Release Notes for Cisco Network Analysis Module Software, 4.1

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These release notes provide general information about Cisco Network Analysis Module (NAM) software release 4.1 including new features and enhancements, system requirements, software upgrade, limitations and restrictions, caveats, and product documentation.

The Cisco NAM provides unparalleled visibility into how your network is performing and how your users experience the delivery of applications and services to help you understand and improve application performance. The Cisco NAM 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 broad portfolio of Cisco NAMs, which encompasses integrated services modules, self-contained appliances, and now a virtual blade, arms you with what you need to manage performance from the branch to the data center.

NAM 4.1 introduces a new NAM platform, Cisco WAAS NAM Virtual Blade (VB). The Cisco WAAS NAM VB is the first offering of a NAM with zero hardware foot-print. Installed directly on the WAVE-574 and the WAE-674 using the virtual capabilities of the WAAS appliances, it provides visibility into the application performance improvements delivered by WAAS and helps you to identify ongoing application optimization opportunities. In addition to the introduction of the new NAM VB, the NAM 4.1 release includes additional new features, enhancements, and bug fixes that apply to all NAMs. They are further described in the New Features section of these release notes.

Software Product Numbers

SC-SVC-NAM-4.1—Cisco Catalyst 6500 Series and Cisco 7600 Series Network Analysis Module Software, 4.1

NME-NAM-SW-4.1—Cisco Branch Routers Series Network Analysis Module Software, 4.1

NAM-APPL-SW-4.1—Cisco NAM 2200 Series Appliances Software, 4.1

WAAS-VB-NAM-4.1—Cisco WAAS Network Analysis Module Virtual Blade Software, 4.1

NAM 4.1 is a complete software release, not a patch, and includes all functionality from NAM 4.0 including all patches.

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NAM 4.1 software supports upgrade paths from the NAM 3.6 and NAM 4.0 releases. For information about upgrading NAM software, including reinstallation instructions for upgrading from releases earlier than NAM 3.6, see Upgrading NAM Software, page 11.

Note NAM 4.1 does not support the NM-NAM. NAM 4.0 is the last version of NAM software to support the NM-NAM.

NAM 4.1 is available both as part of new hardware orders and by download from Cisco.com (for existing hardware) for the following NAM models:

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

NAM 4.1 is available only by download from Cisco.com for the following NAM models:

- WS-SVC-NAM-1
- WS-SVC-NAM-2
- NME-NAM-80S

Additionally, Cisco WAAS Network Analysis Module Virtual Blade software provides a subset of NAM 4.1 functionality for the following WAAS appliances:

- WAVE-574
- WAE-674

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 *a WAAS appliance* indicates either of the following:
  - WAVE-574
  - WAE-674

Contents

This document includes the following sections:

New Features and Enhancements in NAM 4.1

This section describes the enhancements made to NAM 4.1:

- Cisco WAAS NAM Virtual Blade (VB), the new NAM with zero hardware footprint

  The Cisco WAAS NAM VB is NAM software that resides directly on the WAVE-574 and WAE-674 appliances and provides onboard network and application visibility. The Cisco WAAS NAM VB quantifies the performance and bandwidth improvements delivered by WAAS and helps to identify ongoing application optimization opportunities. Appropriately-sized for monitoring WAAS in small data centers and proof-of-concept environments, the NAM VB is an ideal complement to facilitate the rapid roll-out of your Cisco WAN optimization solution.

- Improved performance of the Cisco NAM 2220 Appliance

  An update of the microcode on the packet processing engine enables substantial improvements to the performance of the Cisco NAM 2220 Appliance, Cisco's premier high performance traffic monitoring and troubleshooting platform. As an example, characterized performance for applications, hosts, and conversations monitoring in NAM 4.1 is improved on the order of 50% from NAM 4.0. For further information regarding Cisco NAM 2220 performance characterizations, please contact your Cisco sales representative.

