

**Oracle® Communications Session
Delivery Manager**

Release Notes

Release 7.3

Formerly Net-Net Central

January 2014

Copyright ©2013, 2012 Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

About this Guide

Overview

The *Oracle Communications Session Delivery Manager Release Notes* provide the following information about this release:

- Overview of Net-Net Central
- Installation, database migration, patch management and cluster setup
- Net-Net Central Release 7.3 distribution package
- Platforms supported
- Device releases supported
- New Features
- Problems Resolved
- Known Issues
- Limitations

Revision History

This section contains a revision history for this document.

Date	Revision Number	Description
December 10, 2012	Revision 1.00	<ul style="list-style-type: none">• Contains information pertaining to the NNC 7.3 Release• Includes information about a new Interop feature for SIP Trunk Xpress and the Trunk Manager licensed application• Includes information about the new Report Manager application• Includes information about a new Configuration Archive feature for the Configuration Manager application
December 21, 2012	Revision 1.10	<ul style="list-style-type: none">• Updates Known Issues.• Updates Resolved Issues.• Updates Platforms Supported.• Updates to Distribution Media.
March 11, 2013	Revision 2.00	<ul style="list-style-type: none">• Adds Release Notes chapter for Net-Net Central 7.3M1 release
March 25, 2013	Revision 3.00	<ul style="list-style-type: none">• Adds Release Notes chapter for Net-Net Central 7.3M2 release
April 17, 2013	Revision 3.10	<ul style="list-style-type: none">• Updates Known Issues

Date	Revision Number	Description
July 12, 2013	Revision 4.00	<ul style="list-style-type: none">• Adds Release Notes chapter for Net-Net Central 7.3M3 release
July 29, 2013	Revision 4.10	<ul style="list-style-type: none">• Revisions to Supported Platforms from 7.3M2 and 7.3M3 chapters• Updates to Known Issues
August 22, 2013	Revision 4.20	<ul style="list-style-type: none">• Adds S-CX6.4.0M2 to the list of Supported Models for the 7.3M3 chapter.
January 28, 2014	Revision 5.00	<ul style="list-style-type: none">• Adds Release Notes chapter for Net-Net Central 7.3M4 release

Contents

About this Guide	iii
Overview	iii
Revision History	iii
1 Net-Net Central Release 7.3	11
Overview	11
Hardware Support	11
Trunk Manager Hardware Support	12
Installation, Database Migration, Patch Management and Cluster Setup	12
GA and Maintenance Releases	12
Patch Releases and Patch Management Tool	12
Cluster Setup	12
Net-Net Central Release 7.3 Distribution Media	13
MIBs Package for Net-Net Central	14
Platforms Supported	15
Linux	15
VMware	15
OpenSSL	15
Client Requirements	15
Setting the Locale	15
Network Manager with Fedora Core 13	16
Setting the Maximum Shared Memory in FC13	16
Device Releases Supported	17
C/CX-Series	17
D-Series	17
New Features in 7.3	18
Report Manager	18
Configuration Archive	18
SIP Trunk Express	18

CentOS 6.2 Support	19
Red Hat 6.2 Support	19
Problems Resolved	20
Known Issues	21
Limitations	24
 2 Net-Net Central Release 7.3M1	 25
Introduction	25
Overview	25
Hardware Support	25
Trunk Manager Hardware Support	26
Installation, Database Migration, Patch Management and Cluster Setup	26
GA and Maintenance Releases	26
Patch Releases and Patch Management Tool	26
Cluster Setup	26
Net-Net Central Release 7.3M1 Distribution Media	27
MIBs Package for Net-Net Central	28
Platforms Supported	28
Linux	28
VMware	29
OpenSSL	29
Client Requirements	29
Setting the Locale	29
Network Manager with Fedora Core 13	29
Setting the Maximum Shared Memory in FC13	30
Device Releases Supported	30
C/CX-Series	30
D-Series	31
New Features in Release 7.3M1	32
Audible Alarms	32
Configuration Element Search	32
Problems Resolved	33
Known Issues	34
Limitations	35
 3 Net-Net Central Release 7.3M2	 37
Introduction	37
Overview	37

Hardware Support	37
Trunk Manager Hardware Support	38
Installation, Database Migration, Patch Management and Cluster Setup	38
GA and Maintenance Releases	38
Patch Releases and Patch Management Tool	38
Cluster Setup	38
Net-Net Central Release 7.3M2 Distribution Media	39
MIBs Package for Net-Net Central	40
Platforms Supported	40
Linux	40
VMware	41
OpenSSL	41
Client Requirements	41
Setting the Locale	41
Network Manager with Fedora Core 13	41
Setting the Maximum Shared Memory in FC13	42
Device Releases Supported	42
C/CX-Series	42
D-Series	43
New Features in Release 7.3M2	44
License Information	44
Problems Resolved	45
Known Issues	46
Limitations	47
 4 Net-Net Central Release 7.3M3	 49
Introduction	49
Overview	49
Hardware Support	49
Trunk Manager Hardware Support	50
Installation, Database Migration, Patch Management and Cluster Setup	50
GA and Maintenance Releases	50
Patch Releases and Patch Management Tool	50
Cluster Setup	50
Net-Net Central Release 7.3M3 Distribution Media	51
MIBs Package for Net-Net Central	52
Platforms Supported	52
Linux	52

VMware	53
OpenSSL	53
Client Requirements	53
Setting the Locale	53
Network Manager with Fedora Core 13	53
Setting the Maximum Shared Memory in FC13	54
Device Releases Supported	54
C/CX-Series	54
D-Series	55
New Features in Release 7.3M3	56
Password Change Process Enhancement	56
Configuration Schema Upload	56
Diagnostics Tool	56
Work Order Enhancements	56
External AAA	56
TLS Support for ACP	56
Problems Resolved	57
Known Issues	58
Limitations	59
5 Net-Net Central Release 7.3M4	61
Introduction	61
Overview	61
Hardware Support	61
Trunk Manager Hardware Support	62
Installation, Database Migration, Patch Management and Cluster Setup	62
GA and Maintenance Releases	62
Patch Releases and Patch Management Tool	62
Cluster Setup	62
Net-Net Central Release 7.3M4 Distribution Media	63
MIBs Package for Net-Net Central	64
Platforms Supported	64
Linux	64
OpenSSL	65
Client Requirements	65
Setting the Locale	65
Network Manager with Fedora Core 13	65
Setting the Maximum Shared Memory in FC13	66
Device Releases Supported	66

C/CX-Series	66
D-Series	67
New Features in Release 7.3M4.....	68
GUI Improvements to Multi-Instance Elements.....	68
Software Licensing	68
SOAP/XML Updates	68
Security Banner Enhancement	68
Diameter Director Support for Route Manager	68
Oracle Linux VM Template	68
Audit Log Enhancements	69
Automatic XSD Loading	69
Fault Email Severity Settings	69
Northbound Fault Management	69
Problems Resolved	70
Known Issues.....	71
Limitations	72

The *Oracle Communications Session Delivery Manager Release Notes* provide the following information about this release:

- [Overview \(11\)](#)
- [Installation, Database Migration, Patch Management and Cluster Setup \(12\)](#)
- [Net-Net Central Release 7.3 Distribution Media \(13\)](#)
- [Platforms Supported \(15\)](#)
- [Device Releases Supported \(17\)](#)
- [New Features in 7.3 \(18\)](#)
- [Problems Resolved \(20\)](#)
- [Known Issues \(21\)](#)
- [Limitations \(24\)](#)

Overview

Acme Packet's Net-Net Central provides an advanced management framework for provisioning, managing, and monitoring session delivery networks. Net-Net Central has an advanced architecture, called Service Oriented Architecture (SOA), which provides such features as increased scalability using load balancing across clustered servers, the ability to load Net-Net SBC configurations on-demand, and a rich thin-client interface. You can use the enhanced user interface to access such services as Element Manager for configuring Net-Net SBCs or Route Manager for configuring LRTs on Net-Net SBCs.

Net-Net Central also includes a dashboard summary view of key performance indicators for the managed devices and provides three different views into Net-Net SBC configuration elements: Default, List-view, and ACLI.

Hardware Support

NNC Release 7.3 supports the following hardware:

- Net-Net 2600
- Net-Net 3800
- Net-Net 3810
- Net-Net 3820
- Net-Net 4500
- Net-Net 4250
- Net-Net 6300
- Net-Net 9200
- Net-Net Enterprise Session Director-Server Edition (ESD-SE)
- Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)

Trunk Manager Hardware Support

The Trunk Manager application only supports the following hardware:

- Net-Net 3800
- Net-Net 4500
- Net-Net Enterprise Session Director-Server Edition (ESD-SE)
- Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)

Installation, Database Migration, Patch Management and Cluster Setup

GA and Maintenance Releases

For NNC installation and database migration instructions for standalone servers or servers in a cluster, please consult the *Net-Net Central Installation Guide, Version 7.3*.

Patch Releases and Patch Management Tool

You do not need to perform a new installation for patch releases. Please consult the *Installing Net-Net Central Patches* chapter of the *Net-Net Central Installation Guide, Version 7.3* for information on the patch management tool.

Once you FTP the patch tar.gz file to your system, you can run the patch management tool to list, import, apply and remove patches.

Cluster Setup

Members of a Net-Net Central cluster must be geographically co-located. For more information on setting up a cluster, please consult the *Net-Net Central High Availability Guide, Version 7.3*.

Net-Net Central Release 7.3 Distribution Media

The following files are available on the distribution media for NNC Release 7.3:

File Name	Description
NNC73Linux64bit.tar.gz	Installation file for Linux RHEL v5.5 64 bit
NNC73FC1364bit.tar.gz	Installation file for Linux Fedora Core 13 64 bit
NNC73WSCClassicClient.zip	Classic EMS Northbound SOAP client libraries and examples.
NNC73CXFCClient.zip	CXF Northbound SOAP client libraries and examples.
Net-Net Central 7.3 Installation Guide.pdf	Installation guide that includes graphical and text mode installation information
Net-Net Central 7.3 Release Notes.pdf	Contains information specific to this Net-Net Central release
Net-Net Central 7.3 High Availability Guide.pdf	Guide with detailed information about Net-Net Central High Availability (HA) and the HA cluster
Net-Net Central 7.3 Web Services SOAP XML Provisioning API Guide.pdf	Guide with full descriptions of the individual interface definitions that make up the Application Programming Interface (API)
Net-Net Central 7.3 Core Functionality Guide.pdf	Guide with detailed information about using the GUI and managing devices
Net-Net Central 7.3 Element Manager Guide.pdf	Guide with detailed information about Net-Net Central's Element Manager and describes the dashboard summary view, audit log, fault, and performance
Net-Net Central 7.3 Route Manager Guide.pdf	Guide with detailed information about centrally automating the management and distribution of routing data
Net-Net Central 7.3 Quick Start Guide.pdf	Guide with a brief description of the GUI, along with information on how to add a device and perform basic configuration tasks
Net-Net Central 7.3 Administration Guide.pdf	Guide with detailed information about security administration, creating new users and new user groups, and setting group-based authorization
Net-Net Central 7.3 Configuration Guide ACLI View.pdf	Configuration guide with detailed information about the administration and software configuration of the Net-Net SBCs using Net-Net Central's ACLI configuration view
Net-Net Central 7.3 Configuration Guide Default View.pdf	Configuration guide with detailed information about the administration and software configuration of the Net-Net SBCs using Net-Net Central's default configuration view
Net-Net Central SIP Trunk Xpress for Service Providers Guide	Guide with detailed information for installing NNC and Trunk Manager. Also contains Service Provider information for setting up a SP-SBC, E-SBC and a SIP Trunk.
Net-Net Central SIP Trunk Xpress for Enterprises Guide	Contains Customer information for accessing the SIP Trunk Xpress Portal and configuring the E-SBC to connect to the SP-SBC, and for connecting to the SIP Trunk established by the Service Provider.

