

# **Oracle® Communications Session Border Controller**

Release Notes

Release S-CZ7.1.2

*Formerly Net-Net Session Director*

May 2015

Copyright ©2015, 2013 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 about 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 unless otherwise set forth in an applicable agreement between you and Oracle. 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, except as set forth in an applicable agreement between you and Oracle.

# About this Guide

## Overview

---

The *Oracle Communications Session Border Controller Release Notes* provides the following information when applicable:

- An overview of the new features available
- An overview of the management enhancements
- An overview of the accounting enhancements
- A summary of changes to the Acme Command Line Interface (ACLI)
- A summary of known issues and fixed defects
- Documentation updates

If any of these sections does not appear in the document, then there were no changes to summarize in that category for that specific release.

## Supported Platforms

Release Version S-CZ7.1.2 is supported on the Acme Packet 4500 and Acme Packet 6300 series platforms.

## Related Documentation

---

The following table lists the members that comprise the documentation set for this release:

goldF18 sCJF1	Document Description
Acme Packet 4500 System Hardware Installation Guide	Contains information about the components and installation of the Acme Packet 4500 system.
Acme Packet 6300 Hardware Installation Guide	Contains information about the components and installation of the Acme Packet 6300 system.
Release Notes	Contains information about the current documentation set release, including new features and management changes.
ACLI Configuration Guide	Contains information about the administration and software configuration SBC.
ACLI Reference Guide	Contains explanations of how to use the ACLI, as an alphabetical listings and descriptions of all ACLI commands and configuration parameters.

Document Name	Document Description
Maintenance and Troubleshooting Guide	Contains information about Net-Net SBC logs, performance announcements, system management, inventory management, upgrades, working with configurations, and managing backups and archives.
MIB Reference Guide	Contains information about Management Information Base (MIBs), Enterprise MIBs, general trap information, including specific details about standard traps and enterprise traps, Simple Network Management Protocol (SNMP) GET query information (including standard and enterprise SNMP GET query names, object identifier names and numbers, and descriptions), examples of scalar and table objects.
Accounting Guide	Contains information about the SBC's accounting support, including details about RADIUS accounting.
HDR Resource Guide	Contains information about the SBC's Historical Data Recording (HDR) feature. This guide includes HDR configuration and system-wide statistical information.
Administrative Security Essentials	Contains information about the SBC's support for its Administrative Security license.

## Revision History

This section contains a revision history for this document.

Date	Revision Number	Description
July 18, 2013	Revision 1.00	<ul style="list-style-type: none"> <li>Initial Release</li> </ul>
July 25, 2013	Revision 1.01	<ul style="list-style-type: none"> <li>Added Fiber SFP Support Known Issue</li> </ul>
July 26, 2013	Revision 1.02	<ul style="list-style-type: none"> <li>Added note about QoS and IPSec NIUs as unsupported on Net-Net 4500</li> </ul>
July 29, 2013	Revision 1.03	<ul style="list-style-type: none"> <li>Adds patch release when initial ETC NIU SFP known issue is resolved</li> <li>Adds known issue about clear-Ethernet SFP NIU support</li> </ul>
September 19, 2013	Revision 1.04	<ul style="list-style-type: none"> <li>Updates caveat and known issue section</li> <li>Updates bootloader warning</li> <li>Updates Hardware Platform Support section</li> </ul>
September 26, 2013	Revision 1.05	<ul style="list-style-type: none"> <li>Adds Transcoding/ link redundancy caveat</li> </ul>
December 4, 2013	Revision 1.06	<ul style="list-style-type: none"> <li>Adds Transcoding / SRTP caveat</li> </ul>
January 9, 2014	Revision 1.07	<ul style="list-style-type: none"> <li>Adds link redundancy caveat</li> <li>Adds ping to non-local subnet caveat</li> </ul>
June 12, 2014	Revision 1.08	<ul style="list-style-type: none"> <li>Adds MGCP and SRR Caveats</li> </ul>
March 3, 2015	Revision 1.09	<ul style="list-style-type: none"> <li>Adds WebGUI caveat</li> </ul>

Date	Revision Number	Description
April 3, 2015	Revision 1.10	<ul style="list-style-type: none"><li>• Adds Supported Hardware known issue</li></ul>
May 12, 2015	Revision 1.11	<ul style="list-style-type: none"><li>• Adds Behavioral Changes section</li><li>• Adds Accounting note to Behavioral Changes section</li></ul>



# Net-Net SBC Version S-CZ7.1.2 Release Notes

## Introduction

---

The *Net-Net OS Version S-CZ7.1.2 Release Notes* provide the following information about Net-Net Session Director:

- An overview of the new features available
- A summary of changes to the Acme Packet Command Line Interface (ACLI)
- A summary of known issues and caveats

## Hardware Platform Support

This release of the Net-Net SBC software supports the Net-Net 4500 and Net-Net 6300 hardware platforms. The Net-Net 4250 and the Net-Net 3820 are unsupported.

As of release S-CZ7.1.2M1, the Net-Net 7150, Net-Net 7250, Net-Net 7350 blade are supported for the Net-Net SR application.

## Included Releases

The following baselines from previous Net-Net SBC releases appear in the Version S-CZ7.1.2:

- 6.2.0M11
- 6.3.0M2
- 6.3.3M2
- 6.4.0 GA
- 7.0.2f2p2

Current SPL engine version: C3.0.0

## Net-Net 4500 Bootloader Prerequisites

---

Customers planning to run S-CZ7.1.2 on Net-Net 4500 hardware must first upgrade their bootloader to the image dated July 03, 2013 or after.

The bootloader upgrade includes applying the following two files:

- bootrom.gz
- stage2.gz

You must verify that your Net-Net 4500 has been upgraded to the July 03, 2013 bootloader with the `show version boot` CLI command.

```
ACMEPACKET# show version boot
```

```
Bootloader Info
```

```
-----
```

Stage 1: Jul 3 2013 13: 16: 30

Stage 2: Jul 3 2013 13: 16: 30

If the above information is not printed on your terminal, do NOT proceed with your upgrade. Contact TAC for instructions on how to continue.

---

**Caution: As you upgrade your bootloader in preparation to run S-CZ7.1.2, do not place the stage2.gz file (or any file named stage2.gz) onto /code directory.**

---

## Version S-CZ7.1.2 Feature Licensing

Features and capacity are enabled by adding licenses to the Net-Net SBC.

The licensing mechanism configuration and show features command remain unchanged from previous versions of the SBC software. The following list highlights notable new licensing constraints:

- The Net-Net SBC supports 1000 session license increments allowing you to increase sessions with a finer granularity than in previous versions
- The Net-Net SBC supports session licenses ranging from 1000 to 80,000 sessions in this release.
- SRTP and IPSEC require licenses.
- SRTP is licensed in 1000 session increments.
- IPSEC is licensed in 1000 session increments.

## Access Control Endpoint Classification Capacity and DoS

The following capacities are for both IPv4 and IPv6 endpoints:

Hardware	Software	Denied	Trusted	Media	Untrusted	Dynamic Trusted	ARP
Net-Net 6300	7.1.2	32768	16384	160000	16384	500000	16386
Net-Net 4500	7.1.2	8192	4096	64000	4096	250000	4104

## Version S-CZ7.1.2 New Features

This section describes the new features available in Version S-CZ7.1.2.

**Note:** System session capacity and performance are subject to variations between various use cases (e.g. call models) and major software releases

### SIPREC

The Net-Net SBC supports SIPREC protocol which is the protocol used to interact between a Session Recording Client (SRC) (the role performed by Net-Net ESD) and a Session Recording Server (SRS) (a 3rd party call recorder or the Net-Net ISR's Record and Store Server (RSS)). It controls the recording of media transmitted in the context of a communications session (CS) between multiple user agents.



SIPREC provides a selective-based call recording solution that increases media and signaling performance on 3rd party call recording servers, more robust failovers, and the ability to selectively record.

First availability: S-CZ7.0.2F2

Feature Description Location: ACLI Configuration Guide, Call Traffic Monitoring Chapter

## Transcoding

Transcoding is the ability to convert between media streams that are based upon disparate codecs. The Net-Net SBC supports IP-to-IP transcoding for SIP sessions, and can connect two voice streams that use different coding algorithms with one another.