- GPRS Transport Protocol (GTP) – Awareness to solve Mobility Service Provider troubleshooting needs

  For mobility providers who use GTP today or are anticipating Long Term Evolution (LTE), the Cisco NAMs are now GTP-aware to help in pinpointing clients experiencing application delivery issues that can lead to service disruptions. With NAM 4.1 the Cisco NAMs can peek inside the GTP tunnel between the SGSNs and the GGSNs to key-in on the tunnel endpoint identifier and quickly locate the mobile IPs of interest.

- Intelligent Application Performance enhancements that simplify performance management

  In NAM 4.0 Cisco introduced a new response time capability, intelligent application performance (IAP), that assesses the end-user experience in both WAAS and non-WAAS environments. With IAP, the Cisco NAMs can analyze TCP-based client/server requests and acknowledgements to provide transaction-aware response time statistics such as client delay, server delay, network delay, transaction times, and connection status. This data enables the isolation of application problems to the network or to the server to assist in troubleshooting application performance problems, analyzing application behavior and trends for planning, defining and helping ensure service levels, and performing pre- and post-deployment monitoring of application optimization services. In NAM 4.1 the following IAP enhancements are offered to help you do the following:

  - Create transaction reports directly from the real-time monitoring function without having to switch to the reports function
  - View Top N historical reports for response time, transactions, and network delay
  - Create new Response Time reports for Client and Server bit/byte volume
  - Observe response time data based on information from multiple WAAS devices and segments in a new multi-segment window to provide a big picture view of application performance (supported in WAAS environments only)
  - Obtain critical performance analytics on pass-through (non-optimized) traffic to provide a comprehensive overview of both optimized and non-optimized traffic in WAAS environments (WAAS only)

System Requirements

This section describes the platform hardware, platform software, NAM hardware, and NAM software requirements for NAM 4.1 software:

Platform Hardware Requirements

Table 1 identifies the hardware modules and platforms required to use NAM 4.1.

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

1. See Table 3, Minimum Cisco Catalyst 6500 and Cisco 7600 Series IOS and CatOS Versions Required for NAM 4.1, 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 4.1, for the minimum IOS software requirements to support NME-NAM. Only one Cisco NAM 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 lists the Minimum Cisco Catalyst 6500 and Cisco 7600 Series IOS and CatOS Versions Required for NAM 4.1.

Table 3 Minimum Cisco Catalyst 6500 and Cisco 7600 Series IOS and CatOS Versions Required for NAM 4.1

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					
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 4.1 on both the NME-NAM-120S and the NME-NAM-80S.

Table 4 Minimum Cisco ISR and ISR G2 IOS Versions Required for NAM 4.1

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

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		

WAAS Appliance Requirements

NAM 4.1 supports the WAVE-574 and WAE-674 WAAS appliances. Table 6 provides a description of the Cisco WAAS appliances, their components, and deployment scenarios. WAAS appliances require the following software:

- Central Manager: WAAS 4.1.3 (build 55 or later).
- Managed WAAS: WAAS 4.1.3 (or later).

Table 6 Cisco WAAS Appliances

Platform	Component	Deployment Scenarios
Cisco WAVE-574	• 3 or 6 GB DRAM • 500 GB hard disk drive • RAID-1 (optional) • 2- and 4-port inline card options • WAAS-VB-NAM-4.1	• Edge deployments at enterprise branch offices • Core deployments at small data centers
Cisco WAE-674	• 4 or 8 GB DRAM • 600 GB HDD • RAID-5 (optional) • 4-port inline card optional • WAAS-VB-NAM-4.1	• Edge deployments at large enterprise branch offices • Core deployments at medium-sized data centers

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

Table 7 Browser Requirements

Browser	Versions	Client Platform	JVM Support[1]
Internet Explorer	6.0 (with Service Pack 2)	• Windows • Windows XP Professional	• Java Plug-In 1.5.0_11
Internet Explorer	7.0	• Windows Vista	
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. Cisco recommends 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 4.1.

