd:1

Step 10 When the upgrade process completes, enter the **show version** command to verify the BIOS was successfully installed.

show version

The output from of the **show version** command should look like the following:

```
BIOS Version: 4.0-Rel 6.0.9
```

This **show version** command output indicates that the most recent BIOS version (4.0-Rel 6.0.9)is installed.

You can now reboot the NAM Application image and resume normal NAM operation.

Limitations and Restrictions

The following limitations and restrictions currently apply to the NAM 4.0 software release:

- NAM Support For Non-Cisco H.323 Voice Devices and Call Managers
- Direct Flow Packets to NAM Data Port
- No Default CLI Password
- Intelligent Application Performance and Voice Quality Analytics
- Intelligent Application Performance
- Analyzing Direct RTP Streams and Voice Traffic
- Checking the NAM Maintenance Image and BIOS Versions
- NAM Appliance Support for Cisco Nexus 7000
- Restrictions for NM-NAM and NME-NAMs
- IOS Issues Affecting NAM 4.0

NAM Support For Non-Cisco H.323 Voice Devices and Call Managers

NAM voice call monitoring may not function properly with some of the non-Cisco voice devices and Call Managers such as Avaya. This is only for non-Cisco voice devices. Cisco IP Phone and Call Managers do not have any problems.

You should use a third party voice monitoring tool for non-Cisco devices instead of using the NAM.

Direct Flow Packets to NAM Data Port

If you use a NAM-2 device, either WS-SVC-NAM-2 or WS-SVC-NAM-2-250S, we recommend that you direct all packets for the same flow to the same data port.

Note This issue applies only to the WS-SVC-NAM-2 and WS-SVC-NAM-2-250S NAM models.

NAM-2 devices have two data ports (DATA_PORT1 and DATA_PORT2), but the packets received on these two ports are not well merged in respect to the order in which the packets are received. When packets for a given flow are split into two data ports, it might impact the calculation of application response time (ART) metrics and voice quality metrics.

No Default CLI Password

For security purposes, beginning with NAM 4.0, we no longer provide a default root password. After you upgrade the NAM software to NAM 4.0, you must specify a password for the root account. Store this password in accordance with your site's security policies. You will need the root account password for additional software upgrades.

Intelligent Application Performance and Voice Quality Analytics

The calculation of IAP and voice quality metrics in NAM 4.0 depends on the actual packet arrival time and packet sequences. If these kinds of events occur, the NAM will not be able to calculate accurate quality metrics for the associated polling interval.

Administrators should pay attention to the NAM **syslog** messages and system alerts to be aware of any packet drops, duplicated packets, or asymmetric routing occurrences.

Intelligent Application Performance

Due to the way NAM 4.0 processes packets in a TCP connection, response time monitoring on WAAS data sources probably will not include the first response of the TCP connection. This occurs because the WAAS optimization engine might not be able to determine to which optimized or non-optimized segment the first few packets belong.

This issue will be noticed when you monitor a TCP connection that has only a single response. No response time will be reported for this connection. The NAM determines response time by taking the average response time over multiple TCP connections. Because most TCP connections have multiple responses, this issue is generally unnoticed over a longer period of monitoring.

Analyzing Direct RTP Streams and Voice Traffic

To successfully build the association between the active phone list and RTP streams, you should direct both voice traffic (the control plane) and related RTP streams (the data plane) to NAM data ports. The data port number is insignificant because the NAM analyzes voice quality based on the ALL SPAN data source.

Checking the NAM Maintenance Image and BIOS Versions

NAM 4.0 software requires that you use the correct NAM maintenance image and BIOS versions. The recommended BIOS version for NAM 4.0 software is BIOS 6.0.9.

The recommended MP version depends on the NAM model. See Table 7 for the recommended maintenance image for each NAM platform. If you need to upgrade your NAM maintenance image, see Upgrading the NAM Maintenance Image Software.

NAM Appliance Support for Cisco Nexus 7000

With the deployment flexibility the new Cisco NAM 2200 Series appliances offer, you now have a NAM solution to gain visibility into network and application performance for the Cisco Nexus 7000 Series switches. The Cisco NAM 2200 Series appliances provide core NAM functionality to support the Cisco Nexus 7000 Series including monitoring, reporting, capturing data and alarms. The NAM appliances support features such as traffic analysis, Intelligent Application Performance (IAP) monitoring, differentiated services analysis, and voice quality monitoring. The same NAM software image supports all tested infrastructure devices.