This ability allows providers to:

- Handle the complexity of network connections and the range of media codecs with great flexibility
- Optimize bandwidth availability by enforcing the use of different compression codecs
- Normalize traffic in the core network to a single codec
- Enact interconnection agreements between peer VoIP networks to use approved codecs

By providing transcoding capabilities at the network edge rather than employing core network resources for the same functions, the Net-Net SBC provides cost savings. It also provides a greater degree of flexibility and control over the codec(s) used in providers' networks and the network with which they interconnect.

In addition, placing the transcoding function in the Net-Net SBC and at the network edge means that transcoding can be performed on the ingress and egress of the network. The Net-Net SBC transcodes media flows between networks that use incompatible codecs, and avoids back-hauling traffic to a centralized location, alleviating the need for multimedia resource function processors (MRFPs) and media gateways (MGWs) to support large numbers of codecs. This maximizes channel density usage for the MRFPs and MGWs so that they can reserve them for their own specialized functions.

First availability: S-CZ7.1.2

Feature Description Location: ACLI Configuration Guide, Transcoding Chapter

## Palladion Mediation Engine

The Palladion Mediation Engine is a platform that collects SIP, DIAMETER, DNS, ENUM, and MGCP protocol message traffic received from Palladion Probes. A Probe is software run on COTS hardware; it is deployed within a network and collects packets from span/monitor ports on Ethernet switches, or receives IP-in-IP tunneled packet-traces from Acme Packet SBCs. A Probe takes the protocol packets, prepends a receive timestamp and other information, encapsulates the packets, and passes them to the Palladion via a secure connection. After receiving protocol traffic from a Probe, the Palladion stores the traffic in an internal database, and analyzes aggregated data to provide comprehensive multi-level monitoring, troubleshooting, and interoperability information.

First availability: S-CZ7.1.2

Feature Description Location: ACLI Configuration Guide, Call Traffic Monitoring Chapter

### **Conditional Codec Policies**

Egress SDP manipulation can now be conditionally manipulated based upon incoming SDP. Once incoming SDP has been processed by inbound codec policies it can be subjected to logical tests to determine any outbound manipulation.

First availability: S-CZ7.1.2

Feature Description Location: ACLI Configuration Guide, Transcoding Chapter

### **SIP Monitor and Trace**

The SIP monitoring and tracing feature provides the ability to set filters on the Net-Net SBC for filtering SIP session data, and displaying the results in a Web-based graphical user interface (GUI). You can use the data for the purpose of troubleshooting your Net-Net SBC(s).

First availability: S-CZ7.1.2, Call Traffic Monitoring, Web-based GUI, and Web Server Configuration chapters.

Feature Description Location: ACLI Configuration Guide, Call Traffic Monitoring Chapter

## **VoLTE Features**

### **Emergency Access Transfer Function**

The Emergency Access Transfer Function (EATF) is a logical, functional service defined in 3GPP TS 23.167, *IP Multimedia Subsystem (IMS) Emergency Sessions*, and TS 23.237, *IP Multimedia Subsystem (IMS) Service Continuity; Stage 2*. The EATF, essentially a special-purpose B2BUA, anchors emergency calls to enable access transfer between packet-switched and circuit-switched networks during eSR-VCC procedures when the LTE equipment is moving outside LTE coverage to either a 2G or 3G carrier network. Similar to the Access Transfer Control Function (ATCF) and ATGW (Access Transfer Gateway), the EATF is always located in the visited network when the user equipment is roaming.

First availability: S-CZ7.1.2

Feature Description Location: ACLI Configuration Guide, IMS Chapter

### **Enhancement to eSRVCC**

The Net-Net SBC has new processing for STN-SR and C-MSISDN in eSRVCC handoff scenarios.

First availability: S-CZ7.1.2

Feature Description Location: ACLI Configuration Guide, IMS Chapter, Enhanced eSRVCC Call Continuity section.

### **IMS Restoration Procedures**

When functioning as a P-CSCF within an IMS network, the Net-Net SBC conforms to Restoration Procedures as defined in 3GPP TS 23.380, *IMS Restoration Procedures*, and 3GPP TS 24.229, *IP Multimedia Call Control Protocol Based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP)*.

First availability: S-CZ7.1.2

Feature Description Location: ACLI Configuration Guide, IMS Chapter

### **AAR Message Optimizations**

The Net-Net SBC provides further optimizations on when to send AAR messages.

First availability: S-CZ7.1.2

Feature Description Location: ACLI Configuration Guide, External Policy Servers Chapter, Optimization of AAR Messages section

### **Network Provided Location Information Support**

The Net-Net SBC supports NPLI and MSISDN information by receiving the 3GPP-User-Location-Info AVP, MSISDN AVP, and RAT-Type AVP in AAA messages. Based upon the call state, the Net-Net SBC populates the P-Access-Network-Info and P-Subscription-MSISDN headers accordingly in outbound INVITES.

First availability: S-CZ7.1.2

Feature Description Location: ACLI Configuration Guide, External Policy Servers Chapter

### **Diameter Rx Charging Correlation**

IMS is based on a distributed architecture that can result in multiple network entities becoming involved in providing access and services. Operators require the ability to charge for the access and services as they provide. This necessitates coordination among the network entities (for example, SIP proxies), which includes correlating charging records generated from different entities that are supporting the same session.

Feature Description Location: ACLI Configuration Guide, IMS Chapter

### **System Level Features**

Release Version S-CZ7.1.2 introduces several system-level feature changes.

### **SMP-Aware Task Load Limiting**

Release version Version S-CZ7.1.2 employs a method of determining aggregate load in its SMP environment so that resources may be evenly spread across all CPUs and applications can decrease their load when necessary. In turn, traffic may be dropped or rejected depending on the application to reduce the CPU load to an acceptable value.

Feature Description Location: Maintenance and Troubleshooting Guide, Performance Management Chapter

### **Persistent Log Files**

Log files are used to monitor system events.

Net-Net OS Version S-CZ7.1.2 supports persistent log files on the Net-Net 6300. After a reboot, the logs are still available on the file system, subject to certain constraints. The logs are stored in /opt/logs by default. Log files are not persistent on the Net-Net 4500 unless a storage device is installed.

### **New Log Files**

Along with new hardware and tasks, there are new log files in Version S-CZ7.1.2 on the Net-Net 4500 and Net-Net 6300.

These new log files are:

- log.ppm

- log.fgTimer
- kernel.log
- dmesg.log
- log.octCtrl
- log.octData
- log.octBoot
- log.octeon
- log.ezdrv

## Feature Licensing

Features and capacity are enabled by adding licenses. Version S-CZ7.1.2's licensing mechanism is identical to the previous versions. The configuration and show features command remain unchanged. The following list highlights notable licensing constraints:

- Version S-CZ7.1.2 supports 1000 session license increments allowing you to increase sessions with a finer granularity than in previous versions.
- Version S-CZ7.1.2 supports session licenses ranging from 1000 to 80,000 sessions in this release.
- SRTP and IPSEC require licenses.
- SRTP is licensed in 1000 session increments.
- IPSEC is licensed in 1000 session increments.

## DoS Configuration

DoS functionality is configured uniquely per platform in the media-manager-config. The following parameters are used in Version S-CZ7.1.2. They are entered in bytes per second:

```
max-untrusted-si gnal i ng
mi n-untrusted-si gnal i ng
max-si gnal i ng-bandwi dth
arp-msg-bandwi dth
```

The following DoS configuration parameters are only valid on a Net-Net 4500 running Version S-CZ7.1.2 software:

```
app-si gnal i ng-bandwi dth
fragment-msg-bandwi dth
```

The following parameters are unused on the Net-Net 6300 and Net-Net 4500:

```
max-untrusted-packet-rate
max-trusted-packet-rate
max-arp-packet-rate
```

## File System Maintenance

The underlying file system configuration is new in Version S-CZ7.1.2. A section on File System Maintenance will appear in the Net-Net Version S-CZ7.1.2 Maintenance and Troubleshooting guide.

## Management Changes Summary

---

This section summarizes ACLI, SNMP, and RADIUS accounting management changes for Version S-CZ7.1.2. Changes appearing in this document have been added since the availability of Net-Net S-CX6.4.0.

