Oracle® Enterprise Session Border Controller

Release Notes
Release E-CZ7.2.0
Formerly Net-Net Enterprise Session Director

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ORACLE®

Contents

About This Guide

The Oracle Enterprise Session Border Controller Release Notes document provides information about:

- Platform Support
- New features
- Caveats
- Known Issues

Documentation Set

The following table describes the documentation set for this release.

Document Name	Document Description
ACLI Configuration Guide	Contains information about the installation, configuration, and administration of the Oracle Enterprise Session Border Controller.
Acme Packet 1100 Hardware Installation Guide	Contains information related to the hardware components, features, installation, start-up, operation, and maintenance of the Acme Packet 1100.
Web GUI Users Guide	Contains information about using the tools and features of the Oracle Enterprise Session Border Controller Web GUI.
Release Notes	Contains information about this release, including platform support, new features, caveats, known issues, and limitations.

Related Documentation

The following table describes related documentation for the Oracle Enterprise Session Border Controller.

Document Name	Document Description
Acme Packet 4500 Hardware Installation Guide	Contains information about the components and installation of the AP4500.
Acme Packet 3820 Hardware Installation Guide	Contains information about the components and installation of the AP 3800.
Acme Packet 6300 Hardware Installation Guide	Contains information about the components and installation of the AP 6300.
Acme Packet 6100 Hardware Installation Guide	Contains information about the components and installation of the AP 6100.
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 of the Oracle Enterprise Session Border Controller.
ACLI Reference Guide	Contains explanations of how to use the ACLI, as an alphabetical listings and descriptions of all ACLI commands and configuration parameters.
Maintenance and Troubleshooting Guide	Contains information about Oracle Enterprise Session Border Controller logs, performance announcements, system management, inventory management, upgrades, working with configurations, and managing backups and archives.

Document Name	Document Description
MIB Reference Guide	Contains information about Management Information Base (MIBs), Acme Packet's 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 Oracle Enterprise Session Border Controller's accounting support, including details about RADIUS accounting.
HDR Resource Guide	Contains information about the Oracle Enterprise Session Border Controller's Historical Data Recording (HDR) feature. This guide includes HDR configuration and system-wide statistical information.
Administrative Security Essentials	Contains information about the Oracle Enterprise Session Border Controller's support for its Administrative Security license.
Security Guide	Contains information about security considerations and best practices from a network and application security perspective for the Oracle Enterprise Session Border Controller family of products.

Revision History

The following table describes updates to this guide.

Date	Description
September 2014	Initial Release
October 2014	• Adds the "Provisioning Entitlements" topic, with sub topics "Product Configuration" and "Entitlement Configuration." • Adds "Ringback" to the Caveats section.
February 2015	• Changes the "Ringback" Caveat to "Local Media Playback" and notes the upgrade issue.
March 2015	• Adds the SIP-KPML item to Known Issues.
May 2015	• Removes Hyper-V support. • Adds a Caveat for Web GUI and IPv4-IPv6.
September 2015	• Removes the HA on VLAN topic and inserts the HA on AP1100 topic.
October 2015	• Adds the LDAP Support item to the Caveats section.
March 2016	Adds note of Source routing deprecation to Caveats section.
	• Adds known issue on addressing that must not be used for HA deployments that include transcoding cards

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Release Notes

Oracle Enterprise Session Border Controller Description

The Oracle Enterprise Session Border Controller (E-SBC) connects disparate Internet Protocol (IP) communications networks while mitigating security threats, curing interoperability problems, and ensuring reliable communications. The E-SBC protects and controls real-time voice, video, and Unified Communications (UC) as they traverse IP network borders.

Overview

Available in software and appliance configurations, the E-SBC is highly scalable and includes an industry-leading feature set.

- Strong security. As the E-SBC protects IP telephony and UC infrastructure, services, and applications, it also ensures confidentiality, integrity, and availability. The E-SBC protects against fraud, service theft, malicious attacks, system overloads, and other events that affect service.
- Easy interoperability. The E-SBC provides extensive signaling and media control features to help businesses overcome interoperability challenges that commonly occur when interfacing with public IP network services. The E-SBC also performs protocol interworking and dial plan management for integration with legacy systems.
- Assured reliability. The E-SBC ensures Public Switched Telephone Networks (PSTN)-like availability and service quality for IP communications. The E-SBC enforces service quality, balances loads across trunks, and reroutes sessions around interface disruptions to optimize network performance, circumvents equipment and facility problems, and ensures business continuity.