File Name	Description
Net-Net Central SIP Trunk Xpress Quick Start Guide (Full Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for the SIP Session Manager (SIPSM) enabled version of Trunk Manager (displays a full menu of options).
Net-Net Central SIP Trunk Xpress Quick Start Guide (E-SBC Bootstrap-only Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for a non-SIP Session Manager (non-SIPSM) version of Trunk Manager (displays a limited menu of options).
MIBs_NNC73.zip	Contains the latest ap-ems.mib and ap-nnc.mib. See description below.

MIBs Package for Net-Net Central

The ap-nnc.mib and ap-ems.mib provide SNMP support for Net-Net Central purposes. MIBs .zip files containing all .mib files are distributed along with the Net-Net OS software version running on your device(s). These packages may not contain the latest version of ap-nnc.mib and ap-ems.mib.

Included on the Net-Net Central distribution media is a .zip file titled MIBs_NNCXXX.zip containing the latest ap-nnc.mib and ap-ems.mib. The ap-nnc.mib and ap-ems.mib contained in this and future Net-Net Central distributions supersedes previous versions, including the ap-nnc.mib and ap-ems.mib released with your Net-Net OS software.

Platforms Supported

Acme Packet has certified the following hardware and software platforms, and client requirements for use with Net-Net Central Release 7.3.

Note: Other hardware configurations might work with Net-Net Central, but Acme Packet has verified the configurations listed here.

Linux

- CPU: 4-core 2.1 GHz processor or better
- 12 GB RAM minimum, 24 GB RAM recommended
- 195 GB hard drive minimum, 300 GB recommended
- Linux Fedora Core Linux 13 64 bit
- Red Hat Linux 5.5 64 bit
- Red Hat Linux 6.2 64 bit
- CentOS 6.2 64 bit

VMware

The Net-Net NNC VM image includes the following component:

- NNC_CentOS6_VM1.0.ova

VMware supports the following:

- CentOS 6.2 (64-bit)
- CPU: 4-core processor
- 16 GB RAM
- ~330GB hard drive

OpenSSL

Most Linux distributions include OpenSSL as part of the OS installation. You can check the version on your system by using the following command:

```
openssl version
OpenSSL 0.9.7d Mar 27 2004
```

Client Requirements

- Internet Explorer versions 9.0 and higher or Mozilla Firefox versions 3.0 and higher
- Flash player compatible with your browser installed locally
- If the server is not part of your DNS domain, the host file on each client must be edited to include the hostname and IP address of the Net-Net Central server. The client host file is usually located in the following directory:

windows\system32\drivers\etc

Setting the Locale

You must set the locale for your Net-Net Central machine prior to running setup.sh.

To set the locale on your machine:

1. Set the locale to UTF-8.

```
export LC_ALL=en_US.UTF-8
```

Network Manager with Fedora Core 13

Fedora Core 13 installs an application called Network Manager by default. Network Manager is used to configure network connections. It executes automatically when you start your session, and it is visible as an applet icon. You must check your system to determine if Fedora Core 13 installed Network Manager on your system. If installed, you must remove it and then turn on the network services.

To check for and remove Network Manager:

1. Check for Network Manager.
`service NetworkManager status`
2. Shutdown Network Manager.
`service NetworkManager stop`
3. Remove Network Manager using the following command:
`yum remove NetworkManager`

To turn on network services:

```
chkconfig network on
service network start
```

Note: You should also ensure that the option Controlled by Network Manager in Network Configuration is unchecked on your system.

Setting the Maximum Shared Memory in FC13

The default maximum shared memory on Fedora Core 13 is set to 33M by default. Acme Packet recommends setting the maximum shared memory to at least 15% of the total system memory.

See *Before a New Installation* section in the *Net-Net Central 7.3 Installation Guide* for more information.

Device Releases Supported

Net-Net Central Release 7.3 supports the following versions of Net-Net OS software.

C/CX-Series

C/CX6.0.0M5, C/CX6.0.0M6, C/CX6.0.0M7, C/CX6.0.0M8

SC/SCX6.1.0M2, SC/SCX6.1.0M3, SC/SCX6.1.0M4, SC/SCX6.1.0M5,
SC/SCX6.1.0M6, SC/SCX6.1.0M7, SC/SCX6.1.0M8, SC/SCX6.1.0M9,
SC/SCX6.1.0M10, SC/SCX6.1.0M11

SC/SCX6.2.0, SC/SCX6.2.0M1, SC/SCX6.2.0M2, SC/SCX6.2.0M3, SC/SCX6.2.0M4,
SC/SCX6.2.0M5, SC/SCX6.2.0M6, SC/SCX6.2.0M7, SC/SCX6.2.0M8,
SC/SCX6.2.0M9, SC/SCX6.2.0M10, SC/SCX6.2.0M11

SC/SCX6.2.1F1, SC/SCX6.2.1F2, SC/SCX6.2.1

SCX6.2.3

SCX6.2.5F1

SCX6.3.0F1, SCX6.3.0F2, SCX6.3.0, SCX6.3.0M1, SCX6.3.0M2

SCX6.3.3F1, SCX6.3.3F2, SCX6.3.3F3, SCX6.3.3, SCX6.3.3M1

SCX6.3.5F1

SCX6.3.6F1

SCX6.3.7F1 SCX6.3.7F2, SCX6.3.7F3, SCX6.3.7

SCX6.3.9F1, SC[XZ]6.3.9

SCX6.4.0

SCX6.4.6F1

SCZ7.0.9F1

LCX1.0, LCX1.1.3F1, LCX1.1.3F3, LCX1.1.3, LCX1.1.3M1

PCX1.0F1

DCX1.0F1, DCX1.0F2, DCX1.0.0, DCX1.0.0M1

DCZ2.0.0, DCZ2.0.0M1

MCX1.2F2, MCX1.2

MCX3.0.0F1

D-Series

SD7.0.0, SD7.0.0M1, SD7.0.0M2, SD7.0.0M3, SD7.0.0M4, SD7.0.0M5, SD7.0.0M6,
SD7.0.0M7, SD7.0.0M8, SD7.0.0M9, SD7.0.0M10, SD7.0.0M11, SD7.0.0M12

SD7.0.2F1

SD7.1.0, SD7.1.0M1, SD7.1.0M2, SD7.1.0M3

SD7.2.0F1

SD7.2.3F2,SD7.2.3F3

New Features in 7.3

This section describes the new features in Net-Net Central Release 7.3.

Report Manager

The Net-Net Central Report Manager allows you to schedule and run dynamic reports on Net-Net devices in your network. Currently, the Report Manager supports the reporting of Historical Data Recording (HDR).

The Report Manager collects raw data in CSV files from designated Net-Net devices. This data is aggregated into time granularities (raw, hourly, daily, weekly, monthly), and made available for running reports.

When you set collection parameters for a device or device groups, you can specify the type of data for collection. Collection groups are based on the ACLI collection groups. This data is organized into report types such as Hardware, Diameter Director Interface, and other HDR collection groups available for reporting.

See the *Net-Net Central Administration Guide* for more information.

Configuration Archive

Net-Net Central's Configuration archive lets you easily back up, restore, and manage your Net-Net SBC's configuration across multiple devices.

Configuration archive allows you to:

- Schedule back ups of device configurations
- Restore back ups of device configurations
- Apply a purge policy to devices and device groups, meaning you can delete archived configurations based on age or a set limit of backups

When configured for high availability, the Configuration archive exists on every node in a cluster. Whenever a configuration file is pulled from a device by a node, the file is sent to all of the nodes in the cluster.

See the *Net-Net Central Element Manager Guide* for more information.

SIP Trunk Express

Acme Packet's SIP Trunk Xpress is a Trunk Manager application enabled by Acme Packet's Net-Net Central platform. Service Providers use SIP Trunk Xpress to automatically configure SIP trunks for their Customers. SIP Trunk Xpress is an easy to-use, graphical application that you access using your Web browser in Net-Net Central. Its main purpose is to simplify the configuration of both the Service Provider and Enterprise SBCs on both ends of a SIP trunk. SIP-based communications services are expanding to reach more subscribers in Service Provider networks. This growth has increased the number of SIP trunks needed to support the footprint of these services and their configuration is becoming much more time consuming. SIP Trunk Xpress provides centralized management of SIP trunks, allowing for automated configuration and on-going management of trunk configurations from a centralized location. SIP Trunk Xpress provides a simple mechanism to configure SIP trunk services between a SP-SBC and an E-SBC.

Key benefits include:

- Centralized configuration server for all SIP trunks
- Integrated with Net-Net Central using Graphical User Interface (GUI) features

- Faster SIP Trunk provisioning because of simple configuration procedures
- Eliminates error-prone manual configuration procedures
- Reduces OpEx to deploy Service Provider SIP trunking services
- Enables Service Providers to configure all remote E-SBCs
- Comprehensive management of Customer sites/services and SIP trunk associations
- Creates all configuration data for Net-Net SBCs on both ends of the SIP trunk

See the *Net-Net Central SIP Trunk Xpress for Service Provider Guide* or the *Net-Net Central SIP Trunk Xpress for Enterprise Guide* for more information.

CentOS 6.2 Support

Acme Packet supports Net-Net Central on standalone and virtual CentOS 6.2 machines.

Red Hat 6.2 Support

Acme Packet supports Net-Net Central on standalone and virtual Red Hat 6.2 machines.

Note: Support for RHFC13 is depreciated in Net-Net Central 7.3 and will not be supported in the next major release.

Problems Resolved

The following table lists the problems resolved in Net-Net Central, release version Release 7.3.

Description
When a new security policy is added to NNC, the Local mask IP and Remote mask IP fields cannot be changed from the default values.
Once upgraded to NNC7.1M2P1, DSC configuration does not load properly.
Once upgraded to NNC7.1M2, the NNC GUI performs continuous refreshes after adding a new LRT.
User is kicked out of NNC and system requires a reboot.
NNC displays a "password has expired" message before the password expire time set by the user.
User can configure the local-address-pool of the MSG with too large a local ip pool.
User configure H323 as an application protocol.
NNC GUI does not fully utilize space on screen to display tables.
There is no color distinction between read-only and configurable fields.
Definition of "Co-Location" unclear in documentation.
The parameter Source under Fault management should be a drop-down box.
Standby devices becoming active during an upgrade causes it to fail.
SOAP client no longer appears in the Summary View or Logged in Users View.
Net-Net Central no longer allows you to restore a database backup created by a different version of NNC.

Known Issues

The following table lists Net-Net Central Release 7.3 known issues and workaround steps.

Description	Workaround
Global Parameters	
For global parameter change work orders, if you delete a configuration element , and then you proceed to add the element again in the global parameter configuration with the same name, NNC fails to update the targeted SBCs with this global parameter change. The element does not show up in the Device Tasks Preview screen.	Rename the configuration element you are readding.
In global parameter configuration, if a realm is referenced in an lb-policy configuration element, you are unable to delete that realm.	Manually remove the realm from the lb-policy configuration before trying to delete the realm.
For global parameter changes, applying a configuration change to a targeted SBC may result in invalid configuration data. The work order succeeds, however, the next time NNC loads the configuration data an error is detected.	You must verify that all of the data is correct before applying the change.
Global parameter change is not supported for the following configuration element and its corresponding parameters: h323-stack terminal-alias prefix	There is currently no workaround for this defect.
Global parameter change is not supported for network-interface dual stack support.	There is currently no workaround for this defect.
Global parameter change work orders may fail if the user attempts to perform a cascade delete.	Avoid cascade deleting in global configurations.
For global parameter changes, some configuration instances with multiple primary keys, the instance name is not consistent between the View Changes table and Preview screen.	There is currently no workaround for this defect.
Applying a global parameter change for a LocalPolicy may not show the hidden attribute addrPrefix as part of the instance name. The work order will be applied correctly to all targeted devices, even though the instance name displays incorrectly for the Global Parameter screens.	There is currently no workaround for this defect.
Deleting a global parameter changes work order generates two audit log messages: a delete work order success and a modify GP config success.	If you receive both of these messages in an audit log after deleting a GP parameter changes work order, you can disregard the modify GP config success message.
Deleting a global parameter configuration generates two audit log messages: a delete GP config success and a delete GP config failure.	If you receive both of these messages in an audit log after deleting a GP parameter configuration, you can disregard the delete GP config failure message.
Report Manager	
The Download button on the Saved report screen does not always work in Google Chrome.	Use a supported version Firefox or Internet Explorer.
Report portlets do not appear correctly in Internet Explorer.	See the note in the <i>Reports</i> section of the <i>Net-Net Central Administration Guide</i> .
PDF is not offered as an format when scheduling report emails.	There is currently no workaround for this defect.
Under certain circumstances, the user may view a report on devices they have no privileges for.	There is currently no workaround for this defect.