## ACLI Command Changes

This section summarizes the ACLI command changes that appear in release Version S-CZ7.1.2.

### Added ACLI Commands

Availability	Change	Description
nnSCZ702	show xcode	Adds command for transcoding hardware and application transactions
	show sipd codecs	Adds command to display codec usage per realm
	show rec redundancy	Adds argument to display redundancy statistics for SIPREC
	show platform	Adds new command to display platform related information including CPU hardware, memory information, and CPU load.
	show interface-mapping	Adds new command to quickly display the configured physical interfaces
	show queues	Adds new command to show transport and application queue status
	show sfps	Adds new command to display SFP EEPROM information
	show power-supply-rev	Adds new command to display operating state of power supplies (only valid on Net-Net 6300)
	show processes top	The show processes top command displays realtime updates of per-process CPU utilization.
	package-logfiles	Zips all log files into one .zip
	package-crashfiles	Zips all crash files into one .zip
	delete-logfiles	Deletes all closed log files.
	delete-crashfiles	Deletes all closed crash files.
	halt	Used to stop system processing and ready the system for a clean shut down.
	mount	Used to start the file system, in part or whole.
	unmount	Used to stop the file system, in part or whole.
nnSCZ712	show about	Modifies command to Include all third party licenses and legal information.
	show sipd srvc	Updates command to include EATF Session information

Availability	Change	Description
	<b>show rec</b>	<b>Adds new command to display SIP REC statistics</b>
	<b>capture</b>	<b>Adds new command to enabled SIP Monitor and Trace dynamic filters</b>

### Modified ACLI Commands and parameters

reboot - New fast argument is not applicable to the Net-Net SBC running on Net-Net 4500 or Net-Net 6300 platforms.

show mbed errors - Modifies command to include transcoding statistics

show arp - Modifies command to consolidate ARP table information via info and statistics argument.

show buffers - Modifies output.

show interfaces - Modifies output. (show interfaces brief does not change)

show media classify - Modifies output.

show media network - Modifies output.

show processes - Modifies output.

show temperature - Modifies output.

show voltage - Modifies output.

show prom-info - Adds more arguments to display PROM info for valid devices.

format - Adds new options to format system, and data disks.

timezone-set - Command now invokes a wizard to set the timezone.

packet-trace - Syntax requires remote argument: `packet-trace remote` to enable existing packet trace functionality. `packet-trace local` is used for.

check-space-remaining - add arguments to accommodate new file system configuration.

show about - Displays all third party licenses and legal information.

maintenance - The maintenance command removes ftp options because FTP is unsupported by the system.

### Unsupported ACLI Commands

stack—not supported.

check-stack—not supported.

### ACLI Configuration Changes

This section summarizes the ACLI command changes that first appear in release Version S-CZ7.1.2.

## Added ACLI Parameters

Availability	Change	Description
nnSCZ702	system > media-manager > codec-policy <ul style="list-style-type: none"> <li>name</li> <li>allow-codecs</li> <li>add-codecs-on-egress</li> <li>order-codecs</li> <li>force-ptime</li> <li>packetization-time</li> <li>dtmf-in-audio</li> </ul>	Used to configure transcoding on the Net-Net SBC.
	system> media-manager > realm-config <ul style="list-style-type: none"> <li>codec-policy</li> <li>codec-manip-in-realm</li> <li>codec-manip-in-network</li> </ul>	Used to configure transcoding on the Net-Net SBC.
	system > session-router > media-profile <ul style="list-style-type: none"> <li>subname</li> <li>parameters</li> </ul>	Used to configure transcoding on the Net-Net SBC.
nnSCZ702	system > session-router > session-recording-server <ul style="list-style-type: none"> <li>name</li> <li>description</li> <li>realm</li> <li>mode</li> <li>destination</li> <li>port</li> <li>transport-method</li> <li>ping-method</li> <li>ping-interval</li> </ul>	Used to configure SIPREC on the Net-Net SBC.
	system > session-router > session-recording-group <ul style="list-style-type: none"> <li>name</li> <li>description</li> <li>strategy</li> <li>simultaneous-recording-servers</li> <li>session-recording-servers</li> </ul>	Used to configure transcoding on the Net-Net SBC.
	system> media-manager > realm-config <ul style="list-style-type: none"> <li>session-recording-server</li> <li>session-recording-required</li> </ul>	Used to configure transcoding on the Net-Net SBC.
	system > session-router > session-agent <ul style="list-style-type: none"> <li>session-recording-server</li> <li>session-recording-required</li> </ul>	Used to configure transcoding on the Net-Net SBC.
	system > session-router > session-agent <ul style="list-style-type: none"> <li>session-recording-server</li> <li>session-recording-required</li> </ul>	Used to configure transcoding on the Net-Net SBC.
	system > session-router > session-agent <ul style="list-style-type: none"> <li>session-recording-server</li> <li>session-recording-required</li> </ul>	Used to configure transcoding on the Net-Net SBC.

nnSCZ712	system > session-router > sip-config • eatf-stn-sr	Enables EATF functionality
	system > session-router > sip-config • atcf-stn-sr	Enables ATCF functionality with regard to
	system > session-router > sip-interface • pcscf-restoration	Used to configure IMS restoration procedures.
	system> media-manager > realm-config • default-location-string	Enables Network Provided Information Support for VoLTE.
	• system > system-config > comm-monitor • state • sbc-grp-id • tls-profile • qos-enable • monitor-collector	Enables Palladion Mediation Engine
	system > system-config > comm-monitor > monitor-collector • address • port • network-interface	



---

<pre>system &gt; session-router &gt; filter- config • name • address • user</pre>	Enables SIP Monitor and Trace
<pre>system &gt; session-router &gt; sip- monitoring • state • monitoring-filters • interesting-events • trigger-window</pre>	
<pre>system &gt; session-router &gt; sip- monitoring &gt; interesting-events • type • trigger-threshold • trigger-timeout</pre>	
<pre>system &gt; session-router &gt; session- agent • monitoring-filters</pre>	
<pre>system &gt; media-manager &gt; realm- config • monitoring-filters</pre>	
<pre>system &gt; system &gt; web-server- config • state • inactivity-timeout • http-state • http-port • https-state • https-port • tls-profile</pre>	Enables web GUI for SIP Monitor and Trace

---

## Deprecated ACLI Parameters

The following ACLI parameters are deprecated. Do not use them:

```
configure terminal > system > network-interface > add-ftp-ip
configure terminal > system > network-interface > remove-ftp-ip
```

## Modified ACLI Parameters

The following ACLI parameters are modified:

```
configure terminal > media-manager > realm-config > generate-UDP-
checksum
```

When an ETC phy card is installed in the system, the feature is enabled by default and the parameter is not visible on the ACLI.

```
configure terminal > system > phy-interface > mac-filtering
```

When an ETC phy card is installed in the system, the parameter is not visible on the ACLI.

## Application SNMP Changes

This section summarizes the Application SNMP/MIB changes that appear in Net-Net SBC Version S-CZ7.1.2.