Table 8 lists the minimum versions of the NAM maintenance image, the maintenance image filename, and the BIOS image required for NAM-1 and NAM-2 when using NAM application image 4.1.

Table 8 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 the NAM 3.6 release to NAM 4.1, 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 4.1 without upgrading the BIOS image. If it is not, the BIOS image must be upgraded. If the BIOS is not upgraded before installing NAM 4.1, NAM 4.1 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

WAAS NAM Virtual Blade Licensing Requirements

NAM virtual blade software requires you to install a product license in the form of a text file. An evaluation license allows you to use the software for up to 60 days, but you will be unable to log in to the NAM GUI after the evaluation license expires. When using an evaluation license, the NAM login window indicates how many days remain before the evaluation license expires.

You can provide licensing information, also known as node-locking information, during software installation or after software installation using the NAM CLI. During the NAM software installation, you will be prompted to enter a product identifier (PID) and serial number (SN).

To obtain a NAM Virtual Blade license, go to the following URL:

http://www.cisco.com/go/license

Follow the instructions on this page to obtain a NAM VB license file. You will need the WAAS appliance PID and SN to obtain the license file. After you enter the PID and SN or the Product Authorization Key, a license file will be sent to you by Email. Store this license file on an available FTP server. Use the **license install** command to install the license after the NAM software installation completes.

Upgrading NAM Software

This section provides the following topics:

Note Before upgrading NAM software from version 3.6 to version 4.1 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 4.1. See Catalyst 6500 and Cisco 7600 NAM-1 and NAM-2 Maintenance Image and BIOS Requirements for further information.

Supported Upgrades

NAM 4.1 supports upgrades from the NAM 3.6 and NAM 4.0 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
- NME-NAM-80S
- NME-NAM-120S

NAM 4.1 supports upgrades from the NAM 4.0 software release (with any patches) on the following Cisco NAM 2200 Series appliances:

- NAM2204-RJ45
- NAM2204-SFP
- NAM2220

NAM 4.1 does not support upgrades from NAM 3.5 or below. However you can reinstall NAM 4.1. See the next section, Reinstalling NAM Software.

Reinstalling NAM Software

Although you cannot upgrade from a version prior to NAM 3.5, 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/4.1/switch/configuration/guide/swinstcfg.html

When you re-install software with NAM 4.1, 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 **.confg** as in ***NAM_host*-c6svc-nam-3.6.1b.config**. The destination address should be a valid server name and directory path.

NAM 4.1 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 to NAM 4.1, due to the new architecture, the settings for alarms, reports, and capture files will not be upgraded to NAM 4.1. 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 9 provides information about configurations you might have issues with following your upgrade.

Table 9 Configurations To Restore After Software Upgrade to NAM 4.1

Settings	Post Upgrade Condition
Alarm Settings	Configuration is not carried over in NAM 4.1. See Alarm Settings, page 13 for more information.
Capture File Settings	Capture File Settings are carried over in NAM 4.1, 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 13 for more information.
Reports	Report configuration is carried over in NAM 4.1, 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 4.1.

Table 9 Configurations To Restore After Software Upgrade to NAM 4.1 (continued)

Settings	Post Upgrade Condition
Voice and RTP Monitoring	Settings for voice monitoring and RTP stream monitoring will be disabled when NAM is upgraded to NAM 4.1. 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 4.1 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 4.1.

Capture File Settings

Capture files will be retained after you upgrade to NAM 4.1, 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 4.1 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 4.1 as the DATA PORT data source. After you upgrade to NAM 4.1, 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 4.1 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 4.1.

Application Response Time

The configuration you set up for application response time (ART) at the **Setup > Monitor > Response Time > Configuration** window will be set to the default values after you complete the software upgrade to NAM 4.1. If you have changed the settings on the Configuration window from their default settings, record those changes so you can restore the settings after the software upgrade.