Description	Workaround
The time zone of the columns in raw and pivot reports displays in the local time of the NNC server, while the Daily and Hourly reports display in UTC time. The detail time is in the local time of the NNC server.	There is currently no workaround for this defect.
An error is displayed when Time is selected as the row dimension in a pivot report and there are more than 300 rows.	There is currently no workaround for this defect.
The new measurements and groups specific to SD4 devices are not processed by the reporting manager.	There is currently no workaround for this defect.
The new measurements and groups specific to SCX6.4.0 are not processed by the reporting manager.	There is currently no workaround for this defect.
Footer labels for dashboard-style reports appear incorrect.	Select a start and end date in the filter page.
The realm name and date are switched in the footer of the daily session realm.	There is currently no workaround for this defect.
Collection Group	
The Add and Remove buttons do not always perform the intended action on the Edit collection group screen.	There is currently no workaround for this defect.
The collection group will not delete all related global parameters and work orders.	Go to the Configuration Manager and delete all related global parameters and work orders.
When adding nodes to an NNC cluster, the replicated device may not correctly configure the push receiver configuration for the new node.	There is currently no workaround for this defect.
Configuration Manager	
In the Configuration Manager, when you delete a top-level element such as a realm, network interface or physical interface, you cannot readd the element with the same name.	Perform a Save and Activate before attempting to readd the element, or rename the configuration element you are readding.
The Search and Show all buttons on the configuration GUI screens do not work.	There is currently no workaround for this defect.
Sub-element Inputs	
There are sub-elements for which their keys are used as the top-level element key. For these instances, the NNC server prompts you for input on all of these primary keys. However, if you miss a field, the server does not return an error when it should. These values are required, but the server does not recognize them as such. Examples of these elements are: access-control static-flow	Ensure that you manually add the criteria for each field properly.
Timezone Parameter	
Some Net-Net SBCs have a timezone parameter name with invalid characters by default. This prohibits the ability to add this device in NNC.	Change the timezone name parameter in the ACLI of the Net-Net SBC.
Aborting a Work Order	
If you are aborting a running work order and the Run device tasks concurrently check-box is enabled, the Abort operation does not work for device tasks that are already completed.	Once the abort operation has completed and the status changes to abortFailed, click Abort again.
Preview Display	
The Preview screen does not populate for third layer sub-element modifications. For example, in the following configuration, system-config->task-logging->facility-logging, if you delete a facility-logging instance, it does not appear in the Preview screen.	There is currently no workaround for this defect.
SIPTX	

Description	Workaround
<p>When running Net-Net Central SIPTX in full mode (SIP Session Manager enabled), the Interop file should not be used to modify the port of a basic SIPTX bootstrap file. The port 5060 is used to connect to the Service Provider SBC (SP-SBC) device and must not be changed. Changing this port number causes the Customer SBC (E-SBC) to fail to connect to the SP-SBC.</p>	<p>Do not use the Interop file to change the port number in the E-SBC bootstrap file that is used by the E-SBC device to connect to the SP-SBC.</p>
<p>When a Service Provider adds a trunk with a duplicate IP address, Net-Net Central does not reject the configuration.</p>	<p>This is not recommended. You should not add a trunk with an IP address that already exists in the NNC-SIPTX database.</p>
<p>The NNC client stalls in this very specific circumstance: in Trunk Manager on the Customers page, if you create an Installation Setup for a Customer/Site, and select High Availability (HA) in the Installation Setup (IS) dialog box, and then click Download to download the IS file.</p>	<p>There is currently no workaround for this defect.</p>
MIBs and Traps	
<p>Environmental MIBs and Traps for the 6300 platform such as the coltage, power, and fan are incorrect.</p>	<p>There is currently no workaround for this defect.</p>
SIP Manipulation	
<p>The header rule Add button is disabled when adding a new SIP-manipulation rule using the Work order GP changes.</p>	<p>There is currently no workaround for this defect.</p>

Limitations

Net-Net Central Release 7.3 has these limitations:

- **Clustering**
 - When setting up a Net-Net Central cluster, you cannot use the DNS names of host machines. Use only the IP address of the machines.
- **Online Help**

Online help is unavailable for the following:

 - Sip Trunk Express
 - Configuration Archive
 - Report Manager
- **Trunk Manager**
 - Trunk Manager supports the following hardware only:
 - Net-Net 3800
 - Net-Net 4500
 - Net-Net Enterprise Session Director-Server Edition (ESD-SE)
 - Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)
 - Trunk Manager supports the following Net-Net SBC operating systems only:
 - E-Cx6.4.0F1 for Acme Packet hardware platforms
 - E-Cz6.4.0F1 for ESD-SE and ESD-VME
 - Service Provider SBCs (SP-SBCs) support up to 2000 established SIP Trunks using Trunk Manager.

Introduction

The *Net-Net Central Release 7.3M1 Release Notes* provide the following information about this release:

- [Overview \(25\)](#)
- [Installation, Database Migration, Patch Management and Cluster Setup \(26\)](#)
- [Net-Net Central Release 7.3M1 Distribution Media \(27\)](#)
- [Platforms Supported \(28\)](#)
- [Device Releases Supported \(30\)](#)
- [New Features in Release 7.3M1 \(32\)](#)
- [Problems Resolved \(33\)](#)
- [Known Issues \(34\)](#)
- [Limitations \(35\)](#)

Overview

Acme Packet's Net-Net Central provides an advanced management framework for provisioning, managing, and monitoring session delivery networks. Net-Net Central has an advanced architecture, called Service Oriented Architecture (SOA), which provides such features as increased scalability using load balancing across clustered servers, the ability to load Net-Net SBC configurations on-demand, and a rich thin-client interface. You can use the enhanced user interface to access such services as Element Manager for configuring Net-Net SBCs or Route Manager for configuring LRTs on Net-Net SBCs.

Net-Net Central also includes a dashboard summary view of key performance indicators for the managed devices and provides three different views into Net-Net SBC configuration elements: Default, List-view, and ACLI.

Hardware Support

NNC Release 7.3M1 supports the following hardware:

- Net-Net 2600
- Net-Net 3800
- Net-Net 3810
- Net-Net 3820
- Net-Net 4500
- Net-Net 4250
- Net-Net 6300
- Net-Net 7000
- Net-Net 7250
- Net-Net 9200

- Net-Net 17350
- Net-Net Enterprise Session Director-Server Edition (ESD-SE)
- Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)

**Trunk Manager
Hardware Support**

The Trunk Manager application only supports the following hardware:

- Net-Net 3800
- Net-Net 4500
- Net-Net Enterprise Session Director-Server Edition (ESD-SE)
- Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)

Installation, Database Migration, Patch Management and Cluster Setup

**GA and
Maintenance
Releases**

For NNC installation and database migration instructions for standalone servers or servers in a cluster, please consult the *Net-Net Central Installation Guide, Version 7.3*.

**Patch Releases
and Patch
Management Tool**

You do not need to perform a new installation for patch releases. Please consult the *Installing Net-Net Central Patches* chapter of the *Net-Net Central Installation Guide, Version 7.3* for information on the patch management tool.

Once you FTP the patch tar.gz file to your system, you can run the patch management tool to list, import, apply and remove patches.

Cluster Setup

Members of a Net-Net Central cluster must be geographically co-located. For more information on setting up a cluster, please consult the *Net-Net Central High Availability Guide, Version 7.3*.

Net-Net Central Release 7.3M1 Distribution Media

The following files are available on the distribution media for NNC Release 7.3M1:

File Name	Description
NNC73M1Linux64bit.tar.gz	Installation file for Linux RHEL v5.5 64 bit
NNC73M1FC1364bit.tar.gz	Installation file for Linux Fedora Core 13 64 bit
NNC73M1RHEL6264bit.tar.gz	Installation file for RedHat Linux 6.2 64 bit
WSCClassicClientNNC73M1.zip	Classic EMS Northbound SOAP client libraries and examples.
CXFClientNNC73M1.zip	CXF Northbound SOAP client libraries and examples.
Net-Net Central 7.3M1 M-Release Guide.pdf	Guide with information about maintenance release Net-Net Central features and model support.
Net-Net Central 7.3 Installation Guide.pdf	Installation guide that includes graphical and text mode installation information
Net-Net Central 7.3 Release Notes.pdf	Contains information specific to this Net-Net Central release
Net-Net Central 7.3 High Availability Guide.pdf	Guide with detailed information about Net-Net Central High Availability (HA) and the HA cluster
Net-Net Central 7.3 Web Services SOAP XML Provisioning API Guide.pdf	Guide with full descriptions of the individual interface definitions that make up the Application Programming Interface (API)
Net-Net Central 7.3 Core Functionality Guide.pdf	Guide with detailed information about using the GUI and managing devices
Net-Net Central 7.3 Element Manager Guide.pdf	Guide with detailed information about Net-Net Central's Element Manager and describes the dashboard summary view, audit log, fault, and performance
Net-Net Central 7.3 Route Manager Guide.pdf	Guide with detailed information about centrally automating the management and distribution of routing data
Net-Net Central 7.3 Report Manager Guide.pdf	Guide with detailed information about running dynamic reports on Net-Net devices in your network
Net-Net Central 7.3 Quick Start Guide.pdf	Guide with a brief description of the GUI, along with information on how to add a device and perform basic configuration tasks
Net-Net Central 7.3 Administration Guide.pdf	Guide with detailed information about security administration, creating new users and new user groups, and setting group-based authorization
Net-Net Central 7.3 Configuration Guide ACLI View.pdf	Configuration guide with detailed information about the administration and software configuration of the Net-Net SBCs using Net-Net Central's ACLI configuration view
Net-Net Central 7.3 Configuration Guide Default View.pdf	Configuration guide with detailed information about the administration and software configuration of the Net-Net SBCs using Net-Net Central's default configuration view

File Name	Description
Net-Net Central SIP Trunk Xpress for Service Providers Guide	Guide with detailed information for installing NNC and Trunk Manager. Also contains Service Provider information for setting up a SP-SBC, E-SBC and a SIP Trunk.
Net-Net Central SIP Trunk Xpress for Enterprises Guide	Contains Customer information for accessing the SIP Trunk Xpress Portal and configuring the E-SBC to connect to the SP-SBC, and for connecting to the SIP Trunk established by the Service Provider.
Net-Net Central SIP Trunk Xpress Quick Start Guide (Full Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for the SIP Session Manager (SIPSM) enabled version of Trunk Manager (displays a full menu of options).
Net-Net Central SIP Trunk Xpress Quick Start Guide (E-SBC Bootstrap-only Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for a non-SIP Session Manager (non-SIPSM) version of Trunk Manager (displays a limited menu of options).
MIBs_NNC73M1.zip	Contains the latest ap-ems.mib and ap-nnc.mib. See description below.

MIBs Package for Net-Net Central

The ap-nnc.mib and ap-ems.mib provide SNMP support for Net-Net Central purposes. MIBs .zip files containing all .mib files are distributed along with the Net-Net OS software version running on your device(s). These packages may not contain the latest version of ap-nnc.mib and ap-ems.mib.

Included on the Net-Net Central distribution media is a .zip file titled MIBs_NNCXXX.zip containing the latest ap-nnc.mib and ap-ems.mib. The ap-nnc.mib and ap-ems.mib contained in this and future Net-Net Central distributions supersedes previous versions, including the ap-nnc.mib and ap-ems.mib released with your Net-Net OS software.

Platforms Supported

Acme Packet has certified the following hardware and software platforms, and client requirements for use with Net-Net Central Release 7.3M1.

Note: Other hardware configurations might work with Net-Net Central, but Acme Packet has verified the configurations listed here.