Availability	Changes	MIB Details	Description
S-CX6.3.7		<b>Transcoding MIBS</b>	
	Realm Stats table in ap-codec.mib	<b>apCodecRealmStatsEntry</b> Includes: <ul style="list-style-type: none"> <li>• apCodecRealmCountOther</li> <li>• apCodecRealmCountPCMU</li> <li>• apCodecRealmCountPCMA</li> <li>• apCodecRealmCountG722</li> <li>• apCodecRealmCountG723</li> <li>• apCodecRealmCountG726-16</li> <li>• apCodecRealmCountG726-24</li> <li>• apCodecRealmCountG726-32</li> <li>• apCodecRealmCountG726-40</li> <li>• apCodecRealmCountG728</li> <li>• apCodecRealmCountG729</li> <li>• apCodecRealmCountGSM</li> <li>• apCodecRealmCountILBC</li> <li>• apCodecRealmCountAMR</li> <li>• apCodecRealmCountEVRC</li> <li>• apCodecRealmCountH261</li> <li>• apCodecRealmCountH263</li> <li>• apCodecRealmCountT38</li> <li>• apCodecRealmCountAMRWB</li> </ul>	Additional per-realm statistics for codecs
	Realm Stats table in ap-codec.mib	<b>apTranscodingRealmStatsEntry</b> Objects: <ul style="list-style-type: none"> <li>• apCodecRealmSessionsTransparent</li> <li>• apCodecRealmSessionsTransrated</li> <li>• apCodecRealmSessionsTranscoded</li> </ul>	Objects to identify the security certificate installed locally on the Net-Net SBC and its expiration time.
S-CZ7.0.2	Object group in ap-smgmt.mib	<b>apSysMgmtMIBGeneralObjects</b> <ul style="list-style-type: none"> <li>• apSysXCodeCapacity</li> <li>• apSysXCodeAMRCapacity</li> <li>• apSysXCodeAMRWBCapacity</li> <li>• apSysXCodeEVRCapacity</li> <li>• apSysXCodeEVRCBCapacity</li> </ul>	The following VARBINDs are used in Transcoding related traps. They may not be polled and retrieved using an SNMP GET.
	Object Group in ap-usbcsys.mib	<b>Multicore Monitoring MIB</b> <ul style="list-style-type: none"> <li>• apUsbcSysModule</li> <li>• apUsbcSysMIBObjects</li> <li>• apUsbcSysObjects</li> <li>• apUsbcSysCpuUtilAll</li> <li>• apUsbcSysCpuCount</li> <li>• apUsbcSysCpuSpeedMHz</li> <li>• apUsbcSysMemSzMB</li> <li>• apUsbcSysMemSzGB</li> <li>• apUsbcSysAppMemUtil</li> <li>• apUsbcSysKernelMemUtil</li> <li>• apUsbcSysMyBogoMips</li> <li>• apUsbcSysAllBogoMips</li> <li>• apUsbcSysCpuTblObjects</li> <li>• apUsbcSysCpuTable</li> <li>• apUsbcSysCpuEntry</li> <li>• apUsbcSysCpuNum</li> <li>• apUsbcSysCpuUtil</li> </ul>	A variety of statistics that report information on the CPUs/Cores within the Net-Net 6300 are available via the ap-usbcsys.mib MIB.

## Net-Net 6300 Environmental Monitoring via SNMP

---

### Power Supply Monitoring

The Net-Net 6300 apEnvMonPowerSupplyObjects contains a status table that lists both power supplies and their states. This table is similar to the Net-Net 4500's apEnvMonPowerSupplyStatusTable.

Relevant object definitions and values are found at OID .1.3.6.1.4.1.9148.3.3.1.5

### Voltage Monitoring

The Net-Net 6300 apEnvMonVoltageObjects contains a status table that lists system voltages. This table is similar to the Net-Net 4500's apEnvMonPowerSupplyStatusTable. A new voltage type appears under the apEnvMonVoltageStatusType attribute to accommodate the 0.9 voltage monitors.

Relevant object definitions and values are found at OID .1.3.6.1.4.1.9148.3.3.1.2

### Fan Monitoring

The Net-Net 6300 has 3 slots with 5 fans each, totaling 15 fans. The apEnvMonFanStatusDescr indicates the fan number its index refers to. These descriptions read: Slot-x, Fan-y to refer to the slot and fan number.

Relevant object definitions and values are found at OID .1.3.6.1.4.1.9148.3.3.1.4.1

### Temperature Monitoring

The Net-Net 6300 has numerous temperature sensors. They are either discrete components or embedded in voltage monitors and power supplies. The apEnvMonTemperatureStatusDescr object will describe the component that is reporting the related temperature.

Relevant object definitions and values are found at OID .1.3.6.1.4.1.9148.3.3.1.3.1

### Interface Card Monitoring

The Net-Net 6300 reports PHY card information using the apEnvMonCardObjects. The apEnvMonCardObjects object will describe the component, type, health score, state, and redundancy state.

Relevant object definitions and values are found at OID .1.3.6.1.4.1.9148.3.3.1.7.1

### Unsupported SNMP Objects on Net-Net 6300

- apSysMgmtPhyUtilTable — The media interface % utilization feature is not supported on the NN6300.
- apEnvMonPhyCardObjects — This object has been deprecated and will not be used for the Net-Net 6300 platform.

## Accounting VSA Changes

---

There are no VSA changes for Net-Net OS Version S-CZ7.1.2.

## Caveats and Known Issues

---

### Known Issues

**IMS-AKA**

Client registration refresh requests in an IMS-AKA access scenario do not function as expected causing registered users to timeout.

IMS-AKA over UDP fails with packet sizes approximately of 1850.

**SIP TLS**

When running SIP over TLS, the Net-Net SBC must be configured with 1 transport thread. On the Net-Net 6300, you must add the transport-threads=1 option to the system-config. This configuration is performed as follows:

```
ACMEPACKET# configure terminal
ACMEPACKET(configure)# system
ACMEPACKET(system)# system-config
ACMEPACKET(system-config)# select
ACMEPACKET(system-config)# options +transport-threads=1
ACMEPACKET(system-config)# done
```

Save and activate your configuration per standard procedure.

Note that no configuration change is required on the Net-Net 4500.

This limitation has been removed as of S-CZ7.1.2M1. Do not make this configuration on the Net-Net 6300.

**Manually Keyed IPSec**

Manually keyed IPSec can not be used in conjunction with IPv6.

When using manually keyed IPSec on the Net-Net 4500, the Net-Net SBC does not pass fragmented UDP packets on the following physical interfaces: S0P1, S1P0, S1P1.

The above limitation has been removed as of S-CZ7.1.2M1.

When the security-association configuration element is configured as an IPv6 SA, it is not RTC enabled.

The transport-protocols parameter in security-policy configuration element is set to the default of all, regardless of configuration.

**Fiber SFP Support**

The ETC NIU does not support fiber SFPs in the initial release. This known issue is fixed as of S-CZ7.1.2p1.

The 4 x 1 Gig SFP NIU (No QoS, No Encryption) does not support fiber SFPs in the initial release. This known issue is fixed as of S-CZ7.1.2M1.

**Supported Hardware**

Acme Packet 3820 and 4500 hardware with BoardRev: 3.00 will not load the licenses that are expected to appear. As a workaround, reinstall licenses manually after reboot with the original key. Use the show version boot command and look to the Mainboard Info section, BoardRev: attribute.

This known issue is fixed as of S-CZ7.1.2M3p6.

**Caveats****Transcoding - general**

Transcoding is only supported on the Net-Net 6300 platform

Only SIP signaling is supported with transcoding

Codec policies can only be used with realms associated with SIP signaling  
 Link redundancy feature is NOT supported with Transcoding NIU  
 Transcoding is not available in conjunction with SRTP

<b>T.38 Fax Transcoding</b>	T.38 Fax transcoding available for G711 only at 10ms, 20ms, 30ms ptime Fax codec policy based on D7.0 fax transcoding policy Pooled Transcoding for Fax is unsupported
<b>DTMF Interworking</b>	RFC 2833 interworking with H.323 is unsupported SIP-KPML to RFC2833 conversion is not supported for transcoded calls
<b>High Availability</b>	When the Net-Net 6300 experiences call rates over 650 CPS, SIP and/or MBCD may fail to synchronize
<b>H.248</b>	The Border Gateway and H.248 functionality is unsupported.
<b>H.323 Signaling Support</b>	The h323-stacks configuration element is not RTC-enabled. After any configuration changes are made to this element a reboot activate is required. The above limitation has been removed as of S-CZ7.1.2M1. If H.323 and SIP traffic are run in the same Net-Net 6300 platform, each protocol (SIP, H.323) should be configured in its own separate realm.
<b>Media Hairpinning</b>	Media hairpinning is not supported for hair-pin/spiral call flows involving both H.323 and SIP protocols.
<b>Archive Logs</b>	Archiving log files is unsupported on Net-Net 4500 platforms without a HDD installed
<b>HMR action on Call-ID</b>	HMR operations on the Call-ID: header are deprecated
<b>MSRP</b>	MSRP B2BUA is not supported
<b>Lawful Intercept</b>	Lawful Intercept is supported for the X123 protocol only
<b>SFTP Support</b>	The Net-Net SBC only supports SFTP; FTP access has been removed
<b>Fragmented Ping Support</b>	The Net-Net SBC does not respond to inbound fragmented ping packets
<b>Physical Interface RTC Support</b>	After changing any Physical Interface configuration element parameters, a system reboot is required

<b>Link redundancy support</b>	The link redundancy feature is unsupported.
<b>Session Recording for Replication</b>	Session Recording for Replication (SRR) is unsupported.
<b>MGCP</b>	MGCP signaling is unsupported.
<b>Ping to non-local subnet</b>	Sending ping messages from any media interface to an address on a different subnet than where the ping source address exists is unsupported.
<b>WebGUI</b>	The web server is disabled.
<b>Behavioral Changes</b>	
<b>Accounting</b>	For users upgrading from S-CX6.x.x or prior, all timestamp values in CDR records (RADIUS and local CDRs) are now created in mixed-case.