Functions and Modes

Businesses install the E-SBC at Session Initiation Protocol (SIP) network borders, where enterprise communications systems interface with public network services and where disparate multi-vendor systems must be managed.

Customers use the E-SBC to:

- Connect to SIP trunking services and the Internet
- Access communications services
- Communicate securely with remote workers
- Manage sessions across a multi-vendor UC environment
- Connect contact center locations and Business Process Outsourcing (BPO) services

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Platform Support

The following platforms support the E-CZ7.2.0 release.

- Oracle: Acme Packet 1100, Acme Packet 3820, Acme Packet 4500, and Acme Packet 6300
- Virtual Machine Edition: VMWare

Release Image File Names

Use the following files for a new deployment.

Oracle Hardware

- Image: Use nnECZ720.64.bz for the Acme Packet 1100, the Acme Packet 4500, the Acme Packet 6300, for new installations, and for upgrades. Use nnECZ720.32.bz for the Acme Packet 3820.
- Boot loader: November 2013 or newer

Virtual Machines

- VMWare: nnECZ720.64-img-bin.ova

Upgrade Image File Names

Use the following files to upgrade virtual machine deployments.

- Image: nnECZ720.64.bz
- Boot loader: nnECZ720.64.boot

Platform Boot Loaders

Oracle Enterprise Session Border Controller platforms require a boot loader to load the operating system and software.

Stage 1 and Stage 2 Boot Loaders

The Stage 1 and Stage 2 boot loaders are pre-installed to support the default hardware configuration. Upgrade the Stage 1 and Stage 2 boot loaders when you upgrade the hardware image. For software release 7.x and newer, the boot loader must be dated November 2013 or newer. Use the `show version boot` command to display the Stage 1 and Stage 2 boot loader versions. See your Oracle customer support representative for upgrade information.

Stage 3 Boot Loader

All platforms require the Stage 3 boot loader. Every new software release contains a system software image and a Stage 3 boot loader. When you upgrade your system image, upgrade the Stage 3 boot loader before booting the new system image.

The boot loader file name corresponds to the software image filename. For example, if the software image filename is nnECZ720.64.bz, the corresponding Stage 3 boot loader filename is nnECZ720.boot. The boot loader file must be installed as /boot/ boot loader on the target system.

The Stage 3 boot loader is compatible with previous releases.

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New Features

The baseline for the E-CZ720 release is the E-CZ7.1.0 GA release. The E-CZ720 release adds the following enhancements and new features to the E-CZ7.1.0 GA release.

- Acme Packet 1100
- Entitlement Provisioning
- High Availability (HA) on a Virtual Local Area Network (VLAN)
- Software Transcoding
- Time Division Multiplexing
- Web GUI Tabs and Toolbars

The Acme Packet 1100

The Acme Packet 1100 is a new Enterprise Session Border Controller (E-SBC) optimized for remote office/branch office (ROBO) deployment. The compact platform provides the critical controls for delivering trusted, first-class, real-time communication of voice, video, and multimedia sessions across IP network borders.

The Acme Packet 1100 is specifically designed to meet the unique price, performance, and manageability requirements of the branch office. Ideal for small site border control and Session Initiation Protocol (SIP) trunking service termination applications, the Acme Packet 1100 delivers Oracle's industry-leading E-SBC capabilities in a small appliance. Acme Packet 1100 provides support for High Availability (HA) configuration, PSTN fallback, and Quality of Service (QoS) measurement. The Acme Packet 1100 is capable of providing both hardware and software transcoding. Hardware-based transcoding capabilities are provided by an optional DSP module installed inside the Acme Packet 1100 chassis. This component provides G.711 to G.729 transcoded calls. The appliance can be installed on a desktop/shelf, wall mounted, or rack mounted.

Provisioning Entitlements

You can license the Oracle Enterprise Session Border Controller and provision entitlements from the ACLI. Licensing a system for use consists of setting the system type and setting the entitlements.

☞ **Note:** You may continue using the legacy licensing system or you may transition to self-provisioning entitlements. For both methods, ensure that the functionality of the system abides by your organization's contractual obligations with Oracle.