Linux

- CPU: 4-core 2.1 GHz processor or better
- 16 GB RAM minimum, 24 GB RAM recommended
- 195 GB hard drive minimum, 300 GB recommended
- Linux Fedora Core Linux 13 64 bit
- Red Hat Linux 5.5 64 bit
- Red Hat Linux 6.2 64 bit
- CentOS 6.2 64 bit

VMware

The Net-Net NNC VM image includes the following component:

- NNC_CentOS6_VM1.0.ova

VMware supports the following:

- CentOS 6.2 (64-bit)
- CPU: 4-core processor
- 16 GB RAM
- ~330GB hard drive

OpenSSL

Most Linux distributions include OpenSSL as part of the OS installation. You can check the version on your system by using the following command:

```
openssl version
      OpenSSL 0.9.7d Mar 27 2004
```

Client Requirements

- Internet Explorer versions 9.0 and higher or Mozilla Firefox versions 3.0 and higher
- Flash player compatible with your browser installed locally
- If the server is not part of your DNS domain, the host file on each client must be edited to include the hostname and IP address of the Net-Net Central server. The client host file is usually located in the following directory:

windows\system32\drivers\etc

Setting the Locale

You must set the locale for your Net-Net Central machine prior to running setup.sh.

To set the locale on your machine:

1. Set the locale to UTF-8.
`export LC_ALL=en_US.UTF-8`

Network Manager with Fedora Core 13

Fedora Core 13 installs an application called Network Manager by default. Network Manager is used to configure network connections. It executes automatically when you start your session, and it is visible as an applet icon. You must check your system to determine if Fedora Core 13 installed Network Manager on your system. If installed, you must remove it and then turn on the network services.

To check for and remove Network Manager:

1. Check for Network Manager.
`service NetworkManager status`
2. Shutdown Network Manager.
`service NetworkManager stop`
3. Remove Network Manager using the following command:
`yum remove NetworkManager`

To turn on network services:

```
chkconfig network on
service network start
```

Note: You should also ensure that the option Controlled by Network Manager in Network Configuration is unchecked on your system.

Setting the Maximum Shared Memory in FC13

The default maximum shared memory on Fedora Core 13 is set to 33M by default. Acme Packet recommends setting the maximum shared memory to at least 15% of the total system memory.

See *Before a New Installation* section in the *Net-Net Central 7.3 Installation Guide* for more information.

Device Releases Supported

Net-Net Central Release 7.3M1 supports the following versions of Net-Net OS software. Versions new to this release are in **bold text**.

C/CX-Series

C/CX6.0.0M5, C/CX6.0.0M6, C/CX6.0.0M7, C/CX6.0.0M8

SC/SCX6.1.0M2, SC/SCX6.1.0M3, SC/SCX6.1.0M4, SC/SCX6.1.0M5,
SC/SCX6.1.0M6, SC/SCX6.1.0M7, SC/SCX6.1.0M8, SC/SCX6.1.0M9,
SC/SCX6.1.0M10, SC/SCX6.1.0M11

SC/SCX6.2.0, SC/SCX6.2.0M1, SC/SCX6.2.0M2, SC/SCX6.2.0M3, SC/SCX6.2.0M4,
SC/SCX6.2.0M5, SC/SCX6.2.0M6, SC/SCX6.2.0M7, SC/SCX6.2.0M8,
SC/SCX6.2.0M9, SC/SCX6.2.0M10, SC/SCX6.2.0M11, **SC/SCX6.2.0M12**

SC/SCX6.2.1F1, SC/SCX6.2.1F2, SC/SCX6.2.1

SCX6.2.3

SCX6.2.5F1

SCX6.3.0F1, SCX6.3.0F2, SCX6.3.0, SCX6.3.0M1, SCX6.3.0M2, **SCX6.3.0M3**

SCX6.3.3F1, SCX6.3.3F2, SCX6.3.3F3, SCX6.3.3, SCX6.3.3M1

SCX6.3.5F1

SCX6.3.6F1

SCX6.3.7F1 SCX6.3.7F2, SCX6.3.7F3, SCX6.3.7, **SCX6.3.7M1**

SCX6.3.9F1, SCX6.3.9, **SCX6.3.9M1**

SCX6.4.0

SCX6.4.6F1, **SCX6.4.6F2**

SCZ7.0.9F1

LCX1.0, LCX1.1.3F1, LCX1.1.3F3, LCX1.1.3, LCX1.1.3M1

PCX1.0F1

DCX1.0F1, DCX1.0F2, DCX1.0.0, DCX1.0.0M1

DCZ2.0.0, DCZ2.0.0M1, **DCZ2.1.0, DCZ2.1.0M1**

MCX1.2F2, MCX1.2

MCX3.0.0F1, **MCX3.0.0**

ECX6.4F1

ECX6.3.7M1

D-Series

SD7.0.0, SD7.0.0M1, SD7.0.0M2, SD7.0.0M3, SD7.0.0M4, SD7.0.0M5, SD7.0.0M6,
SD7.0.0M7, SD7.0.0M8, SD7.0.0M9, SD7.0.0M10, SD7.0.0M11, SD7.0.0M12

SD7.0.2F1

SD7.1.0, SD7.1.0M1, SD7.1.0M2, SD7.1.0M3, **SD7.1.0M4**

SD7.2.0F1

SD7.2.3F2,SD7.2.3F3

New Features in Release 7.3M1

This section describes the new features in Net-Net Central Release 7.3M1.

Feature documentation and configuration for new model support is found in the *Net-Net® Central 7.3 Maintenance Release Guide*.

Audible Alarms

The Audible Alarms system allows you to set off an audible sound when an activate alarm is triggered. Alarm events are updated during each refresh cycle of the Alarms table and play an associated .wav file (one for each severity). Search functionality is disabled when audible alarms are active.

For more information and configuration instructions, consult the *Net-Net Central 7.3M1 M-Release Guide*.

Configuration Element Search

The Configuration Element Search allows you to search and filter the instances within an element type's paged table. Attributes that make up the column headings of the table become available as input filters for the search.

For more information and configuration instructions, consult the *Net-Net Central 7.3M1 M-Release Guide*.

Problems Resolved

The following table lists the problems resolved in Net-Net Central, release version Release 7.3M1.

Description
Clients no longer freeze when clicking the Customer/Site 'Download' button.*
Improved the performance of NNC event and trap processing.
The "Cancel" button now changes the state from an intermediate state to the abort state. During shutdown, NNC also changes stale Update Tasks to be aborted.
The local-policy source realm attribute is now a drop down list of available realms.
The session agents realm-id attribute is now a drop down list of available realms.
Certain Linux server locales cause the NNC installation to fail while installing postgres. This has been fixed by installing postgres with a known locale.
Resolved an issue where non-default page-sizes were not displaying correctly.
Improved the performance of the postgres reporting database.
RMC now supports leading '*' in the pub-id.
Added reports for all SD4 device HDR groups.*
Added reports for all new HDR groups in SCX6.4.0.*
Added support for the '.' character in SNMP community names.
Fixed NNC dual-stack support to allow certain unusual dual stack configurations to load.
Fixed NNC support for SD700 sipManipulation/headerRule/elementRule/paramName, config/sipConfig/domainRegistrar, config/transcodingConfig/framesPerPacket, and config/sipConfig/sipMessageLen.
Changed appProtocol to be DIAM-DIR for releases of the DSC.
Fixed an issue with editable combo boxes to detect user changes.
Resolved issue where the progress bar was not always dismissed after loading a large routeset file.
Improved the error message for certain configuration errors.
Fixed inconsistencies between the NNC MCX300 support and the MCX300 ACLI.
Pivot reports can now be exported to Excel files.
Fixed NNC support for SCX646F2 to include the red-max-trans attribute.
Added support for 6300 MIBs and traps.*

Issues resolved from Net-Net Central Release 7.3 are marked with *.

Known Issues

The following table lists Net-Net Central Release 7.3M1 known issues:

Description	Workaround
Report Manager	
If the administration password is not set correctly, the SD will not be able to push HDR data to the NNC server.	Consult the <i>Net-Net Central 7.3 Administration Guide</i> for information on setting the administration password.
Reports saved in Excel format are missing header information indicating the device and date for the report.	There is currently no workaround for this defect.
If a report produces a table that is very wide, the PDF version of that table may be clipped.	There is currently no workaround for this defect.
For SD4 devices (9200), the system report information does not appear in the System HDR group.	System report information can be found in the Core and Card HDR groups.
Server Startup	
In order to be able to start Net-Net Central as part of the server startup, the /etc/sudoers.d file should not require a terminal for the sudoer: Defaults:nncentral !requiretty	Edit the file /etc/sudoers (or /etc/sudoers.d) and add the line: Defaults:nncentral !requiretty

Limitations

Net-Net Central Release 7.3M1 has the following limitations:

- **Clustering**
 - When setting up a Net-Net Central cluster, you cannot use the DNS names of host machines. Use only the IP address of the machines.
- **Trunk Manager**
 - Trunk Manager supports the following hardware only:
 - Net-Net 3800
 - Net-Net 4500
 - Net-Net Enterprise Session Director-Server Edition (ESD-SE)
 - Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)
 - Trunk Manager supports the following Net-Net SBC operating systems only:
 - E-Cx6.4.0F1 for Acme Packet hardware platforms
 - E-Cz6.4.0F1 for ESD-SE and ESD-VME
 - Service Provider SBCs (SP-SBCs) support up to 2000 established SIP Trunks using Trunk Manager.

Introduction

The *Net-Net Central Release 7.3M2 Release Notes* provide the following information about this release:

- [Overview \(37\)](#)
- [Installation, Database Migration, Patch Management and Cluster Setup \(38\)](#)
- [Net-Net Central Release 7.3M2 Distribution Media \(39\)](#)
- [Platforms Supported \(40\)](#)
- [Device Releases Supported \(42\)](#)
- [New Features in Release 7.3M2 \(44\)](#)
- [Problems Resolved \(45\)](#)
- [Known Issues \(46\)](#)
- [Limitations \(47\)](#)

Overview

Acme Packet's Net-Net Central provides an advanced management framework for provisioning, managing, and monitoring session delivery networks. Net-Net Central has an advanced architecture, called Service Oriented Architecture (SOA), which provides such features as increased scalability using load balancing across clustered servers, the ability to load Net-Net SBC configurations on-demand, and a rich thin-client interface. You can use the enhanced user interface to access such services as Element Manager for configuring Net-Net SBCs or Route Manager for configuring LRTs on Net-Net SBCs.

Net-Net Central also includes a dashboard summary view of key performance indicators for the managed devices and provides three different views into Net-Net SBC configuration elements: Default, List-view, and ACLI.

Hardware Support

NNC Release 7.3M2 supports the following hardware:

- Net-Net 2600
- Net-Net 3800
- Net-Net 3810
- Net-Net 3820
- Net-Net 4500
- Net-Net 4250
- Net-Net 6300
- Net-Net 7000
- Net-Net 7250
- Net-Net 9200

- Net-Net 17350
- Net-Net Enterprise Session Director-Server Edition (ESD-SE)
- Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)

Trunk Manager Hardware Support

The Trunk Manager application only supports the following hardware:

- Net-Net 3800
- Net-Net 4500
- Net-Net Enterprise Session Director-Server Edition (ESD-SE)
- Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)

Installation, Database Migration, Patch Management and Cluster Setup

GA and Maintenance Releases

For NNC installation and database migration instructions for standalone servers or servers in a cluster, please consult the *Net-Net Central Installation Guide, Version 7.3*.

Patch Releases and Patch Management Tool

You do not need to perform a new installation for patch releases. Please consult the *Installing Net-Net Central Patches* chapter of the *Net-Net Central Installation Guide, Version 7.3* for information on the patch management tool.

Once you FTP the patch tar.gz file to your system, you can run the patch management tool to list, import, apply and remove patches.

Cluster Setup

Members of a Net-Net Central cluster must be geographically co-located. For more information on setting up a cluster, please consult the *Net-Net Central High Availability Guide, Version 7.3*.