## Security and Hardware Requirements and Caveats

---

Security Feature	Detail/Caveat
<b>TLS</b>	TLS is supported on both the Net-Net 4500 and Net-Net 6300 platforms with SSM cards. The Net-Net 4500 requires an SSM2 card and the Net-Net 6300 requires an SSM3 card.
<b>SRTP</b>	SRTP, based on SDES, is supported on both the Net-Net 4500 [with appropriate ETC card] and Net-Net 6300 platforms.
<b>IPSec</b>	IPSec is supported on both the Net-Net 4500 [with appropriate ETC card] and Net-Net 6300 platforms.
<b>MIKEY</b>	MIKEY key negotiation is not supported.
<b>ARIA</b>	The ARIA cipher is not supported.
<b>Linksys SRTP</b>	Linksys SRTP is not supported.

## Pooled Transcoding Support

---

The pooled transcoding feature requires an access function Net-Net SBC (A-SBC/P-CSCF) using transcoding resources provided by Net-Net SBCs with transcoding hardware (T-SBC). When the A-SBC/P-CSCF function is based on version S-CZ7.1.2 software, T-SBC hardware/software requirements are as follows:

- Net-Net 6300 running release version S-CZ7.1.2
- Net-Net 4500 running release version S-CX6.3.7M2

## Platform Specific Content

---

### Net-Net 4500 Platform

Net-Net 4500s only outfitted with CPU2s are supported.

### Network Interface Cards

The Net-Net 4500 supports the following network interface cards:

- 4 x 1 GigE NIU (SFP)
- 4 x 1 GigE Copper
- 4 x 1 ETC NIU

Note: Remove any other NIU other than those listed above from the chassis before booting your system with an S-CZ7.1.2 image.

Note: IPSEC and QoS PHYs are NOT supported with S-CZ7.1.2.

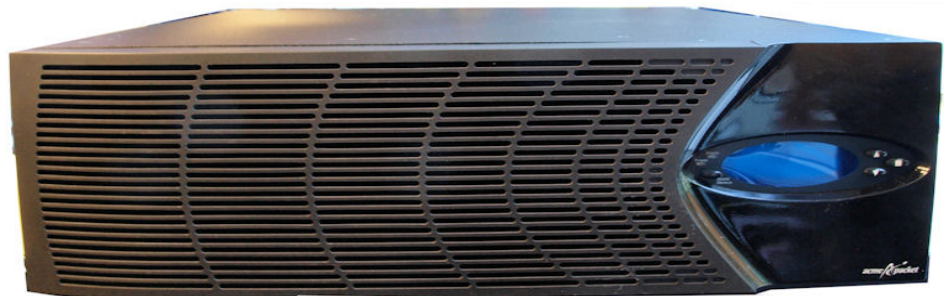
The Net-Net 6300 supports the following network interface cards:

- 2x10 GigE NIU

## Net-Net 6300 Platform Introduction

---

The Net-Net 6300 is the next generation Acme Packet hardware platform running C-Series base software. Functionally, the Net-Net 6300 is nearly identical to the “look and feel” of the Net-Net 4500 while providing a higher level of performance.



For installation and hardware maintenance, please refer to the Net-Net 6300 Hardware Installation Guide.

### Hardware Overview

The NN6300 platform is a 3U chassis:

- The main board contains a network processor and the quad-core Intel system CPU.
- The chassis can accept 3 PHY cards. The first 2 PHY cards are used as media interfaces to the production network. Each card can support 2 10 gigabit connections via an SFP+ optical network. The 3rd PHY card slot is used for processing feature cards.

- The management interface has 3 x 10/100/1000 interfaces, a USB interface, a console interface, and the alarm port.
- The VFD display on the front of the chassis resembles that found on other Acme Packet Net-Net SBCs. It is used for obtaining quick operational information when the operator is not logged into the system.
- The Net-Net 6300 has 15 cooling fans to maintain proper operating temperature. They are mounted on the front of the chassis. The Net-Net 6300's power supplies also have integrated fans.
- The system may be powered by AC or DC. See the Hardware Installation Guide for more information about physically installing and connecting the Net-Net 6300 to power and the network.
- Default host memory is 16 GB.

## Local File System Upgrade Caveats

---

When upgrading a Net-Net 4500 system from S-CX to S-CZ image, be aware that file-system layouts have changed.

- /opt replaces the /ramdrv as the default path for all file logging. e.g. /opt/logs rather than /ramdrv/logs.
- If the optional hard drive is present, /opt may be auto-mounted from disk at startup

The upgrade process varies depending on how any hard disk was originally formatted:

### Hitless upgrade

If the existing S-CX image was configured with at least a SYS volume (or the default SYS & APP volumes), after the upgrade:

- The SYS volume will be mounted to /opt and used for storing persistent logs and dump files
- Other volumes will be remounted under /mnt but will also remain accessible under / for compatibility. e.g. APP becomes /mnt/app but is also available as /app

### Out-of-service upgrade

If the system is configured with a custom partition scheme with no SYS volume, hitless upgrade is not possible.

Prior to upgrade:

- Disable all disk usage (e.g. stop disk based logging of CDR accounting etc)
- Backup existing disk contents to an alternate location (e.g. using SFTP)

After upgrade:

- Format hard-disk to create new system volumes compatible with S-CZ images
- Re-enable disk usage (e.g. restart disk based logging of CDR accounting etc)

After downgrade:

- Format hard-disk to recreate volume names compatible with your S-CX configuration.



**System shutdown**

You must now use the `halt` command prior to a system shut down. This is detailed in the Net-Net 4500 Hardware Installation Guide, Maintenance chapter.



# Features from Net-Net SBC Version S-CX6.3.3

## Introduction

---

Feature descriptions found in this section are inherited from Net-Net SBC software, release S-CX6.3.3, S-CX6.3.3M1, and S-CX6.3.3M2. These features were not included in release S-CX6.4.0.

## SIP Features

### 305 Response to Registrations on Secondary Interfaces

Certain devices are provisioned with point of contact (POC) lists for registration. In the context of geographic redundancy, if a UE is unable to register with its primary POC, it proceeds to its secondary POC. It is desirable to designate certain Net-Net SBCs as secondary in order to redirect the UE to re-register with the primary SBC.

This feature is designed for Net-Net SBCs sitting behind Net-Net SLBs. This feature allows users to designate Net-Net SBCs sitting behind SLBs as secondary. When registered endpoints in a realm attempt to register with the primary POC, and registration fails, the UEs proceed to their secondary point of contact (POC). Once connection to the primary POC has been restored, users can execute a command to off-load the UE registrations in a given realm with a 305 response to the UEs in order for the UEs to re-register with the next POC. When the scenario consists of two POCs, the endpoint re-registers with the primary POC.

First availability: S-CX6.3.3

Feature Description Location: ACLI Configuration Guide, SIP Signaling Chapter

## IWF Features

### AMR/AMR-WB Payload Type Mapping

When the Net-Net SBC connects endpoints that choose AMR with different payload types but equivalent parameters, payload type remapping can be off-loaded to the network processor rather than using transcoding resources. Otherwise, the Net-Net SBC would transcode all AMR-to-AMR calls, even when unnecessary. This feature is applicable to AMR-to-AMR and AMR-WB-to-AMR-WB calls.

First availability: S-CX6.3.3M1

Feature Description Location: ACLI Configuration Guide, IWF Services Chapter

## IMS Features

**RTP and RTCP  
Bandwidth Calculation  
and Reporting**

The Net-Net SBC supports changing bandwidth requirements in an ad-hoc multi-party conference by tracking reduced bandwidth needs as parties are placed on hold during the initiation of a multi-party call. The combination of the 5 identified AVPs are considered by network elements for this functionality.