Enabling functionality on the Oracle Enterprise Session Border Controller is based on installing feature and capacity entitlements. These entitlements determine the feature groups that are available for use and the maximum session capacities available for certain features.

The system provisions a set of default entitlements based on the software version, the hardware on which the software runs, and the product type that you choose. You can choose the user-provisioned entitlements for your deployment.

Provisioning a New System

An uninitialized system does not have the product type set, and has no entitlements installed. A system that has legacy keyed licenses installed is considered an uninitialized system.

You may not provision entitlements until the product type has been set. Use the **setup product** command to set the system product type and use the **setup entitlements** command to provision entitlements.

Provisioning a System with Existing Keyed Licenses

When changing the Oracle Enterprise Session Border Controller licensing technique from the legacy keyed licenses method to the provisioned entitlements method, be aware of the following:

- After running **setup product** and **setup entitlements**, the system will be seeded with the existing licenses' functionality.
- When the system is seeded with its previously keyed functionality to the provisioned entitlements system, functionality may be changed with the **setup entitlements** command.
- You may notice that there are fewer entitlements than there were keyed licenses. This is normal.
- After setting up provisioned entitlements, the **show features** command will still function to display the previously installed keyed entitlements.

Editing and Viewing Entitlements

If you are not changing the product type, and you are changing only the entitlements, you can edit the existing entitlements with the **setup entitlements** command. Executing this command will display existing entitlements before giving you the option to modify their settings.

The **show entitlements** is used to display the currently provisioned entitlements and keyed entitlements. You may also use the **setup entitlements** command and type **d** to display the current entitlements. Upon first executing the **setup entitlements** command, all provisioned entitlements (excluding keyed entitlements) are displayed on the screen.

Keyed-only entitlements

Certain entitlements are enabled only by entering a license key in the **system** > **license** configuration element, and not through the **setup entitlements** command. Contact Oracle support about purchasing these licenses and receiving a valid code to enter in your system.

The Keyed-only entitlements used in conjunction with provisioned entitlements:

- Codecs including EVRC family and AMR family
- Software TLS
- Software-based SRTP

☞ **Note:** Not all of the above keyed only entitlements are available for all platforms.

Setting Entitlements on HA Pairs

When configuring an HA pair, you must provision the same product type and entitlements on each system.

Entitlement Provisioning

License provisioning for components of the Oracle Enterprise Session Border Controller is offered in a Basic bundle and an Advanced Bundle.

The following table describes the license bundles and the associated entitlements.

Base license	Advanced license
Application Communication Protocol (ACP)	Accounting
AMR-25 (NB) royalty	ENUM Lookup
AMR-WB-25 royalty	IWF
Enhanced Variable Rate Codec (EVRC) royalty	Load Balancing
Enhanced Variable Rate Codec - B(EVRC-B) royalty	QoS
G.729 royalty	Routing
H.323	
High Availability (HA)	
Intrusion Detection System (IDS) advanced	
Intrusion Detection System (IDS) reporting	
National Security Emergency Preparedess NSEP/RPH (GETS)	
SIP Session Recording (SIPREC)	
Session Initiation Protocol (SIP)	
Software Secure Real-time Transport Protocol (SRTP)	
Software Transport Layer Security (TLS)	

The following components of the Base license require a key for activation.

- AMR-25 royalty
- AMR-WB-25 royalty
- EVRC royalty
- EVRCB royalty
- G.729 royalty
- Software SRTP
- Software TLS

Product Configuration

1. Type **setup product** at the ACLI. If this is the first time running the command on this hardware, the product will show as Uninitialized.

2. Type **1 <Enter>** to modify the uninitialized product.

3. Type the number followed by **<Enter>** for the product type you wish to initialize.

4. Type **s <Enter>** to commit your choice as the product type of this platform.

```
ACMEPACKET# setup product


----------------------------------------------------------------
WARNING:
Alteration of product alone or in conjunction with entitlement
```

```
changes will not be complete until system reboot

Last Modified 2014-09-24 14:38:59
----------------------------------------------------------------
 1 : Product         : Enterprise Session Border Controller

Enter 1 to modify, d' to display, 's' to save, 'q' to exit. [s]: 1

   Product
     1 - Enterprise Session Border Controller
   Enter choice     : 1

Enter 1 to modify, d' to display, 's' to save, 'q' to exit. [s]: s
save SUCCESS
ACMEPACKET#
```

Entitlements Configuration

1. Type **setup entitlements** at the ACLI. Currently provisioned entitlements are printed on the screen.

2. Type the number of the entitlement you wish to configure followed by pressing the **<Enter>** Key. Some entitlements are set as enabled/disabled (provisionable feature entitlement), and some entailments are provisioned with a maximum capacity value (provisionable capacity entitlement). The command will let you provision these values as appropriate.