Net-Net Central Release 7.3M2 Distribution Media

The following files are available on the distribution media for NNC Release 7.3M2:

File Name	Description
NNC73M2Linux64bit.tar.gz	Installation file for Linux RHEL v5.5 64 bit
NNC73M2FC1364bit.tar.gz	Installation file for Linux Fedora Core 13 64 bit
NNC73M2RHEL6264bit.tar.gz	Installation file for RedHat Linux 6.2 64 bit
WSCClassicClientNNC73M2.zip	Classic EMS Northbound SOAP client libraries and examples.
CXFClientNNC73M2.zip	CXF Northbound SOAP client libraries and examples.
Net-Net Central 7.3 M-Release Guide.pdf	Guide with information about maintenance release Net-Net Central features and model support.
Net-Net Central 7.3 Installation Guide.pdf	Installation guide that includes graphical and text mode installation information
Net-Net Central 7.3 Release Notes.pdf	Contains information specific to this Net-Net Central release
Net-Net Central 7.3 High Availability Guide.pdf	Guide with detailed information about Net-Net Central High Availability (HA) and the HA cluster
Net-Net Central 7.3 Web Services SOAP XML Provisioning API Guide.pdf	Guide with full descriptions of the individual interface definitions that make up the Application Programming Interface (API)
Net-Net Central 7.3 Core Functionality Guide.pdf	Guide with detailed information about using the GUI and managing devices
Net-Net Central 7.3 Element Manager Guide.pdf	Guide with detailed information about Net-Net Central's Element Manager and describes the dashboard summary view, audit log, fault, and performance
Net-Net Central 7.3 Route Manager Guide.pdf	Guide with detailed information about centrally automating the management and distribution of routing data
Net-Net Central 7.3 Report Manager Guide.pdf	Guide with detailed information about running dynamic reports on Net-Net devices in your network
Net-Net Central 7.3 Quick Start Guide.pdf	Guide with a brief description of the GUI, along with information on how to add a device and perform basic configuration tasks
Net-Net Central 7.3 Administration Guide.pdf	Guide with detailed information about security administration, creating new users and new user groups, and setting group-based authorization
Net-Net Central 7.3 Configuration Guide ACLI View.pdf	Configuration guide with detailed information about the administration and software configuration of the Net-Net SBCs using Net-Net Central's ACLI configuration view
Net-Net Central 7.3 Configuration Guide Default View.pdf	Configuration guide with detailed information about the administration and software configuration of the Net-Net SBCs using Net-Net Central's default configuration view

File Name	Description
Net-Net Central SIP Trunk Xpress for Service Providers Guide	Guide with detailed information for installing NNC and Trunk Manager. Also contains Service Provider information for setting up a SP-SBC, E-SBC and a SIP Trunk.
Net-Net Central SIP Trunk Xpress for Enterprises Guide	Contains Customer information for accessing the SIP Trunk Xpress Portal and configuring the E-SBC to connect to the SP-SBC, and for connecting to the SIP Trunk established by the Service Provider.
Net-Net Central SIP Trunk Xpress Quick Start Guide (Full Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for the SIP Session Manager (SIPSM) enabled version of Trunk Manager (displays a full menu of options).
Net-Net Central SIP Trunk Xpress Quick Start Guide (E-SBC Bootstrap-only Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for a non-SIP Session Manager (non-SIPSM) version of Trunk Manager (displays a limited menu of options).
MIBs_NNC73M1.zip	Contains the latest ap-ems.mib and ap-nnc.mib. See description below.

MIBs Package for Net-Net Central

The ap-nnc.mib and ap-ems.mib provide SNMP support for Net-Net Central purposes. MIBs .zip files containing all .mib files are distributed along with the Net-Net OS software version running on your device(s). These packages may not contain the latest version of ap-nnc.mib and ap-ems.mib.

Included on the Net-Net Central distribution media is a .zip file titled MIBs_NNCXXX.zip containing the latest ap-nnc.mib and ap-ems.mib. The ap-nnc.mib and ap-ems.mib contained in this and future Net-Net Central distributions supersedes previous versions, including the ap-nnc.mib and ap-ems.mib released with your Net-Net OS software.

Platforms Supported

Acme Packet has certified the following hardware and software platforms, and client requirements for use with Net-Net Central Release 7.3M2.

Note: Other hardware configurations might work with Net-Net Central, but Acme Packet has verified the configurations listed here.

Linux

- CPU: 4-core 2.1 GHz processor or better
- 16 GB RAM minimum, 24 GB RAM recommended
- 195 GB hard drive minimum, 300 GB recommended
- Linux Fedora Core Linux 13 64 bit
- Red Hat Linux 5.5 64 bit
- Red Hat Linux 6.2 64 bit
- CentOS 6.2 64 bit

VMware

VMware supports the following:

- CentOS 6.2 (64-bit)
- CPU: 4-core processor
- 16 GB RAM
- ~330GB hard drive

OpenSSL

Most Linux distributions include OpenSSL as part of the OS installation. You can check the version on your system by using the following command:

```
openssl version
      OpenSSL 0.9.7d Mar 27 2004
```

Client Requirements

- Internet Explorer versions 9.0 and higher or Mozilla Firefox versions 3.0 and higher
- Flash player compatible with your browser installed locally
- If the server is not part of your DNS domain, the host file on each client must be edited to include the hostname and IP address of the Net-Net Central server. The client host file is usually located in the following directory:

windows\system32\drivers\etc

Setting the Locale

You must set the locale for your Net-Net Central machine prior to running setup.sh.

To set the locale on your machine:

1. Set the locale to UTF-8.
`export LC_ALL=en_US.UTF-8`

Network Manager with Fedora Core 13

Fedora Core 13 installs an application called Network Manager by default. Network Manager is used to configure network connections. It executes automatically when you start your session, and it is visible as an applet icon. You must check your system to determine if Fedora Core 13 installed Network Manager on your system. If installed, you must remove it and then turn on the network services.

To check for and remove Network Manager:

1. Check for Network Manager.
`service NetworkManager status`
2. Shutdown Network Manager.
`service NetworkManager stop`
3. Remove Network Manager using the following command:
`yum remove NetworkManager`

To turn on network services:

```
chkconfig network on
service network start
```

Note: You should also ensure that the option Controlled by Network Manager in Network Configuration is unchecked on your system.

Setting the Maximum Shared Memory in FC13

The default maximum shared memory on Fedora Core 13 is set to 33M by default. Acme Packet recommends setting the maximum shared memory to at least 15% of the total system memory.

See *Before a New Installation* section in the *Net-Net Central 7.3 Installation Guide* for more information.

Device Releases Supported

Net-Net Central Release 7.3M2 supports the following versions of Net-Net OS software. Versions new to this release are in **bold text**.

C/CX-Series

C/CX6.0.0M5, C/CX6.0.0M6, C/CX6.0.0M7, C/CX6.0.0M8

SC/SCX6.1.0M2, SC/SCX6.1.0M3, SC/SCX6.1.0M4, SC/SCX6.1.0M5,
SC/SCX6.1.0M6, SC/SCX6.1.0M7, SC/SCX6.1.0M8, SC/SCX6.1.0M9,
SC/SCX6.1.0M10, SC/SCX6.1.0M11

SC/SCX6.2.0, SC/SCX6.2.0M1, SC/SCX6.2.0M2, SC/SCX6.2.0M3, SC/SCX6.2.0M4,
SC/SCX6.2.0M5, SC/SCX6.2.0M6, SC/SCX6.2.0M7, SC/SCX6.2.0M8,
SC/SCX6.2.0M9, SC/SCX6.2.0M10, SC/SCX6.2.0M11, SC/SCX6.2.0M12

SC/SCX6.2.1F1, SC/SCX6.2.1F2, SC/SCX6.2.1

SCX6.2.3

SCX6.2.5F1

SCX6.3.0F1, SCX6.3.0F2, SCX6.3.0, SCX6.3.0M1, SCX6.3.0M2, SCX6.3.0M3,
SCX6.3.0M4

SCX6.3.3F1, SCX6.3.3F2, SCX6.3.3F3, SCX6.3.3, SCX6.3.3M1

SCX6.3.5F1

SCX6.3.6F1

SCX6.3.7F1 SCX6.3.7F2, SCX6.3.7F3, SCX6.3.7, SCX6.3.7M1

SCX6.3.9F1, SCX6.3.9, SCX6.3.9M1

SCX6.4.0

SCX6.4.6F1, SCX6.4.6F2

SCZ7.0.9F1

LCX1.0, LCX1.1.3F1, LCX1.1.3F3, LCX1.1.3, LCX1.1.3M1

PCX1.0F1

DCX1.0F1, DCX1.0F2, DCX1.0.0, DCX1.0.0M1

DCZ2.0.0, DCZ2.0.0M1, DCZ2.1.0, DCZ2.1.0M1

MCX1.2F2, MCX1.2

MCX3.0.0F1, MCX3.0.0

ECX6.4F1

ECX6.3.7M1

D-Series

SD7.0.0, SD7.0.0M1, SD7.0.0M2, SD7.0.0M3, SD7.0.0M4, SD7.0.0M5, SD7.0.0M6,
SD7.0.0M7, SD7.0.0M8, SD7.0.0M9, SD7.0.0M10, SD7.0.0M11, SD7.0.0M12

SD7.0.2F1

SD7.1.0, SD7.1.0M1, SD7.1.0M2, SD7.1.0M3, SD7.1.0M4, **SD7.1.0M5**

SD7.2.0F1

SD7.2.3F2,SD7.2.3F3

New Features in Release 7.3M2

This section describes the new features in Net-Net Central Release 7.3M2.

Feature documentation and configuration for new model support is found in the *Net-Net® Central 7.3 Maintenance Release Guide*.

License Information

You can view the system license information for the Net-Net Central server(s) by clicking *Help > License information*.

You can view the third-party license information for the Net-Net Central server(s) by clicking *Help > About > License info*.

Problems Resolved

There are no new problems resolved in Net-Net Central Release 7.3M2.

Known Issues

There are no new known issues for Net-Net Central Release 7.3M2.

Limitations

Net-Net Central Release 7.3M2 has the following limitations:

- **Clustering**
 - When setting up a Net-Net Central cluster, you cannot use the DNS names of host machines. Use only the IP address of the machines.
- **Trunk Manager**
 - Trunk Manager supports the following hardware only:
 - Net-Net 3800
 - Net-Net 4500
 - Net-Net Enterprise Session Director-Server Edition (ESD-SE)
 - Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)
 - Trunk Manager supports the following Net-Net SBC operating systems only:
 - E-Cx6.4.0F1 for Acme Packet hardware platforms
 - E-Cz6.4.0F1 for ESD-SE and ESD-VME
 - Service Provider SBCs (SP-SBCs) support up to 2000 established SIP Trunks using Trunk Manager.

Introduction

The *Net-Net Central Release 7.3M3 Release Notes* provide the following information about this release:

- [Overview \(49\)](#)
- [Installation, Database Migration, Patch Management and Cluster Setup \(50\)](#)
- [Net-Net Central Release 7.3M3 Distribution Media \(51\)](#)
- [Platforms Supported \(52\)](#)
- [Device Releases Supported \(54\)](#)
- [New Features in Release 7.3M3 \(56\)](#)
- [Problems Resolved \(57\)](#)
- [Known Issues \(58\)](#)
- [Limitations \(59\)](#)

Overview

Acme Packet's Net-Net Central provides an advanced management framework for provisioning, managing, and monitoring session delivery networks. Net-Net Central has an advanced architecture, called Service Oriented Architecture (SOA), which provides such features as increased scalability using load balancing across clustered servers, the ability to load Net-Net SBC configurations on-demand, and a rich thin-client interface. You can use the enhanced user interface to access such services as Element Manager for configuring Net-Net SBCs or Route Manager for configuring LRTs on Net-Net SBCs.

Net-Net Central also includes a dashboard summary view of key performance indicators for the managed devices and provides three different views into Net-Net SBC configuration elements: Default, List-view, and ACLI.