The Cisco NAM 2200 Series appliances do not yet offer the same level of management interface support they offer other tested devices, such as the Catalyst 6500 Series switches. This affects the following NAM functions:

- Configuring a SPAN session on the Nexus 7000 Series using the NAM GUI. Instead, use the switch CLI to configure such a session.
- Monitoring and reporting traffic statistics about the managed device. Managed device statistics include port (mini-RMON), VLAN, and device health statistics. This limitation does not affect monitoring and reporting statistics on traffic that you can SPAN to NAM.
- Configuring and displaying alarms about the managed device.

Support for both NBAR-PD and MPLS functionality is not available for the Nexus 7000.

Restrictions for NM-NAM and NME-NAMs

Note This restriction applies only to traffic that is monitored through the internal NAM interface.

The NAM Traffic Analyzer (web GUI) provides Layer 3 and higher layer information about the original packets. The Layer 2 header is modified by the router when it forwards the packets to the NAM, so the Layer 2 information that the NAM records is not applicable to the original packets.

IOS Issues Affecting NAM 4.0

The following IOS issues affect the use of NAM 4.0:

- IOS Image Incompatibility Prevents Creating SPAN Data Sources Using NAM GUI
- Cisco 7600 With Redundant Supervisor Cards Running IOS Image 12.2(33)SRC2
- Running IOS Image Newer Than 12.2(18)SXF5
- RSPAN and ERSPAN Unsupported in IOS Image 12.2(33)SRD

- Wrong Egress Interface Found in 12.4(20)T and 12.4(22)T

IOS Image Incompatibility Prevents Creating SPAN Data Sources Using NAM GUI

An issue with the supervisor card and IOS images 12.2(18)SXF9 and 12.2(33)SRB1 prevents you from creating SPAN data sources (SPAN sessions) using the NAM GUI. (This issue is described in CSCse98807.) This issue has been resolved with IOS image 12.2(18)SXF10.

You can also use switch command-line interface (CLI) commands to create SPAN sessions, or you can use other IOS releases on the supervisor card, such as 12.2(18)SXF10 or 12.2(33)SRB2, that fix this IOS issue.

On affected systems, when you attempt to use the NAM GUI to create a SPAN session by choosing **Setup > Data Source** and clicking **Create**, the NAM GUI displays no information for the Destination Port. This prevents you from creating the SPAN session.

Cisco 7600 With Redundant Supervisor Cards Running IOS Image 12.2(33)SRC2

You might experience an error condition with a Cisco 7600 chassis that has redundant supervisor cards running the 12.2(33)SRC2 IOS image and a NAM service blade. The error occurs when you perform a sequential boot of the two supervisor cards because the secondary (standby) supervisor does not go into proper standby mode.

You can find more information about this issue in Field Notice #63179.

This problem does not occur:

- When you boot the two supervisor cards in parallel
- When you boot the standby supervisor card after the primary supervisor is up
- When the Cisco 7600 router runs the 12.2SRC1 image
- When only one supervisor card is installed in the Cisco 7600 chassis

Problem Symptom

When the primary supervisor functions as a standalone with the secondary supervisor card in RPR mode, the Cisco 7600 chassis functions normally (as if it has a standalone supervisor card). A switchover causes the system to be unavailable for up to three minutes because the secondary supervisor card is not in proper standby mode.

Note When both supervisors are booted simultaneously, the system will go to Hot Standby status. The primary supervisor will reboot when you issue the **redun force-switchover** command which causes the redundant supervisor to boot up to be the primary and the primary to be the redundant.

Solution

This problem requires you to downgrade the IOS image from 12.2SRC2 to 12.2SRC1. Account teams will help you do this if needed.

This problem will be fixed in 12.2(33)SRC4; a target date for this release is not yet available.

Running IOS Image Newer Than 12.2(18)SXF5

If you upgrade your IOS to an image newer than 12.2(18)SXF5, you remain vulnerable to a security issue where IOS switches the SNMP communication between the NAM and the SUP from inband to EOBC.

Due to this issue, you should not apply the NAM CLI command **supervisor address <*sup-address*>**. To remove this configuration from the NAM, use the negating form of the command, **no supervisor address**.

RSPAN and ERSPAN Unsupported in IOS Image 12.2(33)SRD

The ERSPAN command is not working properly in NAM 4.0 when using IOS image 12.2(33)SRD. The problem is noticed when you attempt to configure a destination on the NAM in ERSPAN or RSPAN sub-mode.

After issuing the command:

destination analysis-module 3 data-port 1

Where module 3 is the NAM you have set up to monitor (using the command **monitor session 1 type erspan-destination**), the configured destination cannot be found.