This section is applicable to the Net-Net SBC's Rx implementation when acting as a P-CSCF and connecting with a PCRF. The 5 AVPs considered in this section are created and sent in AAR messages.

First availability: S-CX6.3.3

Feature Description Location: ACLI Configuration Guide, IMS Chapter

**Pooled Transcoding**

The term “pooled transcoding” refers to a deployment model for IMS environments involving two or more Net-Net SBCs. The first is an A-SBC acting as the P-CSCF, and the others are one or more Net-Net 4500s equipped with transcoding hardware (referred to as T-SBCs). The T-SBC provides transcoding resources—a pool—that the A-SBC can invoke on-demand.

In the pooled transcoding model, the A-SBC sits between realms or between user endpoints that require transcoding between their preferred codecs to communicate. This deployment model conserves resources on both the A-SBC and the T-SBC. While the A-SBC serves as the access function with encryption support, the T-SBC supports transcoding in a tunneling gateway (TG) configuration to meet high-density transcoding requirements.

First availability: S-CX6.3.3

Feature Description Location: ACLI Configuration Guide, IMS Chapter

**Dynamic Sessions  
Agents for Home-  
Remote S-CSCF  
Liveliness**

For IMS applications, you can configure your Net-Net SBC to create session agents dynamically for remote S-CSCFs on in-coming service routes. Dynamic session agents inherit properties of the static session agents with which they are associated, and the Net-Net SBC takes them out of service when they are deemed no longer responsive according to the liveliness mechanism you set.

First availability: S-CX6.3.3

Feature Description Location: ACLI Configuration Guide, IMS Chapter

**Enhanced eSRVCC  
Call Continuity**

As the LTE Evolved Packet Core (EPC) continues to expand, voice deployments (VoLTE) appear more and more, with the Acme Packet SBC and P-CSCF playing key roles. 3GPP standards that define how LTE communications take place also continue to evolve, identifying and solving critical issues to increase effectiveness and efficiency. One such issue is session continuity, keeping session transfers between LTE and existing 2G and 3G networks as seamless as possible. Single Radio Voice Call Continuity (eSRVCC) offers one solution for the session continuity issue.

In its role as the P-CSCF and IMS-GW, the Net-Net SBC can provide eSRVCC by acting as signaling and media anchor points to hand over calls to 3G networks smoothly. These anchoring points are called Access Transfer Control Function (ATCF) and the Access Transfer Gateway (ATGW), both of which are logical additions to the Net-Net SBC's IMS support.

First availability: S-CX6.3.3

Feature Description Location: ACLI Configuration Guide, IMS Chapter

**IPSec IMS-AKA**

Compliance with the VoLTE specification (GSMA PRD IR.92) requires cluster member support for IPSec IMS-AKA (IP Multimedia Services Authentication and Key Agreement) as defined in 3GPP TS 24.299, *IP Multimedia Call Control Protocol Based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP): Stage 3*, and TS 33.203, *3G Security: Access Security for IP-based Services*.

First availability: S-CX6.3.3

Feature Description Location: ACLI Configuration Guide, IMS Chapter

**IMS AKA over TCP**

IMS-AKA registration is conducted over UDP or TCP protocol only. The Net-Net SBC supports both transport protocols.

Within mobile IMS VoLTE/RCS deployments, IP packets carrying SIP messages can be large due to IPv6 headers, IMS-AKA specific headers, extensive codec policies, and other 3GPP related headers. Because of this, IPv6 VoLTE signaling messages using IMS-AKA frequently exceed 1300 bytes and require TCP according to RFC3261 section 18.1.1.

First availability: S-CX6.3.3M1

Feature Description Location: ACLI Configuration Guide, IMS Chapter

**S-CSCF Target Caching and Invalidation**

In IMS architectures, the Net-Net SBC can form these roles:

- An access session border controller, acting as the media front end to a third-party proxy CSCF (P-CSCF)
- Combined access session border controller and P-CSCF

In both, the Net-Net SBC needs to resolve the next-hop signaling element with DNS using these methods: NAPTR resource record, DNS SRV, and DNS address query (A-query).

Additionally, the Net-Net SBC can also now be configured to use DNS for the purposes of load balancing toward the core network elements and resiliently tracking failures.

First availability: S-CX6.3.3

Feature Description Location: ACLI Configuration Guide, IMS Chapter

**Second P-Asserted-Identity Header for Emergency Calls**

The Net-Net SBC can add a second P-Asserted-Identity header when forwarding an emergency message into the network.

When the UE registers with an S-CSCF, the S-CSCF returns a set of associated URIs, the implicit registration set (IRS,) for the AoR in the 200 OK response. The Net-Net SBC caches the IRS. The user identities that comprise the cached IRS are used for validation later. As the Net-Net SBC receive a UE's INVITE, the value in the P-Preferred-Identity header is validated against the public user identities in the cached IRS. If the inbound P-Preferred-Identity matches any items in the IRS, the Net-Net SBC inserts that value into a P-Asserted-Identity header in the egress message. The P-Preferred-Identity header is stripped from the outbound message

First availability: S-CX6.3.3M2

Feature Description Location: ACLI Configuration Guide, IMS Chapter

**IR.94 Support**

The Net-Net SBC supports IR.94 (IMS Profile for Conversational Video Service) for use in an IMS and LTE environment.

First availability: S-CX6.3.3M2

Feature Description Location: ACLI Configuration Guide, IMS Chapter

**Accounting Features****ACR Event Records**

The Net-Net SBC supports ACR [Event] records, according to 3GPP TS 32.260. This is in addition to start, stop and interim records. These records reflect a preset type of SIP event. The ACRs are then sent to the CCF.

First availability: S-CX6.3.3

Feature Description Location: Accounting Guide, Diameter Rf Accounting Chapter

**Other Diameter Rf Features**

- You can customize the Service-Context-ID format
- Acme Excluded Attribute Range —You can select certain ACME specific AVPs to include in the Rf accounting records with the `diam-acme-attr-id-range` parameter.
- The Net-Net SBC creates internal errors and sends an SNMP trap (`apDiameterSrvrErrorResult`) upon a CCF returning an error-containing ACA.

First availability: S-CX6.3.3

Feature Description Location: Accounting Guide, Diameter Rf Accounting Chapter

**Diameter Heartbeat for Rf**

Device-Watchdog-Request (DWR) and Device-Watchdog-Answer (DWA) messages are used to detect transport failures at the application layer between the Net-Net SBC communicating with a Accounting server via Diameter. The request/answer message pair forms a heartbeat mechanism that can alert the requesting side if the answering side is not reachable.

When other Rf traffic to/from the accounting server is present, DWRs are suspended. The other traffic indicates that the server is up. The Net-Net SD upon detection of DWR failure can send accounting data towards another configured accounting server by failover/strategy mechanisms.

First availability: S-CX6.3.3

Feature Description Location: Accounting Guide, Diameter Rf Accounting Chapter

**Diameter Rf Charging Buffering and Storage**

Diameter Rf Charging, Buffering, and Storage enables the Net-Net SBC to buffer all accounting requests (ACR) in memory for a configurable number of ACRs. The buffer holds a minimum of 15 minutes of ACRs under busy-hour load conditions.

First availability: S-CX6.3.3

Feature Description Location: Accounting Guide, Diameter Rf Accounting Chapter

**Enhanced Stop CDR Reporting for Exceeded Ingress Session Constraints**

This feature enables consistent generation of RADIUS Stop records on both ingress and egress paths when RADIUS Stop records when calls are rejected for exceeding configured session ingress or egress constraints. On the egress path, prior releases rejected such calls with a 503 (Service Unavailable) response and the generation of a RADIUS STOP record. On the ingress path, however, while calls were rejected with a 503 response, RADIUS Stop records were not generated.

First availability: S-CX6.3.3

Feature Description Location: Accounting Guide, Configuring RADIUS Chapter

**DIAMETER Rf Charging Failure & Recovery Detection**

The Net-Net SBC can detect and send a trap when Diameter Rf transport interface has failed and when it has recovered. If multiple transport failures have been detected, SNMP traps shall be sent for each failure. Local alarms are also generated for these events.