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/4.1/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/4.1/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/4.1/branch_router/configuration/guide/BR_incfg_120.html#wp1060546

Note You can apply the NAM 4.1 Crypto K9 patch, **nam-app.4-1.cryptoK9.patch.1-0.bin**, on top of NAM 4.1 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: 4.1(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, 4.1* at the following URL:

http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.1/command/reference/guide/cmdspart6.html#wp1056860

Upgrading Catalyst 6500 and Cisco 7600 NAM-1 and NAM-2 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 4.1.

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,  4.1
Copyright (c) 2009 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 Software

Note This section applies only to the WS-SVC-NAM-1 and WS-SVC-NAM-2 blades running a BIOS image prior to version 6.0.9 (which are being upgraded from NAM application image 3.6 to NAM 4.1.

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 4.1 software release:

NAM Support With 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 4.1, we no longer provide a default root password. After you upgrade the NAM software to NAM 4.1, 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 4.1 depends on the actual packet arrival time and packet sequences. In events such as packet drops, duplicated packets, or asymmetric routing, the NAM might not be able to calculate accurate quality metrics for the associated polling interval.

You should pay attention to the NAM **syslog** messages and system alerts to remain aware of any packet drops or duplicated packets occurrences.

Intelligent Application Performance

Due to the way NAM 4.1 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 4.1 software requires that you use the correct NAM maintenance image and BIOS versions. The recommended BIOS version for NAM 4.1 software is BIOS 6.0.9.

The recommended MP version depends on the NAM model. See Table 8 for the recommended maintenance image for each NAM platform. If you need to upgrade your NAM maintenance image, see Upgrading Catalyst 6500 and Cisco 7600 NAM-1 and NAM-2 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 NME-NAMs

Note This restriction applies only to traffic that is monitored through the internal NAM interface on the NME-NAM-80S and NME-NAM-120S.

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 That Might Affect NAM 4.1

The following IOS issues might affect your use of NAM 4.1 depending on other software versions.

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.)

Note 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.

Note This issue has been resolved in 12.2(33)SRC3.

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.

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**.

Note This issue has not yet been resolved.

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

The ERSPAN command is not working properly in NAM 4.1 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).

Note This issue has been resolved with IOS image 12.2(33)SRD1 or later.

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.

Note This issue has not yet been resolved.

Caveats

This section provides information about active and resolved anomalies in the NAM 4.1 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 4.1, page 26
- Anomalies Fixed in NAM 4.1, page 33

Known Anomalies in NAM 4.1

Table 10 provides a list of known anomalies found in NAM 4.1 software. Each anomaly includes a description of the symptom, conditions in which the anomaly occurs, and any workaround.

Table 10 Known Anomalies in NAM 4.1

Bug ID	Description
CSCsr58782	DNS lookup might slow down monitor windows. Symptom: You might notice slow loading of the Monitor windows on the NAM 4.1 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.
CSCsu21781	Symptom: There can be a situation when the **Setup > SPAN** window shows a SPAN session as active when on the switch CLI, the session is shown as admin disabled. Conditions: Span sessions on the **Setup > SPAN** window are deemed active when both the AdminStatus and ifOperStatus are up. However, newer switch code introduced a new MIB where the user can disable the span session via the switch CLI. So there are dual status. Workaround: This does not negate the problem, but you should be aware that switch CLI disabled the SPAN session.
CSCsu50908	The CLI command **config network** does not fully restore the NAM configuration. Symptom: The NAM **config restore** operation might not fully restore the complete NAM configuration. Conditions: The configuration content depends on how the NAM is configured. Some information might not be restored, such as the following: • The number of MaxEntries is not restored on the **Monitor > Core Monitoring** window • The Capture format on the **Setup > Preferences** window is not restored • Some minor GUI configurations are not restored. Workaround: Use the GUI to enter the missing configuration.
CSCsw74073	A blank screen is seen in the TCP/UDP Port Table Cumulative Data option. Symptom: This defect applies to all NAM platforms where the NAM is configured to collect TCP/UDP port collection (among others). But when you attempt to view the data at the **Monitor > Apps > TCP/UDP Port Table** window, it displays no data. Conditions: This occurs only when the NAM sees many (thousands of packets) TCP/UDP traffic, all with different TCP/UDP port numbers. Workaround: None. Further Problem Description: This occurs because the NAM is trying to store all TCP/UDP entries, sort all the entries based on user preference, and display the page accordingly. The problem is due to memory limitations in the NAM. Sometimes, attempting to sort all TCP/UDP entries does not scale.