This problem also affects the local SPAN (with sub-mode configuration).

Wrong Egress Interface Found in 12.4(20)T and 12.4(22)T

This issue is described in caveat CSCsr18741. This issue affect NME-NAMs using image 12.4(20)T and 12.4(22)T.

This issue will be noticed when you attempt to use the NME-NAM to monitor interface-based traffic using CEF support.

A change to correct this issue is expected in 12.4(23.7)T.

Caveats

This section provides information about active and resolved anomalies in the NAM 4.0 software. To obtain more information about known problems, access and log in to the Cisco Software Bug Toolkit at the following URL:

http://www.cisco.com/cgi-bin/Support/Bugtool/home.pl.

This section provides the following:

- Known Anomalies in NAM 4.0, page 24
- Anomalies Fixed in NAM 4.0, page 30

Known Anomalies in NAM 4.0

Table 9 provides a list of known anomalies found in NAM 4.0 software. Each anomaly includes a description of the symptom, conditions in which the anomaly occurs, and any workaround.

Table 9 Known Anomalies in NAM 4.0

Bug ID	Description
CSCsr58782	DNS lookup might slow down monitor screens Symptom: You might notice slow loading of the Monitor windows on the NAM 4.0 GUI. Conditions: This might be observed when the Name Resolution function is enabled and the number of entries in the NAM monitor window is high (more than 5,000 entries, for example). This occurs on all NAM platforms. Workaround: Disable Name Resolution. Further Problem Description: It occasionally takes a long time to resolve the DNS name or IP address. Occasionally the DNS name does not resolve causing a long timeout.
CSCsr93255	TCP stream analysis of large files takes a long time Symptom: You might experience slow GUI response when performing TCP stream analysis with large captured files (larger than 500 MB, for example). Conditions: This occurs under normal operating conditions and occurs on all NAM platforms. Workaround: Use a smaller size capture file. For example, use capture files smaller than 200 MB.
CSCso90689	The **Setup > Managed Device > SNMP** test should take read-write string only Symptom: This window requires you to enter correct community string, then click **Test**, then click **Apply**. If you enter an invalid community string and click Apply without testing it, some switch and router windows will not work correctly. Conditions: This occurs on NM-NAM and NME-NAM platforms only. Workaround: Enter the correct community string in NAM GUI. Further Problem Description: If invalid information is entered, any window such as Port Stats, Interface Stats or NBAR Stats that requires contact with the remote device or the router will be affected. This could result in a partial or no information displayed on these windows.
CSCsq02246	The NAM appliance backplane utilization occasionally indicates *no activity* in NAM reports. Symptom: Occasionally the Managed Device Backplane Utilization report on the NAM appliance shows *no activity.* Conditions: This occurs on NAM appliances when you have set up a Managed Device Health report (**Reports > Basic Reports > Create**). Workaround: None
CSCsq04306	On rare occasions, the **Monitor > Remote Device > Interface Statistics** window shows negative numbers after a reboot. Symptom: On rare occasions, negative numbers display on the first view of the **Monitor > Remote Device > Interface Statistics** window. Conditions: This occurs under normal operation on Cisco NAM 2200 appliances. Workaround: Click your browser Refresh button a few times to resolve the problem.

Table 9 Known Anomalies in NAM 4.0 (continued)