First availability: S-CX6.3.3

Feature Description Location: Accounting Guide, Diameter Rf Accounting Chapter

**Rf Interface Description**

The Accounting Guide has two new appendices:

Appendix D—Comma-Delimited Local Files for Diameter Rf Accounting

Appendix E—Acme Packet Rf Interface Specification

**Admission Control Features****Emergency Call Fallback**

You can enable the rejection of priority calls per a configured SIP interface. When this option is enabled, the Net-Net SBC does not allow priority calls through that SIP interface, and the call is rejected with a 380 response.

First availability: S-CX6.3.3

Feature Description Location: ACLI Configuration Guide, Admission Control and Quality of Service Chapter

**External Policy Servers Features****Early Media Suppression for Rx**

The Net-Net SBC supports early media suppression where it does not allow media to flow between the endpoints it connects until the session is fully established as noted by receiving a 200 OK.

First availability: S-CX6.3.3

Feature Description Location: ACLI Configuration Guide, External Policy Servers Chapter

**Diameter Multi-tiered Policy Server Support**

When accepting a call in a 2 tiered policy server environment, the Net-Net SBC queries the Tier-1 policy server, running in stateless mode, for AAR-type requests. The Tier-1 PS, identifies an appropriate Tier-2 policy server for every incoming

Diameter session. The mapping of session-ID to Tier-2 PS is performed between the Tier-1 and Tier-2 policy servers. This architecture is used to increase overall performance.

First availability: S-CX6.3.3M1

Feature Description Location: ACLI Configuration Guide, External Policy Servers Chapter

### **Specific Action AVP support**

When acting as a P-CSCF, Net-Net SBC sends the Specific-Action AVP to the PCRF in an AAR message to indicate the subscription types it supports.

First availability: S-CX6.3.3M2

Feature Description Location: ACLI Configuration Guide, External Policy Servers Chapter

### **Node-Functionality AVP Support**

The Net-Net SBC sends the Node-Functionality (862) AVP in all Rf ACR messages. The value contained in this AVP is configurable.

First availability: S-CX6.3.3M2

Feature Description Location: ACLI Configuration Guide, External Policy Servers Chapter

### **IPv6 Support for Rx External Bandwidth Manager**

An external policy server configuration element with an application mode parameter set to Rx may be configured with an IPv6 address in the address parameter (in addition to an IPv4 address or FQDN).

## **Management Changes Summary**

---

This section summarizes the projected ACLI, SNMP, and RADIUS accounting management changes for Net-Net OS Release S-CX6.3.3.

### **ACLI Command Changes**

This section summarizes the ACLI command changes that first appeared in Net-Net OS Release S-CX6.3.3.

• IJeyJSeye u	Change	Description
nnSCX633	show sipd pooled-transcoding	Adding command to view pooled transcoding information for the client and server User Agents on the P-CSCF.

## **ACLI Configuration Changes**

---

This section summarizes the ACLI command changes that first appeared in Net-Net OS Release S-CX6.3.3.



## Added ACLI Parameters

Availability	Change	Description
nnSCX633	session-router>account-config>diam-srv-ctx-ext	Adding parameter to populate the extension portion of the Service-Context-ID AVP value.
nnSCX633	session-router>account-config>diam-srv-ctx-mnc-mcc	Adding parameter to substitute in the MNC.MCC portion of the Service-Context-ID AVP value.
nnSCX633	session-router>account-config>diam-srv-ctx-rel	Adding parameter to populate the Release portion of the Service-Context-ID AVP value
nnSCX633	session-router>account-config>diam-acme-attr-id-range	Adding parameter to exclude identified AVPs from Rf messages.
nnSCX633	session-router>sip-config>atcf-stn-sr	Adding parameter to enter the value of the Session Interface, Single Radio (STN-SR)
nnSCX633	session-router>sip-config>atcf-psi-dn	Adding parameter to enter the value to use for the Public Service Identity Domain Name (PSI-DN).
nnSCX633	session-router>sip-config>atcf-route-to-sccas	Adding parameter for the handover update, an INVITE, is routed to the I-CSCF.
nnSCX633f2	session-router>account-config>msg-queue-size	Adding parameter that sets the message queue size for both RADIUS and Diameter accounting interfaces.
nnSCX633f2	session-router>account-config>diam-send-throttle	Maximum number of accounting records to be sent to the Diameter server(s) without yielding control to other tasks.
nnSCX633	session-router>sip-config>create-dynamic-sa	Adding parameter that enables the creation of dynamic session agents for remote S-CSCF's on in-coming service routes.
nnSCX633M2	session-router>sip-config>node-functionality	Adding parameter to configure the global value sent in the node-functionality AVP in messages.
nnSCX633M2	media-manager> realm-config>node-functionality	Adding parameter to configure the value sent in the node-functionality AVP in messages into this realm.
nnSCX633	session-router>account-config>generate-event	Adding parameter that enters the events that prompt creation of an Event RF record.

nnSCX633M1	media-manager > ext-policy-server > cache-dest-host	Adding parameter for the Net-Net SBC to participate as a P-CSCF in a multi-tiered policy server environment.
nnSCX633M2	media-manager > ext-policy-server > specific-action-subscription	Adding parameter for the Net-Net SBC to set subscription types it supports.
nnSCX633	media-manager > ext-policy-server > provision-signaling-flow	Sets the Net-Net SBC to send AAR messages to a PCRF on endpoint registrations.

## Removed ACLI Commands and parameters

- show security fips
- show etc

## Alarm changes

The Net-Net SBC contains a datapath monitor alarm. Information on this can be found in the Maintenance and Troubleshooting Guide, Fault Management chapter.

The ETC Alarm has been removed, its functionality has been merged into the datapath monitor alarm.

## Documentation Notes

DIAMETER Rx Bearer Notification feature description does not appear in this documentation set, and will appear in an update to the Configuration Guide's IMS Chapter. This feature requires no configuration.

## SNMP Changes

This section summarizes the SNMP/MIB changes that first appeared in Net-Net OS Release S-CX6.3.3.

Net-Net S-CX6.3.3F2	DIAMETER Management	
Capability group in ap-agentcapability.mib	apDiamMibCap Includes: <ul style="list-style-type: none"> <li>• apDiamACCTObjectsGroup</li> <li>• apDiamACCTNotificationsGroup</li> <li>• apDiamClfErrorStatsGroup</li> <li>• apDiamACCTResultObjectsGroup</li> <li>• apDiamACCTResultNotificationsGroup</li> </ul> (apDiamMibCapabilities 1)	Acme Packet agent capability
Object group in ap-diameter.mib	apDiamACCTObjectsGroup Objects: <ul style="list-style-type: none"> <li>• apDiamAcctSvrHostName</li> <li>• apDiamAcctSvrIPPort</li> <li>• apDiamAcctSvrOriginRealm</li> <li>• apDiamAcctSvrOriginHost</li> <li>• apDiamAcctSvrOriginTransportType</li> </ul> (apDiamNotificationGroups 1)	Object group accessible only to traps for Diameter Server information.
Object group in ap-diameter.mib	apDiamACCTNotificationsGroup Objects: <ul style="list-style-type: none"> <li>• apDiameterAcctSvrUpTrap</li> <li>• apDiamAcctSvrDownTrap</li> <li>• apAcctMsgQueueFullTrap</li> <li>• apAcctMsgQueueFullClearTrap</li> </ul> (apDiamNotificationGroups 2)	Notification group for Diameter server events.