Table 10 Known Anomalies in NAM 4.1 (continued)

Bug ID	Description
CSCsz05331	The Flow Agent device name is not updated until a reboot occurs. Symptom: After enabling Response Time Export and registering with a NetQoS Management Console, the NAM hostname in NetQoS does not match what is configured on the NAM. Conditions: During NAM configuration, you change the hostname then configure Response Time Export without rebooting. When the NAM registers with NetQoS, the old hostname appears in the collectors list. Workaround: Reboot the NAM after changing the hostname, then enable Response Time Export. The name in NetQoS should now reflect the correct hostname. Further Problem Description: This anomaly occurs when you do the following: 1. Change hostname 2. Enable Response Time Export 3. Look for the old hostname in NetQoS collector list.
CSCsz15016	Alarm event description setting is not consistent on GUI and CLI Symptom: The CLI limits the alarm event description field length to 248 characters instead of 254 characters. Conditions: The alarm event description field only accepts 248 characters from the alarm CLI command. Workaround: Limit the alarm event description to 248 characters in CLI and GUI.
CSCsz75870	Some errors are seen in the the **Admin > Diagnostics > Tech Support** window. Symptom: php errors are occasionally seen in the **/var/log/messages** file on the **Admin > Diagnostics > Tech Support** window. Conditions: These errors come from the report window when collapsing and expanding the report items on the viewing area. These messages are coming from 3rd-party vendors, cannot be modified, but are not causing any harm or system degradation. Workaround: None.
CSCsz75989	Wrong style options are seen when attempting to create custom topN reports Symptom: When creating Custom Reports, if you choose a TopN item, the Style: selection goes from “Bar Chart, Stacked Bar, Line Chart, Area Chart, Tabular" to "Top 1, Top 3, Top 5, Top 10, Top 20, Top 50". However, the description remains as Style: Conditions: Workaround: There is no workaround and you can create the desired report.
CCta34494	NAM sets Advanced NFS Options although Basic Options are chosen Symptom: Go to the **Admin > System > Capture Data Storage > Create NFS** window. Set up the NFS system with Basic NFS Options and click **Submit**. The new NFS shows with Advanced NFS Options. Conditions: This occurs under normal operation. Workaround: This is working as designed. Once the user selects the Basic Options, they are set into an Advance Options string. Then it comes back displayed as Advance Options.

Table 10 Known Anomalies in NAM 4.1 (continued)