Bug ID	Description
CSCsr81988	The NAM Top Port report or target report occasionally displays negative numbers Symptom: Occasionally the NAM Report on Switch Ports indicates negative values (for Packet Drops for example). Also, the affected report can be either type of target (specific to one port or system-wide for Top Ports. Conditions: This occurs on all NAM platforms. Workaround: None
CSCsu50908	The NAM CLI command **config network** does not completely restore the NAM configuration. Symptom: a configuration restore does not completely restore the NAM configuration. Conditions: This occurs on all NAM platforms and depends on the order in which the NAM was configured. All configuration statements prior to the **time** command should be restored. When the NAM sees the **time** command, it reboots, so all configuration that follows the **time** command will be lost. Workaround: First, use a text editor to move the **time** command to bottom of the NAM configuration file (such as ***NAM_host_name*-c6svc-nam-3.6.1b.config**). Then execute the **config network** command. Another way to work around this problem would be to use the **show log config** command to determine which commands failed during the CLI command **config network**. Then manually repair the missing configuration using the GUI or CLI.
CSCsv28003	Cisco 7600 fails with SRC2 image when the system attempts to synchronize on a dual supervisor system installed with the NAM. Symptoms: IOS causes the redundant supervisor to reboot to RPR mode because it was unable to synchronize. Conditions: This occurs when you boot the primary supervisor first, then boot the redundant supervisor with Cisco 7600 routers running IOS image 12.2(33)SRC2. Workaround: Downgrade the IOS image from 12.2SRC2 to 12.2SRC1. See Cisco 7600 With Redundant Supervisor Cards Running IOS Image 12.2(33)SRC2, page 23 for more detailed information.
CSCsv41026	Initial display of application host screen may be slow for larger tables. Symptom: It takes several minutes to open a large table of entries for Application Hosts on the **Monitor > Conversations > Application Hosts** window. Conditions: This only occurs when the NAM sees a large number of host and conversation entries per second and the host and conversation collections are configured with Maximum Possible option. You configure these collections at the **Setup > Monitor > Core Monitoring** window. A pull-down menu provides three options for the Max Entries field including Max Possible for Host Statistics (Network & Application layers) and Conversation Statistics (Network & Application layers). With this configuration, a large table of entries grows quickly because the NAM data port will see several thousand concurrent host and conversation entries each second. Workaround: Use the NAM GUI to modify the collection configuration to limit the size of the Max Entries field.

Table 9 Known Anomalies in NAM 4.0 (continued)

Bug ID	Description
CSCsv41047	Intermittent multiple instances are created for collections Symptom: Attempting to click the check box for monitoring data collection to *Off* has no affect; the window returns with the box checked. Conditions: This occurs on all NAM platforms. Go to the **Setup > Monitoring > Core Monitoring** window fields for functions like Application Statistics and Network Hosts, then click the check box off. Walking the respective SNMP MIB control table such as the hlMatrixControlTable and hlHostControlTable for examples above) shows more than one row for the same data source and owner (LocalMgr). Workaround: On **Setup > Monitoring > Core Monitoring** window, click a check box for a Monitoring Function to off repeatedly until it takes effect (each attempt deletes one entry) or delete extra entries using SNMP SET requests.
CSCsv75490	You can reach URLs that are not applicable to current NAM platform Symptom: You can enter a URL to a location that is not pertinent to your current NAM device. For example, if you enter a URL on a NAM2, such as /setup/remote/remote.php, the NAM will display the Setup Managed Device parameters of a different device. Conditions: This occurs on all NAM platforms. Workaround: You can avoid this by using the GUI buttons and not entering URLs by keyboard input.
CSCsw29434	The Service Monitor (SM) receives duplicate RTP records from NAMs. Symptom: When the SM receives RTP stream metrics from the NAM each polling interval, the SM receives duplicate RTP stream records as many as eight times depending on the configured size of the RTP table. Conditions: This occurs on all NAM platforms. Workaround: This anomaly was fixed in NAM 4.0(1) patch 1.
CSCsw41208	Unable to install NAM application image for NAM 4.0 on NME-NAM-80S and NME-NAM-120S Symptom: You are unable to install NAM application image using the TFTP installation option. Conditions: This applies only to NME-NAM-80S and NME-NAM-120S. This occurs when you use the TFTP download option for install from the **helper**. Workaround: Use the FTP or HTTP download method for installation. Further problem description: The size of the NAM 4.0 application image is too large for a TFTP download.

Table 9 Known Anomalies in NAM 4.0 (continued)

Bug ID	Description
CSCsx44498	Data points are occasionally not found in Application Response Time reports. Symptoms: 1. The Application Response Time (ART) report shows Last Status of *No Data* even though the ART Monitor window shows valid data for the same server of the client/server pair. 2. System alerts on the NAM show messages indicating a crash of **trendd** (NAM reporting daemon), like the following: `"Jan 22 17:43:52 6513A-NAM logger[7840]: RD_WD: trendd is dead!"` Conditions: This occurs when ART reports created from the Monitor window contain hostnames and NAM Preferences window has the DNS hostname resolution to *off*. Workaround: 1. Delete any ART reports that contain hostnames. 2. Manually create three basic reports like the following with five minute intervals: • Client-Server Response - Average application delay • Client Network Delay • Server Network Delay The **trendd** report daemon restarts automatically.
CSCsx63181	The NAM application crashes on some ESP packets If esp-null encapsulation is set to *application* or *application and tunnel* and the real encryption algorithm is used (not NULL) then the heuristic to look for esp-null can result in crashes of mond. Symptom: The NAM application occasionally crashes on the Cisco NAM 2220 and 2204 appliances. Conditions: This occurs when traffic with ESP (part of IPSEC) with an encryption algorithm other than NULL is present and ip-esp encapsulation is set to *application* or *application and tunnel*. Workaround: Set the ip-esp encapsulation to *tunnel*. Further Problem Description: When the ip-esp encapsulation is set to *application* or *application and tunnel*, the NAM tries a heuristic to determine if a NULL encryption algorithm is used. The algorithm can cause problems if a non-NULL algorithm is used.
CSCsx67180	ART reports created from the Monitor window have hostnames even with the *DNS Off* flag Symptom: ART reports created using the **Report** button from the ART monitor window contain hostnames and not IP addresses. This causes the report triplets to indicate *No Data* status. Conditions: This occurs under normal operating conditions when creating ART reports from the ART Monitor window with DNS off on the network preferences window. Workaround: When you set the DNS hostname resolution to *off*, also remove any nameservers in the network preferences.