Hardware Support

NNC Release 7.3M3 supports the following hardware:

- Net-Net 2600
- Net-Net 3800
- Net-Net 3810
- Net-Net 3820
- Net-Net 4500
- Net-Net 4250
- Net-Net 6300
- Net-Net 7000
- Net-Net 7250
- Net-Net 9200

- Net-Net 17350
- Net-Net Enterprise Session Director-Server Edition (ESD-SE)
- Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)

**Trunk Manager
Hardware Support**

The Trunk Manager application only supports the following hardware:

- Net-Net 3800
- Net-Net 4500
- Net-Net Enterprise Session Director-Server Edition (ESD-SE)
- Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)

Installation, Database Migration, Patch Management and Cluster Setup

**GA and
Maintenance
Releases**

For NNC installation and database migration instructions for standalone servers or servers in a cluster, please consult the *Net-Net Central Installation Guide, Version 7.3*.

**Patch Releases
and Patch
Management Tool**

You do not need to perform a new installation for patch releases. Please consult the *Installing Net-Net Central Patches* chapter of the *Net-Net Central Installation Guide, Version 7.3* for information on the patch management tool.

Once you FTP the patch tar.gz file to your system, you can run the patch management tool to list, import, apply and remove patches.

Cluster Setup

Members of a Net-Net Central cluster must be geographically co-located. For more information on setting up a cluster, please consult the *Net-Net Central High Availability Guide, Version 7.3*.

Net-Net Central Release 7.3M3 Distribution Media

The following files are available on the distribution media for NNC Release 7.3M3:

File Name	Description
NNC73M3Linux64bit.tar.gz	Installation file for Linux RHEL v5.5 64 bit
NNC73M3FC1364bit.tar.gz	Installation file for Linux Fedora Core 13 64 bit
NNC73M3RHEL6264bit.tar.gz	Installation file for RedHat Linux 6.2 64 bit
WSCClassicClientNNC73M3.zip	Classic EMS Northbound SOAP client libraries and examples.
CXFClientNNC73M3.zip	CXF Northbound SOAP client libraries and examples.
Net-Net Central 7.3 M-Release Guide.pdf	Guide with information about maintenance release Net-Net Central features and model support.
Net-Net Central 7.3 Installation Guide.pdf	Installation guide that includes graphical and text mode installation information
Net-Net Central 7.3 Release Notes.pdf	Contains information specific to this Net-Net Central release
Net-Net Central 7.3 High Availability Guide.pdf	Guide with detailed information about Net-Net Central High Availability (HA) and the HA cluster
Net-Net Central 7.3 Web Services SOAP XML Provisioning API Guide.pdf	Guide with full descriptions of the individual interface definitions that make up the Application Programming Interface (API)
Net-Net Central 7.3 Core Functionality Guide.pdf	Guide with detailed information about using the GUI and managing devices
Net-Net Central 7.3 Element Manager Guide.pdf	Guide with detailed information about Net-Net Central's Element Manager and describes the dashboard summary view, audit log, fault, and performance
Net-Net Central 7.3 Route Manager Guide.pdf	Guide with detailed information about centrally automating the management and distribution of routing data
Net-Net Central 7.3 Report Manager Guide.pdf	Guide with detailed information about running dynamic reports on Net-Net devices in your network
Net-Net Central 7.3 Quick Start Guide.pdf	Guide with a brief description of the GUI, along with information on how to add a device and perform basic configuration tasks
Net-Net Central 7.3 Administration Guide.pdf	Guide with detailed information about security administration, creating new users and new user groups, and setting group-based authorization
Net-Net Central 7.3 Configuration Guide ACLI View.pdf	Configuration guide with detailed information about the administration and software configuration of the Net-Net SBCs using Net-Net Central's ACLI configuration view
Net-Net Central 7.3 Configuration Guide Default View.pdf	Configuration guide with detailed information about the administration and software configuration of the Net-Net SBCs using Net-Net Central's default configuration view

File Name	Description
Net-Net Central SIP Trunk Xpress for Service Providers Guide	Guide with detailed information for installing NNC and Trunk Manager. Also contains Service Provider information for setting up a SP-SBC, E-SBC and a SIP Trunk.
Net-Net Central SIP Trunk Xpress for Enterprises Guide	Contains Customer information for accessing the SIP Trunk Xpress Portal and configuring the E-SBC to connect to the SP-SBC, and for connecting to the SIP Trunk established by the Service Provider.
Net-Net Central SIP Trunk Xpress Quick Start Guide (Full Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for the SIP Session Manager (SIPSM) enabled version of Trunk Manager (displays a full menu of options).
Net-Net Central SIP Trunk Xpress Quick Start Guide (E-SBC Bootstrap-only Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for a non-SIP Session Manager (non-SIPSM) version of Trunk Manager (displays a limited menu of options).
MIBs_NNC73M3.zip	Contains the latest ap-ems.mib and ap-nnc.mib. See description below.

MIBs Package for Net-Net Central

The ap-nnc.mib and ap-ems.mib provide SNMP support for Net-Net Central purposes. MIBs .zip files containing all .mib files are distributed along with the Net-Net OS software version running on your device(s). These packages may not contain the latest version of ap-nnc.mib and ap-ems.mib.

Included on the Net-Net Central distribution media is a .zip file titled MIBs_NNCXXX.zip containing the latest ap-nnc.mib and ap-ems.mib. The ap-nnc.mib and ap-ems.mib contained in this and future Net-Net Central distributions supersedes previous versions, including the ap-nnc.mib and ap-ems.mib released with your Net-Net OS software.

Platforms Supported

Acme Packet has certified the following hardware and software platforms, and client requirements for use with Net-Net Central Release 7.3M3.

Note: Other hardware configurations might work with Net-Net Central, but Acme Packet has verified the configurations listed here.

Linux

- CPU: 4-core 2.1 GHz processor or better
- 16 GB RAM minimum, 24 GB RAM recommended
- 195 GB hard drive minimum, 300 GB recommended
- Linux Fedora Core Linux 13 64 bit
- Red Hat Linux 5.5 64 bit
- Red Hat Linux 6.2 64 bit
- CentOS 6.2 64 bit

VMware

VMware supports the following:

- CentOS 6.2 (64-bit)
- CPU: 4-core processor
- 16 GB RAM
- ~330GB hard drive

OpenSSL

Most Linux distributions include OpenSSL as part of the OS installation. You can check the version on your system by using the following command:

```
openssl version
      OpenSSL 0.9.7d Mar 27 2004
```

Client Requirements

- Internet Explorer versions 9.0 and higher or Mozilla Firefox versions 3.0 and higher
- Flash player compatible with your browser installed locally
- If the server is not part of your DNS domain, the host file on each client must be edited to include the hostname and IP address of the Net-Net Central server. The client host file is usually located in the following directory:

windows\system32\drivers\etc

Setting the Locale

You must set the locale for your Net-Net Central machine prior to running setup.sh.

To set the locale on your machine:

1. Set the locale to UTF-8.
`export LC_ALL=en_US.UTF-8`

Network Manager with Fedora Core 13

Fedora Core 13 installs an application called Network Manager by default. Network Manager is used to configure network connections. It executes automatically when you start your session, and it is visible as an applet icon. You must check your system to determine if Fedora Core 13 installed Network Manager on your system. If installed, you must remove it and then turn on the network services.

To check for and remove Network Manager:

1. Check for Network Manager.
`service NetworkManager status`
2. Shutdown Network Manager.
`service NetworkManager stop`
3. Remove Network Manager using the following command:
`yum remove NetworkManager`

To turn on network services:

```
chkconfig network on
service network start
```

Note: You should also ensure that the option Controlled by Network Manager in Network Configuration is unchecked on your system.

Setting the Maximum Shared Memory in FC13

The default maximum shared memory on Fedora Core 13 is set to 33M by default. Acme Packet recommends setting the maximum shared memory to at least 15% of the total system memory.

See *Before a New Installation* section in the *Net-Net Central 7.3 Installation Guide* for more information.

Device Releases Supported

Net-Net Central Release 7.3M3 supports the following versions of Net-Net OS software. Versions new to this release are in **bold text**.

C/CX-Series

C/CX6.0.0M5, C/CX6.0.0M6, C/CX6.0.0M7, C/CX6.0.0M8

SC/SCX6.1.0M2, SC/SCX6.1.0M3, SC/SCX6.1.0M4, SC/SCX6.1.0M5,
SC/SCX6.1.0M6, SC/SCX6.1.0M7, SC/SCX6.1.0M8, SC/SCX6.1.0M9,
SC/SCX6.1.0M10, SC/SCX6.1.0M11

SC/SCX6.2.0, SC/SCX6.2.0M1, SC/SCX6.2.0M2, SC/SCX6.2.0M3, SC/SCX6.2.0M4,
SC/SCX6.2.0M5, SC/SCX6.2.0M6, SC/SCX6.2.0M7, SC/SCX6.2.0M8,
SC/SCX6.2.0M9, SC/SCX6.2.0M10, SC/SCX6.2.0M11, SC/SCX6.2.0M12

SC/SCX6.2.1F1, SC/SCX6.2.1F2, SC/SCX6.2.1, **SC/SCX6.2.1M1**

SCX6.2.3

SCX6.2.5F1

SCX6.3.0F1, SCX6.3.0F2, SCX6.3.0, SCX6.3.0M1, SCX6.3.0M2, SCX6.3.0M3,
SCX6.3.0M4, **SCX6.3.0M5**

SCX6.3.3F1, SCX6.3.3F2, SCX6.3.3F3, SCX6.3.3, SCX6.3.3M1, **SCX6.3.3M2**

SCX6.3.5F1, **SCX6.3.5p4**

SCX6.3.6F1

SCX6.3.7F1 SCX6.3.7F2, SCX6.3.7F3, SCX6.3.7, SCX6.3.7M1

SCX6.3.9F1, SCX6.3.9, SCX6.3.9M1, **SCX/Z6.3.9M2**

SCX/Z6.3.15

SCX6.4.0, **SCX6.4.0M1**, **SCX6.4.0M2**

SCX6.4.6F1, SCX6.4.6F2

SCZ7.0.2F2

SCZ7.0.9F1

LCX1.0, LCX1.1.3F1, LCX1.1.3F3, LCX1.1.3, LCX1.1.3M1

PCX1.0F1

DCX1.0F1, DCX1.0F2, DCX1.0.0, DCX1.0.0M1

DCZ2.0.0, DCZ2.0.0M1

DCZ2.1.0, DCZ2.1.0M1, **DCZ2.1.0M2**

MCX1.2F2, MCX1.2

MCX2.0.0M1, **MCX2.0.0M1**

MCX3.0.0F1, MCX3.0.0, **MCX3.0.0M1**, **MCX3.0.0p2**

ECX/Z6.4F1, **ECX/Z6.4.0M1**

ECX6.3.7M1

D-Series

SD7.0.0, SD7.0.0M1, SD7.0.0M2, SD7.0.0M3, SD7.0.0M4, SD7.0.0M5, SD7.0.0M6,
SD7.0.0M7, SD7.0.0M8, SD7.0.0M9, SD7.0.0M10, SD7.0.0M11, SD7.0.0M12

SD7.0.2F1

SD7.1.0, SD7.1.0M1, SD7.1.0M2, SD7.1.0M3, SD7.1.0M4, SD7.1.0M5, SD7.1.0M6

SD7.2.0F1, SD7.2.0

SD7.2.3F2,SD7.2.3F3

New Features in Release 7.3M3

This section describes the new features in Net-Net Central Release 7.3M3.

Feature documentation and configuration for new model support is found in the *Net-Net Central 7.3 Maintenance Release Guide*.

Password Change Process Enhancement

You can update system user passwords using the Tools > Passwords... dialog. In previous releases, administrators were required to run through the Net-Net Central installation in order to change system user passwords.

Configuration Schema Upload

You can upload a configuration schema into Net-Net Central by selecting and uploading a valid .XSD configuration file.

Diagnostics Tool

The diagnostics tool allows administrators to retrieve files used for troubleshooting and analysis via the Net-Net Central GUI. Types of files included are Logs, Databases, and Configuration. You may also change logging levels from the GUI, in real-time.

Work Order Enhancements

HA Software Upgrade/Downgrade Workflow Enhancements

You can restore the original HA pair active/standby configuration during the software upgrade process by enabling Force switchover to restore original HA setup if it is configured in the workflow.

Behavior of Work Orders

Previous versions of Net-Net Central have two options for the Behavior parameter, located in the Settings tab of the Work Order administration screen.