Bug ID	Description
CSCta38878	The username in the Audit Trail is missing when you create a report from the Monitor window. Symptom: The username is missing from the Audit Trail in reports created from the Monitor window. Conditions: This occurs under normal operating condtions. When you create a report from the Monitor window, the NAM adds an entry in the Audit Trail to record the operation. These entries show only a dash (-) where there should be a username. Workaround: None
CSCta43735	Cisco NAM 2200 Series appliances and NAM VB export to netqos does not start until the devices receives mond restart Symptom: Response Time export from appliance and VB NAM to Netqos SuperAgent does not start first time unless Cisco NAM 2200 Series appliance or NAM VB is rebooted after setting the NAM IP address. Conditions: This happens in the Cisco NAM 2200 Series appliances and NAM VB platforms only. Workaround: Restart the NAM after configuring NAM IP address to use Response Time export feature.
CSCta45331	An HTML report cannot be displayed on Outlook 2007. Symptom: Schedule a report to exported by e-mail. Choose *html* as the report type. If the e-mail is open with Outlook 2007, the graph is empty. Conditions: This occurs only when Outlook 2007 is the Email program. Workaround: Choose other report type, like PDF.
CSCta48394	NAM powered on with mon session cause heavy traffic loss With the NAM powered on and a monitor session configured without a buffer capturing, a significant amount of traffic was lost passing through the Application Control Engine (ACE) Module. With 3 to 6 Gbps of data passing through the ACE, up to 2 Gbs of traffic was lost. The fabric showed the NAM at 98%. With the NAM powered down or the capture session removed no traffic was lost. Symptom: This defect applies to NAM modules on Catalyst 6500 or Cisco 7600 only. Not all NAM platforms are affected. Conditions: NAM data ports are Gigabit Ethernet ports. The NAM can handle roughly about 900 Mb/sec of raw packet data. SPANing more than 1 Gigabits/sec traffic will make the NAM unresponsive and affect the SUP performance. Workaround: None; this problem can only be avoided by having better planning on SPANing the appropriate amount of traffic to NAM dataport.
CSCta60066	Monitor Overview Protocol does not show number correctly if it is 99% and 1% distribution Symptom: Sometimes on the Monitor Overview Protocol pie chart, the largest percent is truncated, so instead of 99% you will see 9%. Conditions: This only seems to happen when the percentage is shown at exactly the middle of the chart. Workaround: The correct percent can be seen in the legend.

Table 10 Known Anomalies in NAM 4.1 (continued)

Bug ID	Description
CSCta60138	The NAM opens the **Setup > Monitor** window on Cisco NAM VB very slowly. Symptom: This defect applies only to the Cisco NAM Virtual Blade. Go to the **Setup > Monitor > Core Monitoring** window. This window takes a few minutes to display. Conditions: This occurs only to a newly-installed NAM VB with default configuration. Workaround: The window is slow to display because the NAM VB is attempting to get Managed Device information that is not there. To workaround this problem: 1. Login to NAM GUI. 2. Go to the Setup > Managed Device window and provide the Managed Device address and community string information.
CSCta67293	See the PHP warning messages related to the license in platforms other than Cisco NAM Virtual Blade. Symptom: PHP warning messages are seen in platforms other than Cisco NAM Virtual Blade. Conditions: This occurs on platforms other than Cisco NAM Virtual Blade. Workaround: None.
CSCta67337	Capture to local disk does not stop when capture is completed. Symptom: Capturing to local disk occasionally does not stop and remains in *running* mode even though all the files were filled. Conditions: This occurs when you set up a capture (about 10 files) to local disk from the NAM GUI by clicking **Capture > Buffer > Create**. After all capture files have been written, you occasionally still see Capture Status as *running*. If you go to **Capture > Files**, you will see that the NAM starts capturing with index 0, for instance it starts with file name **LocalDisk_0**. Workaround: To workaround this problem: 1. Go to **Capture > Buffer** window. 2. Click on the Capture session. 3. Click **Status**. 4. Click **Pause** to pause the capture session.

Table 10 Known Anomalies in NAM 4.1 (continued)