3. Type **enabled** or **disabled** to set a provisionable feature entitlement, or type an integer value for a provisionable capacity entitlement. Both input types are followed by pressing the **<Enter>** key.

4. Repeat steps 2 and 3 to configure additional entitlements.

5. Type **d** followed by the **<Enter>** key to review the full range of your choices. Note that disabled entitlements display their state as blank.

6. Type **s** followed by the **<Enter>** key to commit your choice as an entitlement for your system. After saving the value succeeds you will be returned to the ACLI.

7. Reboot your Oracle Enterprise Session Border Controller.

```
ACMEPACKET# setup entitlements


----------------------------------------------------------------
Entitlements for Enterprise Session Border Controller
Last Modified: 2014-09-24 14:40:03
----------------------------------------------------------------
 1 : Session Capacity           : 360
 2 :   Advanced                 : enabled

Enter 1 - 2 to modify, d' to display, 's' to save, 'q' to exit.
[s]: s
SAVE SUCCEEDED
```

Keyed Licenses and Provisioned Entitlements Compatibility

The Oracle Enterprise Session Border Controller supports keyed licenses and the provisioned entitlements process for provisioning features on the system. Know the following about how licensing mechanisms work with each other.

• You must begin using the provisioned entitlement system for the Acme Packet 1100 and VM Edition, as of this release.

• You may not continue to obtain keyed licenses and install them as necessary for the Acme Packet 1100 and VE Edition, as of this release.

• You are not required to begin using the provisioned entitlement system as of this release on the Acme Packet 3820, Acme Packet 4500, and Acme Packet 6300 platforms.

- You may continue to obtain keyed licenses and install them as necessary on the Acme Packet 3820, Acme Packet 4500, and Acme Packet 6300 platforms.
- Upon migrating to the provisioned entitlements system, the current range of your installed, keyed licenses will be seeded to the provisioned entitlements system. The system's functionality will remain identical.
- If you upgrade to the provisioned entitlements system, then downgrade the software to a version without the provisioned entitlements system, the pre-existing keyed licenses will still function.
- If you upgrade to the provisioned entitlements system, then change the functionality (such as, adding more SIP sessions or removing a feature set), upon downgrade to a pre-provisioned entitlements image, the new functionality will not be present.

High Availability on the Acme Packet 1100

The Acme Packet 1100 supports High Availability (HA), but the configuration differs from other Oracle Enterprise Session Border Controllers (E-SBC) because there is only one management interface on this device.

Unlike other E-SBCs, which provide two management interfaces and two media interfaces, the Acme Packet 1100 provides 1 management interface and 2 media interfaces. For HA, you must create a second management interface object on the Acme Packet 1100 with wancom0 for the **name** and VLAN for the **sub-port-id**. You can configure only one management interface in an HA pair with these settings and the system does not support more than one HA interface with a VLAN tag.

☞ **Note:** The Acme Packet 1100 E-SBC does not support High Availability (HA) for any call using the Time Division Multiplexing (TDM) interface.

Software-based transcoding

The Oracle Enterprise Session Border Controller supports media transcoding on COTS and VM based systems. The transcoding capacity is limited to 100 sessions.

Transcoding is the process of converting voice audio streams from one encoding format (codec) to another. In addition to conversion between codecs, the Oracle Enterprise Session Border Controller can also reframe compressed audio streams from one packet size to another (e.g. 10ms G.729 reframed to 30ms G.729) according to packetization times specified in session establishment.

The Oracle Enterprise Session Border Controller may then convert between any supported codecs and frame size combination to another supported codec and frame size combination. The following are the supported codecs/bit rate, and frame sizes (packetization interval):

Codec	Bit rate	Packetization intervals
G.711 (PCMU/PCMA)	64 kbps	10, 20, 30, 40, 50, 60 ms
G.729/A/B	8 kbps	10, 20, 30, 40, 50, 60 ms

Software-based transcoding is configured identically to hardware-based transcoding, and is invoked when codec policies are configured but no transcoding hardware is recognized in the system. The **dtmf-in-audio** parameter is absent from the **codec-policy** configuration element because DTMF detection/generation is unsupported for COTS and VM based systems.