Table 9 Known Anomalies in NAM 4.0 (continued)

Bug ID	Description
CSCsx67644	Jumbo packets on WS-SVC-NAM2 can stop monitoring Symptom: The NAM stops monitoring traffic. Conditions: This occurs when the WS-SVC-NAM2 processes jumbo frames. Workaround: Disable esp-null heuristic (in NAM 3.6) or change the protocol encapsulation setting for IPESP to *tunnel* (in NAM 4.0). Further Problem Description: The firmware on the WS-SVC-NAM2 indicates a wrong length for jumbo packets at the end of a buffer. The indicated length is the original length, but only part of the packet is copied into the buffer. Accessing memory beyond that buffer (if the buffer is the last in the packet memory) can lead to access errors. Only very few NAM features access data that far in the packet. Two features that can do that are the ESP-NULL heuristic and capture (if the slice size is set that big).
CSCsz054194	Upgrading SVC-NAM-1-250S and SVC-NAM-2-250S occasionally fails with disk errors when you upgrade NAM software. Conditions: This occurs when you upgrade NAM software on a SVC-NAM-1-250S or a SVC-NAM-2-250S from NAM 3.6 to NAM 4.0. Workaround: Use the *--install* flag of the **upgrade** command to upgrade your software. **Note** If you use the *--install* flag of the **upgrade** command to upgrade your software, you will lose your configuration.

Anomalies Fixed in NAM 4.0

Table 10 describes anomalies known to exist in previous versions of NAM software that have been fixed in the NAM 4.0 release. Each anomaly listed includes information about symptoms, conditions, and any available workaround.

Table 10 Anomalies Fixed in NAM 4.0

Bug ID	Description
CSCsh44373	UserDefinedProtocol: Defined protocol always has port range equal to 1 Symptom: The **Setup > Protocol Directory > Autolearned Applications** window has Enable Autolearned Protocol enabled. Go to the **Setup > Protocol Directory > Individual Protocol** window**,** click **Create**, and try to create a TCP or UDP protocol with Port Range greater than 1. The protocol created always has a Port Range equal to 1. Conditions: This occurs when you try to create a protocol that has already been learned by the NAM. This occurs using either the CLI or the GUI. Workaround: 1. Go to the **Setup > Protocol Directory > Autolearned Applications** window. 2. Uncheck the Enable Autolearned Protocol check box, and confirm. 3. Create the protocol from the **Setup > Protocol Directory > Individual Applications** window. 4. Return to the **Setup > Protocol Directory > Autolearned Applications** window and re-enable Autolearned Applications. The cause of this issue is that the protocol you are trying to define or create has already been learned by the NAM autolearn feature. Due to the autolearn, there is already a protocol entry in the NAM protocol directory matching the protocol you are trying to define. The NAM does not allow you to modify the Port Range of parameter of an existing protocol entry.
CSCsj87458	No active SPAN session is seen after upgrading NAM image. Symptom: When upgrading the NAM image and immediately going to the web GUI, the switch information is occasionally not yet available. Conditions: This might occur after you upgrade the NAM image. This occurs on any window that requires switch information. It is a timing situation where the synchronization between the switch and the NAM has not yet completed. Workaround: Wait a few minutes and then refresh the window.
CSCsk08953	The CSV export function does not work on the **Monitor > Applications > TCP/UDP Port Table** window. Symptom: When you click the CSV Export icon on the **Monitor > Applications > TCP/UDP Port Table** window (upper-right corner), the export does not begin and an error message displays in the Tech Support window. Conditions: This occurs when you select the default data sources for the display, such as *ALL SPAN* on NAM-1 and NAM-2 devices. Workaround: Click on any column header to sort by that column. After doing so, the CSV export function will work normally.