Bug ID	Description
CSCta67569	There are side effects to setting up a hardware-assisted capture with a software filter on the Cisco NAM 2200 Series appliances. Symptom: There are four sets of symptoms for this problem. 1. If you specify source or destination IP address and no mask for source or destination, apply the filter and apply the session, and then go back to edit the filter and create the left over source or destination IP filter and do not put mask. Apply the filter and apply the session. Then go back to edit the filter now mask provided in last step is wrong. It takes the last octet of IP and uses it as the mask. 2. If while editing the filter you remove the mask then automatic mask adding is not done and la blank if left for saving the mask. 3. Sometimes with this edit if you change the IP address and save the filter it might create another filter. 4. If you delete source and its mask apply the filter and apply the session, IPv4 changes to IPv6 though the functionality remains the same. Conditions: This occurs intermittently under normal operating conditions. Workaround: For symptoms 1 and 2, never edit software filters. Delete and create a new software filters and always specify the mask to be used. Never leave it blank or to use the default. For symptom 3, delete the extra filters. For symptom 4, ignore. The functionality does not change, only the NAM GUI display.
CSCta67624	Hardware filter of IPv6 packets for TCP not captured by payload and IP plus payload filter. Symptom: The IPv6 packets for TCP are not captured by hardware-assisted capture on the Cisco NAM Series appliance platform for filters for payload and IP plus payload. Conditions: This occurs when IPv6 packets for TCP are SPANed to NAM. Workaround: Capture packets using other filter types or filter combinations or using software capture.
CSCta70064	The URL of URL-Based Applications changes after software upgrade. Symptom: The host IP of the automatically-created URL-based application changes after upgrading NAM software. Conditions: When you click **Create URL-Based Apps** in **Monitor > Apps > URL** window to create a URL-Based Apps entry, the NAM creates a new entry in the **Setup > Protocol Directory > URL-Based Apps**. The IP address of the Host Match field will shows a backslash (\) before each period (.) as in (\.). After upgrading the NAM software, the "\." will be changed to be some other characters. Workaround: There are two ways to work around this problem: 1. After clicking **Create URL-BAsed Apps**, in the create URL-based Apps dialog box, manually edit the dialog and remove the backslash. 2. In the **Setup > Protocol Directory > URL-Based Apps** window, edit the entry to remove the backslash.

Table 10 Known Anomalies in NAM 4.1 (continued)

Bug ID	Description
CSCta72046	RTP stream reports have discrepancy versus Monitor under certain conditions Symptom: Discrepancies between information on RTP streams between Monitor and Worst RTP streams usually appear as: • Byte metrics reports only one or two RTP streams entries per period • Concealment statistics are reported as maximal number of seconds per observation interval (one minute) Additionally, MOS or Jitter values are reported as Maximal values per stream (per design), as opposed to values-per-interval shown by the Monitor. Conditions: The likelihood of discrepancy grows with the number of RTP streams simultaneously monitored by NAM (and possibly other conditions as yet unknown). Workaround: Use the Monitor window and targeted reports to follow the RTP stream statistics.
CSCta74195	CEF traffic: **Monitor > App > Port Table** displays incorrect values for Packets In and Packets Out. Symptom: Monitoring CEF traffic: **Monitor > App > Port Table** displays data in wrong columns for In and Out packets. Conditions: This occurs if you use CEF data source that you have created, such as CEF_fa_2_15_input and monitor CEF traffic. All packets or bits are displayed correctly in all pages except **Monitor > App > Port Table**. Data displayed correctly however when it should show *input* rate. It showed *output* rate. Workaround: None.
CSCta76428	No warning is issued when report creation fails due to low disk space. This results in ghost reports (invisible entries that prevent creating reports with the same attributes). Symptoms: 1. When the disk is low on free space the creation of report fails 2. After the space is freed the same reports creation of which failed during the out-of-space period, can not be created (persistent condition). Conditions: Out of disk space. (You should avoid creating reports when you have insufficient disk space.) Workaround: 1. Free the disk space by getting rid of unused reports, old captures, and other older unnecessary files. 2. If you cannot create a report due to a *ghost report,* create a similar report but use a different time granularity.
CSCta78712	It takes a long time to create an RTP report. Symptom: Create a basic report and choose VOIP/RTP statistics, top RTP Streams. Choose any metrics and five minutes for duration. It takes about 40 seconds for the NAM to display the report when it should take about 5 seconds. Conditions: This occurs under normal operating conditions. Workaround: None