The addition of Pause only after 1st device stops the work order after the first device is complete for approval by the administrator, while automatically completing the tasks for subsequent machines.

External AAA

External Authentication, Authorization, and Auditing/Accounting (AAA) enables you to utilize your existing RADIUS or Active Directory servers for Net-Net Central user authentication.

TLS Support for ACP

ACP over TLS adds a layer of security to the communications link between the SBC and Net-Net Central. Entity and trusted certificates are created during the installation/upgrade process.

Problems Resolved

The following table lists the problems resolved in Net-Net Central, release version Release 7.3M3.

Description
NNC Report Manager shows "The record does not exist".
Report Manager takes a long time to create a report.
Scheduled reports do not work with https.
After changing the SBC's target name, the target name in Fault manager does not change.
NNC rejects to add configuration which has sip-port configured with TLS/TCP port below 1024.
NNC allows you to configure v2-ike-life-secs in MSG to less than 1800 seconds, which ACLI does not.
Report Manager collection group fixes for start date and end date.
Report Manager JDBC connection error.
Events shown with 24h delay in NNC 7.3.
UnsatisfiedLinkError: libXtst.so.6: cannot open shared object file libXtst.so.6
Issues uploading TSM configurations.
The NNC application is showing time in EST, while the linux server is configured in GMT.
Scrolling down is not possible to see the last Realm-config object.
In order to be able to start Net-Net Central as part of the server startup, the /etc/sudoers.d file should not require a terminal for the sudoer: Defaults:nncentral !requiretty
Possible to delete User id's 'admin' and 'ladmin' are root administrators, i.e. they are default id's.
NNC fails to save & activate.
No drop down list in session-group's destination.
Alarm timestamp changes when Acknowledged.
Auth-key and encr-key edit boxes do not give useful error messages.

Known Issues

The following table lists Net-Net Central Release 7.3M3 known issues:

Description	Workaround
NNC 7.3 allows carriage returns in the descriptions of configuration elements. This causes NNC to fail when reloading configuration.	Use the ACLI on the SBC to remove the carriage returns in your configuration
Kerberos Choice 2 may not configure properly.	Use Kerberos Choice 2 when configuring External AAA.
When multiple Net-Net Central user groups are associated with an AAA group, the NNC user groups are sorted and authenticated in alphabetical order.	Acme Packet recommends that AAA groups be specifically named to ensure a one-to-one relationship with existing groups in Net-Net Central.
When Authentication Type is set to None (Security Manager > User management > Authentication), the value of External group name (Security Manager > User management > Groups > Edit), will have no effect.	Set the Authentication type (Security Manager > User management > Authentication) to RADIUS or Active Directory.

Limitations

Net-Net Central Release 7.3M3 has the following limitations:

- **Report Manager**
 - It is recommended to limit the number of configured devices to 10 or fewer when running Report Manager.
 - Pivot report degradation in performance is observed as more content is added and maintained in the raw data tables.
 - Scheduled reports sent via e-mail may not render correctly.
- **DB Migration**
 - No migration of events and alarms occurs from EMS6.x to NNC 7.3M3 and above.
 - No migration activity occurs for existing 7.3x events and alarms.
- **Clustering**
 - When setting up a Net-Net Central cluster, you cannot use the DNS names of host machines. Use only the IP address of the machines.
- **Trunk Manager**
 - Trunk Manager supports the following hardware only:
 - Net-Net 3800
 - Net-Net 4500
 - Net-Net Enterprise Session Director-Server Edition (ESD-SE)
 - Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)
 - Trunk Manager supports the following Net-Net SBC operating systems only:
 - E-Cx6.4.0F1 for Acme Packet hardware platforms
 - E-Cz6.4.0F1 for ESD-SE and ESD-VME
 - Service Provider SBCs (SP-SBCs) support up to 2000 established SIP Trunks using Trunk Manager.

Introduction

The *Net-Net Central Release 7.3M4 Release Notes* provide the following information about this release:

- [Overview \(61\)](#)
- [Installation, Database Migration, Patch Management and Cluster Setup \(62\)](#)
- [Net-Net Central Release 7.3M4 Distribution Media \(63\)](#)
- [Platforms Supported \(64\)](#)
- [Device Releases Supported \(66\)](#)
- [New Features in Release 7.3M4 \(68\)](#)
- [Problems Resolved \(70\)](#)
- [Known Issues \(71\)](#)
- [Limitations \(72\)](#)

Overview

Acme Packet's Net-Net Central provides an advanced management framework for provisioning, managing, and monitoring session delivery networks. Net-Net Central has an advanced architecture, called Service Oriented Architecture (SOA), which provides such features as increased scalability using load balancing across clustered servers, the ability to load Net-Net SBC configurations on-demand, and a rich thin-client interface. You can use the enhanced user interface to access such services as Element Manager for configuring Net-Net SBCs or Route Manager for configuring LRTs on Net-Net SBCs.

Net-Net Central also includes a dashboard summary view of key performance indicators for the managed devices and provides three different views into Net-Net SBC configuration elements: Default, List-view, and ACLI.

Hardware Support

NNC Release 7.3M4 supports the following hardware:

- Net-Net 2600
- Net-Net 3800
- Net-Net 3810
- Net-Net 3820
- Net-Net 4500
- Net-Net 4250
- Net-Net 6300
- Net-Net 7000
- Net-Net 7250
- Net-Net 9200

- Net-Net 17350
- Net-Net Enterprise Session Director-Server Edition (ESD-SE)
- Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)

Trunk Manager Hardware Support

The Trunk Manager application only supports the following hardware:

- Net-Net 3800
- Net-Net 4500
- Net-Net Enterprise Session Director-Server Edition (ESD-SE)
- Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)

Installation, Database Migration, Patch Management and Cluster Setup

GA and Maintenance Releases

For NNC installation and database migration instructions for standalone servers or servers in a cluster, please consult the *Net-Net Central Installation Guide, Version 7.3*.

Note: As of this release, the step to apply a license is no longer required.

Patch Releases and Patch Management Tool

You do not need to perform a new installation for patch releases. Please consult the *Installing Net-Net Central Patches* chapter of the *Net-Net Central Installation Guide, Version 7.3* for information on the patch management tool.

Once you FTP the patch tar.gz file to your system, you can run the patch management tool to list, import, apply and remove patches.

Cluster Setup

Members of a Net-Net Central cluster must be geographically co-located. For more information on setting up a cluster, please consult the *Net-Net Central High Availability Guide, Version 7.3*.

Net-Net Central Release 7.3M4 Distribution Media

The following files are available on the distribution media for NNC Release 7.3M4:

File Name	Description
NNC73M4OracleLinux64bit.tar.gz	Installation file for Oracle Linux v6.2+ 64 bit
NNC73M4Linux64bit.tar.gz	Installation file for Linux RHEL v5.5 64 bit
NNC73M4FC1364bit.tar.gz	Installation file for Linux Fedora Core 13 64 bit
NNC73M4RHEL6264bit.tar.gz	Installation file for RedHat Linux 6.3 64 bit
NNC_OL62_OVM.tar.gz	OVM Template for deploying Net-Net Central on virtual machines.
WSClassicClientNNC73M4.zip	Classic EMS Northbound SOAP client libraries and examples.
CXFClientNNC73M4.zip	CXF Northbound SOAP client libraries and examples.
Net-Net Central 7.3 M-Release Guide.pdf	Guide with information about maintenance release Net-Net Central features and model support.
Net-Net Central 7.3 Installation Guide.pdf	Installation guide that includes graphical and text mode installation information
Net-Net Central 7.3 Release Notes.pdf	Contains information specific to this Net-Net Central release
Net-Net Central 7.3 High Availability Guide.pdf	Guide with detailed information about Net-Net Central High Availability (HA) and the HA cluster
Net-Net Central 7.3 Web Services SOAP XML Provisioning API Guide.pdf	Guide with full descriptions of the individual interface definitions that make up the Application Programming Interface (API)
Net-Net Central 7.3 Core Functionality Guide.pdf	Guide with detailed information about using the GUI and managing devices
Net-Net Central 7.3 Element Manager Guide.pdf	Guide with detailed information about Net-Net Central's Element Manager and describes the dashboard summary view, audit log, fault, and performance
Net-Net Central 7.3 Route Manager Guide.pdf	Guide with detailed information about centrally automating the management and distribution of routing data
Net-Net Central 7.3 Report Manager Guide.pdf	Guide with detailed information about running dynamic reports on Net-Net devices in your network
Net-Net Central 7.3 Quick Start Guide.pdf	Guide with a brief description of the GUI, along with information on how to add a device and perform basic configuration tasks
Net-Net Central 7.3 Administration Guide.pdf	Guide with detailed information about security administration, creating new users and new user groups, and setting group-based authorization
Net-Net Central 7.3 Configuration Guide ACLI View.pdf	Configuration guide with detailed information about the administration and software configuration of the Net-Net SBCs using Net-Net Central's ACLI configuration view

File Name	Description
Net-Net Central 7.3 Configuration Guide Default View.pdf	Configuration guide with detailed information about the administration and software configuration of the Net-Net SBCs using Net-Net Central's default configuration view
Net-Net Central SIP Trunk Xpress for Service Providers Guide	Guide with detailed information for installing NNC and Trunk Manager. Also contains Service Provider information for setting up a SP-SBC, E-SBC and a SIP Trunk.
Net-Net Central SIP Trunk Xpress for Enterprises Guide	Contains Customer information for accessing the SIP Trunk Xpress Portal and configuring the E-SBC to connect to the SP-SBC, and for connecting to the SIP Trunk established by the Service Provider.
Net-Net Central SIP Trunk Xpress Quick Start Guide (Full Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for the SIP Session Manager (SIPSM) enabled version of Trunk Manager (displays a full menu of options).
Net-Net Central SIP Trunk Xpress Quick Start Guide (E-SBC Bootstrap-only Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for a non-SIP Session Manager (non-SIPSM) version of Trunk Manager (displays a limited menu of options).
MIBs_NNC73M4.zip	Contains the latest ap-ems.mib and ap-nnc.mib. See description below.

MIBs Package for Net-Net Central

The ap-nnc.mib and ap-ems.mib provide SNMP support for Net-Net Central purposes. MIBs .zip files containing all .mib files are distributed along with the Net-Net OS software version running on your device(s). These packages may not contain the latest version of ap-nnc.mib and ap-ems.mib.

Included on the Net-Net Central distribution media is a .zip file titled MIBs_NNCXXX.zip containing the latest ap-nnc.mib and ap-ems.mib. The ap-nnc.mib and ap-ems.mib contained in this and future Net-Net Central distributions supersedes previous versions, including the ap-nnc.mib and ap-ems.mib released with your Net-Net OS software.

Platforms Supported

Acme Packet has certified the following hardware and software platforms, and client requirements for use with Net-Net Central Release 7.3M4.

Note: Other hardware configurations might work with Net-Net Central, but Acme Packet has verified the configurations listed here.

Linux

- CPU: 4-core 2.1 GHz processor or better
- 16 GB RAM minimum, 24 GB RAM recommended
- 195 GB hard drive minimum, 300 GB recommended
- Oracle Linux 6.2 OVM Template 64 bit
- Linux Fedora Core Linux 13 64 bit

- Red Hat Linux 5.5 64 bit
- Red Hat Linux 6.2 64 bit
- CentOS 6.2 64 bit

OpenSSL

Most Linux distributions include OpenSSL as part of the OS installation. You can check the version on your system by using the following command:

```
openssl version
      OpenSSL 0.9.7d Mar 27 2004
```

Client Requirements

- Internet Explorer versions 9.0 and higher or Mozilla Firefox versions 3.0 and higher
- Flash player compatible with your browser installed locally
- If the server is not part of your DNS domain, the host file on each client must be edited to include the hostname and IP address of the Net-Net Central server. The client host file is usually located in the following directory:

windows\system32\drivers\etc

Setting the Locale

You must set the locale for your Net-Net Central machine prior to running setup.sh.