Table 10 Anomalies Fixed in NAM 4.0 (continued)

Bug ID	Description
CSCsq16020	LACP Portchannel in a virtual switch system (VSS) does not show up in Create Data Sources list Symptom: When you attempt to configure a monitor session in a VSS, the **Setup > Data Sources > Create** window takes you to the Create SPAN Session window. Select SPAN-type EtherChannel, and the available data sources does not include the LCAP Portchannel configured on the switch. Conditions: This occurs in VSS switch systems when you attempt to configure the LACP portchannel as a data source. Workaround: Use the CLI to configure the LACP Portchannel as a data source.
CSCsr27717	Some NAM switchport reports might show incorrect values. Symptom: The NAM switchport reports might show incorrect bytes and packets values. Conditions: This problem affects only NAM-1 and NAM-2 modules and only some target switchport reports. Workaround: Go to the **Report > Basic Report** window, and view the TopN report.
CSCsr57890	The NAM-2 GUI occasionally shows CPU Utilization to be 100%. Symptom: The System Overview (**Admin > System > System Resources**) occasionally shows the CPU Utilization to be 100%. Conditions: This occurs under normal operating conditions on the NAM-2 when running NAM 3.5, 3.6(1a), or 3.6(1b) software. Workaround: Restart the NAM
CSCsu22357	The NAM CLI command **show version** shows the wrong amount of memory Symptom: The NAM CLI command **show version** shows 2 GB of memory when it should show 1 GB. Conditions: This occurs on the NME-NAM-120S under normal operating conditions. Workaround: Use the NAM CLI command **show memory** on the NME-NAM-120S instead.
CSCsv63845	PER 31277 and 31296: Need to support the backslash character (\) in usernames and the plus sign (+) in TACACS key. Symptom: Users do not to add the backslash character (\) in usernames and the plus sign (+) in TACACS key. Conditions: This occurs on all NAM platforms
CSCsh78487	NAM Netflow device test for local switch shows wrong flow export port Symptom: NAM Netflow device test shows incorrect port numbers if two or more export destinations are defined using different ports. Here is an example: **ip flow-export destination 10.10.10.1 2055** **ip flow-export destination 10.10.10.2 3000** If you test these, you will see both destinations are using the same port of 2055. Go to **Setup > Data Sources > Netflow > Devices**, and select the local switch, then click **Test**. Conditions: This issue is only observed on NAMs running 3.5(1a). Although other versions might also be affected.

Table 10 Anomalies Fixed in NAM 4.0 (continued)

Bug ID	Description
CSCsi45556	NAM CLI supervisor address may cause endless *%SNMP-3-AUTHFAIL* errors Symptom: The following NAM CLI command might cause non-resolvable %SNMP-3-AUTHFAIL errors on the switch. **supervisor address <*switch-real-ip*>** If DFM in CiscoWorks LMS is monitoring this switch, it will also be flooded with endless *SNMP AUTHFAILURE* alarms. Conditions: This occurs on both NAM 3.5.x and 3.6(1).
CSCsk71253	Extra characters are displayed when you create an RSPAN session using the NAM GUI Symptom: Extra characters (Rx) are displayed on the **Setup > SPAN** window when you add a second port to an existing RSPAN session or create a second RSPAN session with two VLANs. Conditions: This occurs under normal operating conditions on all NAM platforms. Workaround: None
CSCsk95563	TCP session on port 23 is established even with telnet disabled Symptom: With crypto patch installed and telnet disabled, the TCP handshake completes and a session is established to the NAM. Conditions: The output of the **how ip** command on NAM shows telnet is disabled. A telnet session gets established but the prompt is not shown.
CSCsk99499	NAM displays unwanted messages under apache error_log. Symptom: The NAM **show tech** file occasionally contains many harmless debug messages under the tag of *Apache error log*. This does not impact NAM operation. Conditions: Depending on the your interaction with the NAM GUI, software debug messages are shown in the **show tech** file. Workaround: None.
CSCsl90999	Incorrect setting of the template file of **Monitor > DiffServ** window Symptom: An incorrect setting exists on a Cisco voice template file (**CiscoVoice_1**) of the **Monitor > DiffServ** window. The aggregation groups of **CiscoVoice_1** template should be DSCP 26 and 46, but show as DSCP 0 instead. Conditions: This occurs with NAM software release 3.6(1a) on the of **Monitor > DiffServ** window and affects all NAM platforms. Workaround: None
CSCsq11078	Enhance Email server failed message with the reasons of the failure Symptom: When the test Email fails, the output does not provide any information from the php_mailer Conditions: Test Email from the NAM fails to be sent.