Trap in ap-diameter.mib	apDiameterAcctSvrUpTrap Includes: <ul style="list-style-type: none"> <li>• apDiamAcctSvrHostName</li> <li>• apDiamAcctSvrIPPort</li> <li>• apDiamAcctSvrOriginRealm</li> <li>• apDiamAcctSvrOriginHost</li> <li>• apDiamAcctSvrOriginTransportType</li> </ul> (apDiamNotifications 1)	Trap generated when the Diameter Accounting server becomes available
Trap in ap-diameter.mib	apDiamAcctSvrDownTrap Includes: <ul style="list-style-type: none"> <li>• apDiamAcctSvrHostName</li> <li>• apDiamAcctSvrIPPort</li> <li>• apDiamAcctSvrOriginRealm</li> <li>• apDiamAcctSvrOriginHost</li> <li>• apDiamAcctSvrOriginTransportType</li> </ul> (apDiamNotifications 2)	Trap generated when the Diameter Accounting server goes down.
Trap in ap-diameter.mib	apAcctMsgQueueFullTrap Includes: <ul style="list-style-type: none"> <li>• apAcctMsgQueueAvailCurrent</li> <li>• apAcctMsgQueueMinorThreshold</li> <li>• apAcctMsgQueueMajorThreshold</li> <li>• apAcctMsgQueueCriticalThreshold</li> </ul> (apDiamNotifications 3)	Trap generated when the accounting message queue is full and all accounting servers are down.
Trap in ap-diameter.mib	apAcctMsgQueueFullClearTrap Includes: <ul style="list-style-type: none"> <li>• apAcctMsgQueueAvailCurrent</li> <li>• apAcctMsgQueueMinorThreshold</li> <li>• apAcctMsgQueueMajorThreshold</li> <li>• apAcctMsgQueueCriticalThreshold</li> </ul> (apDiamNotifications 4)	Trap generated when the accounting message queue has fallen below the apAcctMsgQueueMinorThreshold, and all accounting servers are up.
Object group in ap-diameter.mib	apDiamClfErrorStatsGroup Includes: <ul style="list-style-type: none"> <li>• apDiamClfExtPolSvrName</li> <li>• apDiamClfErrorsRecent</li> <li>• apDiamClfErrorsTotal</li> <li>• apDiamClfErrorsPerMax</li> </ul> (apDiamObjectGroups 1)	Object group for CLF statistics of external policy server errors.
Object group in ap-diameter.mib	apDiamACCTResultObjectsGroup Includes: <ul style="list-style-type: none"> <li>• apDiameterResultCode</li> </ul> (apDiamNotificationGroups 3)	Object group accessible only to traps for Result-Code (268) AVP value.
Notification group in ap-diameter.mib	apDiamACCTResultNotificationsGroup Includes: <ul style="list-style-type: none"> <li>• apDiameterSvrErrorResultTrap</li> <li>• apDiameterSvrSuccessResultTrap</li> </ul> (apDiamNotificationGroups 4)	Notification group for Diameter server result events.
Trap in ap-diameter.mib	apDiameterSvrErrorResultTrap Includes: <ul style="list-style-type: none"> <li>• apDiamAcctSvrHostName</li> <li>• apDiamAcctSvrIPPort</li> <li>• apDiamAcctSvrOriginRealm</li> <li>• apDiamAcctSvrOriginHost</li> <li>• apDiamAcctSvrOriginTransportType</li> </ul> (apDiamNotifications 5)	Generated when the Diameter Server returns 3xxx (Protocol Errors), 4xxx (Transient Failures), or 5xxx (Permanent Failure) Result-Code AVP (268).

Net-Net S-CX6.3.3	Trap in ap-diameter.mib	<b>apDiameterSrvrSuccessResultTrap</b> Includes: <ul style="list-style-type: none"> <li>• apDiamAcctSrvrHostName</li> <li>• apDiamAcctSrvrIPPort</li> <li>• apDiamAcctSrvrOriginRealm</li> <li>• apDiamAcctSrvrOriginHost</li> <li>• apDiamAcctSrvrOriginTransportType</li> </ul> (apDiamNotifications 6)	After an error result, generated when the Diameter Server returns a 2xxx (Success) Result-Code AVP (268).
		Registrations on Secondary Interfaces	
	Capability group in ap-agentcapability.mib	<b>apSipSecInterfaceRegNotifGroupCap</b> Includes: <b>apSipSecInterfaceRegNotificationsGroup</b> (apSipMibCapabilities 1)	Acme Packet agent capability
	Notification group in ap-sip.mib	<b>apSipSecInterfaceRegNotificationsGroup</b> Includes: <b>apSipSecInterfaceRegThresholdExceededTrap</b> <b>apSipSecInterfaceRegThresholdClearTrap</b> (apSipNotificationGroups 1)	Notification group generated for registrations
	Trap in ap-sip.mib	<b>apSipSecInterfaceRegThresholdExceededTrap</b> Includes: <b>apSipSecInterfaceTotalRegistrations</b> <b>apSipSecInterfaceRegThreshold</b> (apSipSecIntfNotifications 1)	Trap generated if the total number of registrations on all secondary SIP interfaces exceed the configured threshold.
	Trap in ap-sip.mib	<b>apSipSecInterfaceRegThresholdClearTrap</b> Includes: <b>apSipSecInterfaceTotalRegistrations</b> <b>apSipSecInterfaceClearThreshold</b> (apSipSecIntfNotifications 2)	Trap generated if the total number of registrations on all secondary SIP interfaces falls below the configured threshold.
	Capability group in ap-agentcapability.mib	<b>apSipSecInterfaceRegObjectsGroupCap</b> Includes: <b>apSipSecInterfaceRegObjectsGroup</b> (apSipMibCapabilities 2)	Acme Packet agent capability
	Object group in ap-sip.mib	<b>apSipSecInterfaceRegObjectsGroup</b> Includes: <b>apSipSecInterfaceTotalRegistrations</b> <b>apSipSecInterfaceRegThreshold</b> <b>apSipSecInterfaceClearThreshold</b> (apSipObjectGroups 1)	Object group to monitor registrations for secondary SIP interfaces.
	Object in ap-sip.mib	<b>apSipSecInterfaceTotalRegistrations</b> (apSipSecInterfaceObjects 1)	Total number of registration on all secondary SIP interfaces.
	Object in ap-sip.mib	<b>apSipSecInterfaceRegThreshold</b> (apSipSecInterfaceObjects 2)	The max threshold for registrations on all secondary interfaces beyond which a trap is generated.
	Object in ap-sip.mib	<b>apSipSecInterfaceClearThreshold</b> (apSipSecInterfaceObjects 3)	The threshold for registrations on all secondary SIP interfaces below which a clear trap is generated.

# Notices and Third Party Licenses

## Acme Packet Notices

---

Legal Notices: Copyright (c) 2000-2013 Acme Packet, Inc. All rights reserved. Information in this document is subject to change without notice. Acme Packet, Inc. assumes no responsibility for any errors that may appear in this document.

### MAIL ORDER OFFER FOR OPEN SOURCE CODE

To obtain a copy of the source code for the open-source software programs packaged with this product, send \$20 USD (to cover the costs of duplication and shipping) to the address below, or email [opensource@acmepacket.com](mailto:opensource@acmepacket.com) for further information:

#### Open source CD requests

c/o Office of the CTO

Acme Packet Inc.

100 Crosby Drive

Bedford, MA 01730

United States

Acknowledgements: Portions of this software may utilize the following copyrighted material. Use and distribution of the Acme Packet Net-Net OS SD product is subject to acceptance of multiple software license agreements, as listed below. This distribution consists of an aggregation of multiple separate binary programs each operating independently, which when used together, provide the complete product functionality. Each program is categorized into one of three classes based on its software license: i) Proprietary, ii) Dual license, iii) Open source

TRADEMARK RECOGNITION Acme Packet is a registered trademark and Session Aware Networking, Net-Net and related marks are trademarks of Acme Packet, Inc. Linux is a registered trademark of Linus Torvalds, licensed by the LinuxMark Institute. All other brand names are trademarks, registered trademarks or service marks of their respective companies or organizations.

CLASS I - Proprietary software This is Commercial software used and distributed under proprietary license, the software IS NOT redistributable by the end user, per the terms of the associated proprietary license agreement. For each component in this category, depending on the specific license requirements no source code or object code is provided and strict proprietary end-user license terms apply. This software is subject to closed-source proprietary license terms and restrictions, from the following vendors: Acme Packet Inc Net-Net OS SD These items are closed-source, proprietary unpublished works, and contain no free software. Use, Modification, Duplication and Redistribution rights are restricted, refer to the license text.

CLASS II - Dual-licensed software This is copyrighted software issued under dual proprietary and open source license. For software components with dual licenses, the software IS redistributable when used in an open-source program, but IS NOT redistributable when used in a proprietary program. Therefore, depending on the

specific usage it may be subject to either a closed-source proprietary license or to open source free software license terms, as follows:

## Third Party Licenses

---

Use the `show about` command to display current third party licenses applicable to the software image you are running.