The following items are also not supported in systems with software-based transcoding only:

- T.38 Fax IWF
- In-band DTMF digit detection/generation
- QoS marking
- IPv4 to IPv6 interworking for transcoded calls

Codec Royalty Licensing

Use of the G.729 Requires a license due to royalty agreements. Licenses are installed on the system in groups of 25 sessions.

Time Division Multiplexing (TDM)

The TDM functionality is for companies planning to migrate from TDM to SIP trunks by using a hybrid TDM-SIP infrastructure, rather than adopting VoIP-SIP as their sole means of voice communications. The TDM interface provides failover for egress audio calls, when the primary SIP trunk becomes unavailable.

- The Acme Packet 1100 is the only platform that supports TDM.
- TDM support requires the optional TDM card.
- TDM operations require the configuration of line mode profiles and local policy.
- The available configuration profiles include T1 line mode and E1 line mode.
- The software upgrade procedure supports the TDM configuration.

☞ **Note:** When the Acme Packet 1100 is deployed in an HA pair, the active system cannot replicate calls between SIP and TDM to the standby system.

For more information, see the Acme Packet 1100 Hardware Installation Guide, the ACLI Configuration Guide, the Web GUI User Guide, and the Web GUI Help.

Tabs

The Web GUI displays tabs that you click to display information and where you can perform tasks.

The following table describes the behavior of each Web GUI tab in Basic Mode and in Expert Mode.

	Home Tab	**Configuration Tab**	**Monitor and Trace Tab**	**Widgets Tab**	**System Tab**
Basic Mode	The Home tab displays the Web GUI Dashboard, where SIP statistics are displayed on configurable widgets. On the Home tab, you can: • Add a widget • Specify the widget sampling parameters • Reset the display to the default • Refresh the data displaying in the widgets	In Basic Mode the Configuration tab displays a workspace where you drag and drop icons to configure the border controller in the network. The toolbar on the Configuration Tab contains the following buttons that display task controls: • Settings. Configure system settings.	The Monitor and Trace tab displays data that the system collects about: • Sessions • Registrations • Subscriptions • Notable Events The page displays a toolbar that you can configure to display particular data for each of the data collection types. For example, you can choose the sort order and	The Widgets tab is a portal to statistics about the system. • Displays a list of objects that provide Configuration, SIP, and System statistical data. Depending on the object selected, you can view the data in list, table, pie chart, bar graph, and line graph form. • Displays a list of Favorite widgets.	The System tab displays the following management controls: • File management. Displays a list of file types and a set of controls to Refresh, Upload, Download, Backup, Restore, and Delete files. • Force HA Switchover. Manually place the

	Home Tab	Configuration Tab	Monitor and Trace Tab	Widgets Tab	System Tab
		• Network. Configure the Host Route and Network Interface. • Security. Configure a Certificate Record, the SDES profile, and the TLS profile. • Management. Configure Accounting, SNMP Community, Trap Receiver, and Web Server. • Other. Configure Media Profile, Translation Rules, SIP Features, SIP Manipulations, and SPL. • Save. Save and activate the configuration. • Discard. Delete unsaved configuration changes. • Wizards. Set boot parameters, Set initial configuration, Set time zone, and Upgrade software.	column headings. When data is present, the following task controls are active: • Search. Configure a search filter. • Show all. Override the display filter and show all data. • Ladder diagram. Displays data in a ladder diagram. • Export session details. Save the detailed data to an external location. • Export summary. Save a summary of the data to an external location.		system in the standby state. • Reboot. Manually reboot the system at any time. • Support information. Generate a file that displays troubleshooting information that you can save and send to Oracle Customer Support. • Upgrade Software. Verify the health of the system software, for example, synchronization health, configuration version, and disk usage. Configure the upload method, browse to the software file to upload, and opt to automatically reboot the system after the upgrade.