Table 10 Anomalies Fixed in NAM 4.0 (continued)

Bug ID	Description
CSCsq92874	Vulnerable bind/named version Symptom: Host names can resolve to the wrong IP addresses. Conditions: See CVE-Ubuntu USN-491-1. Further Problem Description: CVE-2007-2926 - Remote attackers can insert incorrect information into caching DNS servers causing *cache poisoning*. ISC BIND 9 through 9.5.0a5 uses a weak random number generator during generation of DNS query IDs when answering resolver questions or sending NOTIFY messages to slave name servers, which makes it easier for remote attackers to guess the next query id and perform DNS cache poisoning.
CSCsr22826	An error occurs when you set up the NAM to synchronize NAM system time with Network Time Protocol (NTP) Server Symptom: You receive the following error message when you attempt to synchronize NAM System Time with NTP server. `"Hostname(s) x.x.x.x are not resolvable with current DNS settings and may be invalid. Please enter a valid NTP server."` Workaround: Use CLI commands to synchronize NAM system time with Network Time Protocol (NTP) Server.
CSCsu48317	Gnutella traffic makes NAM not usable Symptom: localhost rmond[13513]: Falcon: not getting any *spackets*! observed in the NAM **show-tech** command. Conditions: This occurs when gnutella traffic is spanned to the NAM.
CSCsu87839	Capture buffer data source data port changes if two windows are open. Symptom: The NAM capture settings window incorrectly displays the data source for the capture session. To see the problem: 1. Create a capture session, and close the capture settings window. 2. Go to any window that has Data Sources selection box, such as **Monitor > Hosts**. 3. Select a data source from the list which is different from the data source that was set up in Step 1 (above). 4. Go to **Capture > Buffers**, then click **Status**. The data source is the one that was previously selected, which might not be the one that was set up for the capture session. Conditions: This issue applies to the capture settings window only.
CSCsu95741	NAM sysDescr may be too long Symptom: The sysDescr on the Network Analysis Module might be more than the allowed 255 characters. A sysDescr longer than 255 characters is known to break Resource Manager Essentials (RME) inventory collection. Conditions: This will occur if there are any patches installed on the NAM. For example, if the NAM strong cryptography patch is installed, the NAM sysDescr will be longer than 255 characters.

Table 10 Anomalies Fixed in NAM 4.0 (continued)

Bug ID	Description
CSCsv22041	NAM Switch Login does not allow users with special characters in the password Symptom: The NAM does not currently allow switch users to have special characters in their strong passwords. A password failure will result when you include a special character in the user's password. Conditions: This occurs on all NAM platforms when using special characters (such as @!()[]<>) in passwords. This affects both **telnet** and **SSH**. Workaround: Go to **Setup > Switch Parameters > Switch Login** Enter the username and a password the complies with password rules.
CSCsv31923	NAM decoder page not refreshed if viewing less than 10 packets at a time Symptom: Viewing less than 10 packets at a time in the NAM packet decoder function will result in the display page not being refreshed after clicking **Next** or **Previous**. This means that the packets will not be visible unless you actually click on the line the packet is supposed to be displayed on. Conditions: Viewing less than 10 packets at a time.

Cisco NAM 4.0 Software Documentation

The following is a list of the documentation for Cisco Network Analysis Module, Release 4.0.

Note We recommend you refer to the documentation in the following order.

- Release Notes for the Cisco Network Analysis Module, Release 4.0, page 34
- User Guide for the Cisco Network Analysis Module Traffic Analyzer, Release 4.0, page 35
- Cisco NAM Command Reference, Release 4.0, page 35
- Copyright Notices for the Cisco Network Analysis Module, Release 4.0, page 36

You can access the URLs listed for each document on the Documentation CD-ROM and at www.cisco.com on the World Wide Web. You can access all product documentation at the following URL:

http://www.cisco.com/en/US/products/sw/cscowork/ps5401/tsd_products_support_series_home.html

Release Notes for the Cisco Network Analysis Module, Release 4.0

OL-14944-01

This document, the *Release Notes for the Cisco Network Analysis Module,* provides a collection of information including software and hardware compatibility and information about new features, requirements, and anomalies that might exist.