Table 10 Known Anomalies in NAM 4.1 (continued)

Bug ID	Description
CSCta78953	Response Time Client/Server Bytes data title is missing per second unit. Symptom: Top ART/IAP servers or client/server pairs show byte metrics AS RATE but without per second *(/sec)* label. Conditions: Always: inconsistent representation by design error. Workaround: N/A
CSCta83415	Hardware filter VLAN range should fall on eight bit boundary for hardware-assisted capture to work properly. Symptom: For appliance hardware assisted capture, hardware filter for VLAN range should fall on eight bit boundary for hard Conditions: This occurs on the Cisco NAM 2200 Series Appliance hardware filter VLAN range does not fall on eight bit boundary. Workaround: Since there are five hardware filters, use more hardware VLAN filter ranges with less than eight bit boundary to create filters similar to one which cross 8 bit boundary. Further Problem Description: These steps illustrate an example of this anomaly: 1. Specify VLAN range filter in hardware-assisted VLAN filter to be 1-1000. 2. Start traffic for say VLAN 14 and 35. 3. Capture session will not capture any packets. 4. Vlan should be in the boundary on 8 bit. 5. Change the VLAN range from 1-500. 6. Capture will begin to work.
CSCta83734	The **Monitor > Voice/Video > RTP Stream Traffic** window shows IPv6 addresses as dotted decimal. Symptom: The **Monitor > Voice/Video > RTP Stream Traffic** window shows IPv6 addresses in dotted decimal format. Conditions: This occurs under normal operating conditions for all IPv6 addresses on this window. Workaround: Manually convert the decimal number to hexidecimal.

Anomalies Fixed in NAM 4.1

Table 11 describes anomalies known to exist in previous versions of NAM software that have been fixed in the NAM 4.1 release. Each anomaly listed includes information about symptoms, conditions, and any available workaround.

Table 11 Anomalies Fixed in NAM 4.1

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
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 24 for more detailed information.
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.
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.

Table 11 Anomalies Fixed in NAM 4.1 (continued)

Bug ID	Description
CSCsw41208	Unable to install NAM application image for NAM 4.1 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 4.1 application image is too large for a TFTP download.
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.

Table 11 Anomalies Fixed in NAM 4.1 (continued)

Bug ID	Description
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.
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).
CSCsz05419	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.

Cisco NAM 4.1 Software Documentation

The following is a list of the documentation for Cisco Network Analysis Module, Release 4.1.

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

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 4.1

OL-19535-01

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 4.1

OL-19530-01

The *User Guide for the Cisco Network Analysis Module Traffic Analyzer* describes how to use the Network Analysis Module Traffic Analyzer and NAM 4.1 user software.

http://cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.1/user/guide/users.html

Cisco NAM Command Reference, Release 4.1

OL-19533-01

The *Cisco NAM Command Reference, Release 4.1* provides information about how to use the NAM command-line interface to manage the NAM devices supported by NAM 4.1 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
- WAVE-574
- WAE-674

http://cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.1/command/reference/guide/cmd_ref.html

Catalyst 6500 Series Switch and Cisco 7600 Series Router NAM Installation and Configuration Note, Release 4.1

OL-19532-01

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/4.1/switch/configuration/guide/swconfig.html

Cisco Branch Routers Series NAM Installation and Configuration Note, Release 4.1

OL-19531-01

This document supports the basic installation and configuration of the 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/4.1/branch_router/configuration/guide/BRincfg_120S.html

Copyright Notices for the Cisco Network Analysis Module, Release 4.1

OL-19534-01

The *Copyright Notices for the Cisco Network Analysis Module, Release 4.1* provides a listing of all copyright notices for the open source third-party software used in NAM 4.1.

http://cisco.com/en/US/docs/net_mgmt/network_analysis_module_software/4.1/copyright/notice/copyright.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 4.1 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.