	Home Tab	**Configuration Tab**	**Monitor and Trace Tab**	**Widgets Tab**	**System Tab**
		• Switch to Expert. Change from Basic mode to Expert mode. • Search. Search for objects and attributes.			
Expert Mode	Same as in Basic Mode	In Expert Mode the Configuration tab displays a list of configuration objects, grouped like those in the Acme Command Line Interface (ACLI). For example: • Media Manager • Security • Session Router • System Each group contains the same configuration objects as the ACLI. Each object displays the corresponding configuration dialog.	Same as in Basic Mode	Same as in Basic Mode	Same as in Basic Mode

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Known Issues

The following list describes known issues in the E-CZ7.2.0 release.

AP4500 with an ETC v1 Card

An AP4500 with an Enhanced Traffic Controller (ETC) version 1 card may become unresponsive after multiple HA switch-overs over a period of time. Reboot the system.

Default Dashboard Display

The default dashboard may not display data until SIP is enabled.

ECX637 Upgrade - DVD

When upgrading from ECX637 to ECZ710, the CPU load may prevent the primary Oracle Enterprise Session Border Controller from booting. Perform the upgrade when the load on the CPU is light.

High Availability (HA) Synchronization

HA Synchronization is disabled on the Dashboard widgets.

Datapath Error

The system may become unstable when the Distributed Denial of Service (DDoS) threshold is set too high.

Local Media Playback

Local media playback SPL, commonly used for Ringback, is not supported in this release. Note this difference when upgrading from the E-C[xz]6.4.0 release, where this functionality is supported.

MBCD Errors

The system may display MBCD errors during SIPREC calls. These errors are benign.

RFC2833 to UII Interworking

SIP-H323 hairpin calls with Dual-tone Multi-frequency (DTMF) tone indication interworking is not supported.

SIP-KPML

SIP-KPML to RFC 2833 conversion for DTMF events is not supported in this release.

SRTP

Using the Secure Real-time Transport Protocol (SRTP) Session Description Protocol Security Descriptions (SDES) feature in single SRTP termination mode on an Acme Packet 4500 with a HIFN PHY may cause the Oracle Enterprise Session Border Controller (ESBC) to become unresponsive. Perform a "power on reboot."

Redundancy Configuration

Do not use the 169.254.16.x or 169.254.21.x networks in the redundancy-config of the Oracle SBC (including the network-interface configuration for the wancom1 and wancom2 interfaces) when installed on an Acme Packet platform that includes a transcoding card. The system uses these networks to provide software to transcoding DSPs. When the user configures the redundancy configuration with these networks, the system fails to route this software properly.

Workaround: Choose any available network for redundancy other than 169.254.16.x or 169.254.21.x. Note that user documentation describes redundancy configuration using the 169.254.1.x/16 network, which works properly with transcoding cards.

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Caveats

The following notes explain cautionary details to consider when using the E-CZ7.2.0 release.

LDAP Support

The Acme Packet 6300 does not support LDAP.

Local Media Playback

Local media playback SPL, commonly used for Ringback, is not supported in this release. Note this difference when upgrading from the E-C[xz]6.4.0 release, where this functionality is supported.

SIPREC Causes a Restart

On the Acme Packet 1100 and on Virtual Machine platforms, SIPREC stops functioning when media starts flowing before signaling is fully operational.

When SIPREC stops functioning, the system restarts. Note that the restart in this scenario may take longer than expected.

Source-based Routing

The source routing feature as configured by system-config --> source-routing is deprecated. Please review the HIP information in the Network Interface section in the System Configuration chapter of the ACLI Configuration guide for background of accessing SBC Administrative Applications over media Interfaces.

SRTP

For hold and resume SRTP calls, if the rollover counter increments, upon a subsequent hold and resume action without an SRTP rekey or SSRC change an SRTP rekey, the media portion of the call will be lost. This Caveat only applies to systems running Encryption or QoS & Encryption NIUs.

Unresponsive Standby System

If you perform an upgrade on the Acme Packet 3820 and the Acme Packet 4500 when they are under load, the standby system may not start.

Oracle recommends performing the upgrade during a maintenance window when the system is under a low load.

Web GUI and IPv4-IPv6 Support

The Web GUI supports only IPv4.

Web GUI Search

The system does not support searching or sorting on lists and sub-objects from the Search field on a system object page.

- For example, the realm-config system object page displays a list of Network Interfaces. You cannot search for one of the network interfaces on the list.
- For example, the realm-config system object displays the sub-objects "In realm", In network", and "Same ip" under the "Mm" object. You cannot search for the sub-objects.