User Guide for the Cisco Network Analysis Module Traffic Analyzer, Release 4.0

OL-14964-01

The *User Guide for the Cisco Network Analysis Module Traffic Analyzer* describes how to use the Network Analysis Module Traffic Analyzer and NAM 4.0 user software.

http://cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.0/user/guide/users.html

Cisco NAM Command Reference, Release 4.0

OL-14941-01

The *Cisco NAM Command Reference, Release 4.0* provides information about how to use the NAM command-line interface to manage the NAM devices supported by NAM 4.0 software including:

- NAM2220
- NAM2204-RJ45
- NAM2204-SFP
- WS-SVC-NAM-1
- WS-SVC-NAM-1-250S
- WS-SVC-NAM-2
- WS-SVC-NAM-2-250S
- NME-NAM-80S
- NME-NAM-120S
- NME-NAM
- NM-NAM

http://cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.0/command/reference/guide/cmdref.html

Catalyst 6500 Series Switch and Cisco 7600 Series Router NAM Installation and Configuration Note, Release 4.0

This document describes how to configure the NAM to work with the Catalyst 6500 series switch, Catalyst 6000 series switch, and Cisco 7600 series routers. This document also describes how to configure the NAM using the command-line interface (CLI) for the operating system supporting the NAM (Cisco IOS or the Catalyst operating system).

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.0/switch/configuration/guide/swconfig.html

Cisco Branch Routers Series NAM Installation and Configuration Note, Release 4.0

OL-14942-01

This document supports the basic installation and configuration of the NME-NAM, NME-NAM-80S, and the NME-NAM-120S. This document is meant as an introduction to Cisco Branch Routers Series NAM and is not meant to replace the Cisco Branch Routers Series Hardware Installation Guide chapter.

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.0/branch_router/configuration/guide/BR_incfg.html

Copyright Notices for the Cisco Network Analysis Module, Release 4.0

OL-14961-01

The *Copyright Notices for the Cisco Network Analysis Module, Release 4.0* provides a listing of all copyright notices for the open source third-party software used in NAM 4.0.

http://cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.0/copyright/notice/copyrite.html

Cisco NAM 2200 Series Appliance Documentation

This section provides information about the documentation for the Cisco NAM 2200 Series appliances.

Quick Start and Documentation Guide for the Cisco NAM 2200 Series Appliance

78-18440-01

The *Quick Start and Documentation Guide for the Cisco NAM 2200 Series Appliance* (this document), contains a description of the documentation for the NAM appliance and NAM 4.0 software and information about how to get started with the NAM appliance.

The *Quick Start and Documentation Guide for the Cisco NAM 2200 Series Appliance* is a printed document that ships with the NAM appliance and is also available online at the following URLs:

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_appliance/2204/roadmap/docguide.html

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_appliance/2220/roadmap/docguide.html

Installation and Configuration Guide for the Cisco NAM 2220 Appliance

OL-16692-01

The *Installation and Configuration Guide for the Cisco NAM 2220 Appliance* provides information to help you install and configure the Cisco NAM 2220 appliance. This guide includes overview information and details about how to install the appliance, connect the appliance to power and the device it monitors, configure the appliance, log in, and get started setting up the appliance to monitor the device.

The *Installation and Configuration Guide for the Cisco NAM 2220 Appliance* is an online only document you can find at the following URL:

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_appliance/2220/installation/guide/instcfg.html

Installation and Configuration Guide for the Cisco NAM 2204 Appliance

OL-14943-01

The *Installation and Configuration Guide for the Cisco NAM 2204 Appliance* provides information to help you install and configure the NAM 2204 appliance. This guide includes overview information and details about how to install the appliance, connect the appliance to power and the device it monitors, configure the appliance, log in, and get started setting up the appliance to monitor the device.

The *Installation and Configuration Guide for the Cisco NAM 2204 Appliance* is an online only document you can find at the following URL:

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_appliance/2204/installation/guide/instcfg.html

Regulatory Compliance and Safety Information for the Cisco NAM 2200 Series Appliances

78-18308-01

The *Regulatory Compliance and Safety Information for the Cisco NAM 2200 Series Appliances* is a printed document that ships with the NAM appliance and is also available online at the following URLs:

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_appliance/2204/regulatory/compliance/rcsi.html

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_appliance/2220/regulatory/compliance/rcsi.html

The *Regulatory Compliance and Safety Information for the Cisco NAM 2200 Series Appliances* contains regulatory compliance and safety information for the Cisco *NAM* 2200 Series appliances.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly What's New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at the following URL:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the What's New in Cisco Product Documentation as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.