To set the locale on your machine:

1. Set the locale to UTF-8.
`export LC_ALL=en_US.UTF-8`

Network Manager with Fedora Core 13

Fedora Core 13 installs an application called Network Manager by default. Network Manager is used to configure network connections. It executes automatically when you start your session, and it is visible as an applet icon. You must check your system to determine if Fedora Core 13 installed Network Manager on your system. If installed, you must remove it and then turn on the network services.

To check for and remove Network Manager:

1. Check for Network Manager.
`service NetworkManager status`
2. Shutdown Network Manager.
`service NetworkManager stop`
3. Remove Network Manager using the following command:
`yum remove NetworkManager`

To turn on network services:

```
chkconfig network on
service network start
```

Note: You should also ensure that the option Controlled by Network Manager in Network Configuration is unchecked on your system.

Setting the Maximum Shared Memory in FC13

The default maximum shared memory on Fedora Core 13 is set to 33M by default. Acme Packet recommends setting the maximum shared memory to at least 15% of the total system memory.

See *Before a New Installation* section in the *Net-Net Central 7.3 Installation Guide* for more information.

Device Releases Supported

Net-Net Central Release 7.3M4 supports the following versions of Net-Net OS software. Versions new to this release are in **bold text**.

C/CX-Series

C/CX6.0.0M5, C/CX6.0.0M6, C/CX6.0.0M7, C/CX6.0.0M8

SC/SCX6.1.0M2, SC/SCX6.1.0M3, SC/SCX6.1.0M4, SC/SCX6.1.0M5,
SC/SCX6.1.0M6, SC/SCX6.1.0M7, SC/SCX6.1.0M8, SC/SCX6.1.0M9,
SC/SCX6.1.0M10, SC/SCX6.1.0M11

SC/SCX6.2.0, SC/SCX6.2.0M1, SC/SCX6.2.0M2, SC/SCX6.2.0M3, SC/SCX6.2.0M4,
SC/SCX6.2.0M5, SC/SCX6.2.0M6, SC/SCX6.2.0M7, SC/SCX6.2.0M8,
SC/SCX6.2.0M9, SC/SCX6.2.0M10, SC/SCX6.2.0M11, SC/SCX6.2.0M12

SC/SCX6.2.1F1, SC/SCX6.2.1F2, SC/SCX6.2.1, SC/SCX6.2.1M1

SCX6.2.3

SCX6.2.5F1

SCX6.3.0F1, SCX6.3.0F2, SCX6.3.0, SCX6.3.0M1, SCX6.3.0M2, SCX6.3.0M3,
SCX6.3.0M4, SCX6.3.0M5

SCX6.3.3F1, SCX6.3.3F2, SCX6.3.3F3, SCX6.3.3, SCX6.3.3M1, SCX6.3.3M2,
SCX6.3.3M3

SCX6.3.5F1, SCX6.3.5p4, **SCX6.3.5M1**

SCX6.3.6F1

SCX6.3.7F1 SCX6.3.7F2, SCX6.3.7F3, SCX6.3.7, SCX6.3.7M1, **SCX6.3.7M2**

SCX6.3.9F1, SCX6.3.9, SCX6.3.9M1, SCX/Z6.3.9M2, **SCX/Z6.3.9M3**

SCX/Z6.3.15

SCX6.4.0, SCX6.4.0M1, SCX6.4.0M2, **SCX6.4.0M3**

SCX6.4.6F1, SCX6.4.6F2

SCZ7.0.2F2

SCZ7.0.9F1

SCZ7.1.2M2

LCX1.0, LCX1.1.3F1, LCX1.1.3F3, LCX1.1.3, LCX1.1.3M1, **LCX1.1.3M3**

LCX1.5.0

PCX1.0F1

DCX1.0F1, DCX1.0F2, DCX1.0.0, DCX1.0.0M1

DCZ2.0.0, DCZ2.0.0M1

DCZ2.1.0, DCZ2.1.0M1, DCZ2.1.0M2

DCZ2.2.0

MCX1.2F2, MCX1.2

MCX2.0.0M1, MCX2.0.0M1

MCX3.0.0F1, MCX3.0.0, MCX3.0.0M1, MCX3.0.0p2

ECX/Z6.4F1, ECX/Z6.4.0M1

ECX6.3.7M1

ECX/Z6.4.0M2

D-Series

SD7.0.0, SD7.0.0M1, SD7.0.0M2, SD7.0.0M3, SD7.0.0M4, SD7.0.0M5, SD7.0.0M6,
SD7.0.0M7, SD7.0.0M8, SD7.0.0M9, SD7.0.0M10, SD7.0.0M11, SD7.0.0M12

SD7.0.2F1

SD7.1.0, SD7.1.0M1, SD7.1.0M2, SD7.1.0M3, SD7.1.0M4, SD7.1.0M5, SD7.1.0M6

SD7.2.0F1, SD7.2.0

SD7.2.3F2,SD7.2.3F3

New Features in Release 7.3M4

This section describes the new features in Net-Net Central Release 7.3M4.

Feature documentation and configuration for new model support is found in the *Net-Net Central 7.3 Maintenance Release Guide*.

GUI Improvements to Multi-Instance Elements

GUI improvements have been made to mutli-instance elements in List and ACLI view.

Please refer to the *Net-Net Central 7.3 M-Release Guide* for more informtaion.

Software Licensing

Dialogs for Net-Net Central Licensing have been removed from the Typical/Custom installation and the GUI.

Please refer to the *Net-Net Central 7.3 M-Release Guide* for more informtaion.

SOAP/XML Updates

The following SOAP/XML API will be depreciated in the next major release:

- addDeviceToEMLicense
- removeDeviceFromEMLicense
- getAllAssociatedDevicesInEMLicenses

Please refer to the *Net-Net Central 7.3 M-Release Guide* for more informtaion.

Security Banner Enhancement

The following changes have been made to the Net-Net Central login screen:

- Configurable warning that prompts the user to agree to compliance rules
- Pop-up for custom Terms and Conditions
- Custom warning if compliance box isn't checked

Please refer to the *Net-Net Central 7.3 M-Release Guide* for more informtaion.

Diameter Director Support for Route Manager

Net-Net Route Manager supports the configuration and management of Diameter Director devices.

Please refer to the *Net-Net Central 7.3 M-Release Guide* for more informtaion.

Oracle Linux VM Template

You can install Net-Net Central as part of a virtual machine (VM) if you want to use a virtual environment for your deployment. You can obtain the OVM template from the Acme Packet customer portal site.

You can set up the Net-Net Central VM using Oracle Virtual Machine Manager. OVM transforms your system's hardware resources -including the CPU, RAM, hard disk and network controller- to create a fully functional virtual environment.

Please refer to the *Net-Net Central 7.3 M-Release Guide* for more information.

Audit Log Enhancements

The Audit log now has the ability to sequentially number logs per device and display configuration changes in a comma separated list.

Please refer to the *Net-Net Central 7.3 M-Release Guide* for more information.

Automatic XSD Loading

Net-Net Central automatically attempt to load the XSD of a C-Series device in the event the release was not supported by your version of Net-Net Central. New configuration elements can be configured from the List and ACLI view in the event that your SBC version is not supported a Net-Net Central release.

Please refer to the *Net-Net Central 7.3 M-Release Guide* for more information.

Fault Email Severity Settings

The Clear event is no longer available from the Severity settings drop down list. You can set the Notify on clear option, in addition to Severity, when adding or editing a fault email recipients. You can check the status of Notify on clear for existing recipients via the column on the Fault email recipients table.

Please refer to the *Net-Net Central 7.3 M-Release Guide* for more information.

Northbound Fault Management

Net-Net Central Northbound Fault Management allows you to configure destination receivers to receive forwarded traps in either Net-Net Central or ITU X.733 standard formats. You can specify selected traps on devices using the ITU X.733 format in the Add/Edit trap receiver dialog. A maximum of 10 trap receivers may be configured at once.

Please refer to the *Net-Net Central 7.3 M-Release Guide* for more information.

Problems Resolved

The following table lists the problems resolved in Net-Net Central, release version Release 7.3M4.

Ticket	Defect Number	Description
59664	PD00051291	Events in Fault Management cannot be deleted after some migration scenarios.
59819	PD00051118	Some special characters are not supported in the local policy next hop.
N/A	PD00051138	SLB model is missing an element in certain releases, which results in a configuration modification failure.
N/A	PD00050479	For Active Directory or RADIUS external authentication, users cannot delete other users regardless of the correct permissions.
60049	PD00051334	At times, configuration modifications do not persist when the transactional sequence identifier format is returned in a different format by the database.
N/A	PD00050081	Net-Net Central sometimes shows separate clear alarms for "Gateway unreachable" clear alarm, and other times will clear the original fault alarms.
57781	PD00049109	Host route netmask is greyed out on systems using DCz2.1.0.
58381	PD00049598	Configuring a large interval of days to purge Audit Logs does not purge at the specefied interval, resulting in daily purges.
57029	PD00049254	The Alarms and Events CSV is in a different format than the interface stats CSV file.
57435	PD00049108	When Fault management trap detection is configured for the default of 2 minutes, intermediate event state transactions are removed.
57596	PD00048298	Net-Net Central cannot load configuration that allows carriage returns in descriptions.
58652	PD00049957	Session agent no longer defaults to SIP upon creation.
59185/ 59547	PD00050452	Time zone DST data was out of date with the most recent settings.

Known Issues

The following table lists Net-Net Central Release 7.3M4 known issues:

Description	Workaround
The mode of a Service Provider device cannot be set after setup in Trunk Manager.	Configure the mode of a service provider device during the setup process.
Software upgrade work orders on 4500 platforms that have SCZ7.1.2/M1/M2 images installed result in corrupted bootparams.	Adding a Pause after Edit boot param, then Reboot, will avoid the issue.
"i" help is not working inside the panel for single sub-elements in generated models (SCZ7.1.2M2 and ECX6.4.0M2).	N/A
Lawful intercept cannot be configured from the Net-Net Central GUI.	Use the Net-Net Central SOAP client or ACLI interface on the device to configure Lawful Intercept.
NNC 7.3 allows carriage returns in the descriptions of configuration elements. This causes NNC to fail when reloading configuration.	Use the ACLI on the SBC to remove the carriage returns in your configuration
Kerberos Choice 2 may not configure properly.	Use Kerberos Choice 1 when configuring External AAA.
When multiple Net-Net Central user groups are associated with an AAA group, the NNC user groups are sorted and authenticated in alphabetical order.	Acme Packet recommends that AAA groups be specifically named to ensure a one-to-one relationship with existing groups in Net-Net Central.
When Authentication Type is set to None (Security Manager > User management > Authentication), the value of External group name (Security Manager > User management > Groups > Edit), will have no effect.	Set the Authentication type (Security Manager > User management > Authentication) to RADIUS or Active Directory.

Limitations

Net-Net Central Release 7.3M4 has the following limitations:

- **Report Manager**
 - It is recommended to limit the number of configured devices to 10 or fewer when running Report Manager.
 - Pivot report degradation in performance is observed as more content is added and maintained in the raw data tables.
 - Scheduled reports sent via e-mail may not render correctly.
- **DB Migration**
 - Database migration is not supported from EMS6.x to NNC7.3M4 and above. Externally migrate data from EMS6.x to NNC7.3 and install NNC7.3 to be able to migrate data to NNC7.3M4 and above.
 - No migration of events and alarms occurs from EMS6.x to NNC 7.3M3 and above.
 - No migration activity occurs for existing 7.3x events and alarms.
- **Clustering**
 - When setting up a Net-Net Central cluster, you cannot use the DNS names of host machines. Use only the IP address of the machines.
- **Trunk Manager**
 - Trunk Manager supports the following hardware only:
 - Net-Net 3800
 - Net-Net 4500
 - Net-Net Enterprise Session Director-Server Edition (ESD-SE)
 - Net-Net Enterprise Session Director-Virtual Machine Edition (ESD-VME)
 - Trunk Manager supports the following Net-Net SBC operating systems only:
 - E-Cx6.4.0F1 for Acme Packet hardware platforms
 - E-Cz6.4.0F1 for ESD-SE and ESD-VME
 - Service Provider SBCs (SP-SBCs) support up to 2000 established SIP Trunks using Trunk Manager.