Net-Net OS-E
Release 3.6

Management Tools

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Preface

About Net-Net OS-E® Documentation

The Net-Net OS-E references in this documentation apply to the Net-Net OS-E operating system software that is used for the following Acme Packet and third-party SBC products.

- Net-Net Application Session Controller (ASC)
- Net-Net OS-E Session Directory (SD) Session Border Controller (SBC)
- Net-Net 2600 Session Directory (SD) Session Border Controller (SBC)
- Third-party products that license and use Net-Net OS-E software on an OEM basis.

Unless otherwise stated, references to the Net-Net OS-E in this document apply to all of the Acme Packet and third-party vendor products that use Net-Net OS-E software.

The following documentation set supports the current release of the OS-E software.

- *Net-Net OS-E – Net-Net 2610/2620 Quick Installation*
- *Net-Net OS-E – Network Interface Card Installation*
- *Net-Net OS-E – USB Creation and Commissioning Instructions*
- *Net-Net OS-E – Slide Rail Kit Installation Instruction*
- *Net-Net OS-E – Virtual Machine Information Guide*
- *Net-Net OS-E – System Installation and Commissioning Guide*
- *Net-Net OS-E – Management Tools*
- *Net-Net OS-E – System Administration Guide*
- *Net-Net OS-E – Session Services Configuration Guide*

- *Net-Net OS-E – Objects and Properties Reference*
- *Net-Net OS-E – System Operations and Troubleshooting*
- *Net-Net ASC — Web Services SOAP/REST API*
- *Net-Net ASC — Web Services Samples Guide*
- *Net-Net OS-E – Release Notes*

Revision History

This section contains a revision history for this document.

Date	Revision Number	Description
December 1, 2009	Revision 1.00	FCS release of the OS-E 3.6.0 software.
December 14, 2009	Revision 1.01	GA release of the OS-E 3.6.0 software.
June 16, 2010	Revision 1.02	• Removes the SS8 results codes. • Removes all references to MX-1 card support.
December 3, 2010	Revision 1.03	• Updates Acme Packet contact information. • Updates Using the Web Services Eventpush Application by removing the deprecated **pushlet-app** property.
June 24, 2011	Revision 1.10	• Changes the references to the software from Net-Net 2600 and NN2600 to Net-Net OS-E and OS-E. • Adds 3.6.0m4 adaptations. • Updates Appendices A, B, and C.
September 30, 2011	Revision 1.11	• Changes references from Least Cost Routing (LCR) to route-server.
August 3, 2012	Revision 1.20	• Adds 3.6.0m5 adaptations.

Conventions Used in This Manual

Typographical Conventions

Key Convention	Function	Example
KEY NAME	Identifies the name of a key to press.	Type **`abc`**, then press [ENTER]
CTRL+*x*	Indicates a control key combination.	Press CTRL+C
brackets [ ]	Indicates an optional argument.	`[`*`portNumber`*`]`
braces { }	Indicates a required argument with a choice of values; choose one.	`{enabled | disabled}`
vertical bar |	Separates parameter values. Same as "or."	`{TCP | TLS}`
Monospaced bold	In screen displays, indicates user input.	`config>` **`config vsp`**
Monospaced italic	In screen displays, indicates a variable—generic text for which you supply a value.	`config servers>` **`config lcs`** *`name`*
bold	In text, indicates literal names of commands, actions, objects, or properties.	...set as the secondary directory service (with the **unifier** property)...
bold italic	In text, indicates a variable.	...set the **domain** property of the ***directory*** object.

Acronyms

The OS-E manuals contain the following industry-standard and product-specific acronyms:

AAA	Authentication, authorization, and accounting
ALI	Automatic location identifier
ANI	Automatic number identification
ANSI	American National Standards Institute
AOR	Address of record
API	Application programming interface
ARP	Address Resolution Protocol
AVERT	Anti-virus emergency response team

B2BUA	Back-to-back user agent
BOOTP	Bootstrap Protocol
CA	Certificate authority
CAP	Client application protocol
CBC	Cipher block chaining
CBN	Call back number
CCS	Converged Communication Server
CDR	Call detail record
CIDR	Classless interdomain routing
CLI	Command line interface
CMOS	Comparison mean opinion score
CNAME	Canonical name record
CNI	Calling number identification
CODEC	Compressor/decompressor or coder/decoder
CPE	Customer-premise equipment
CRL	Certificate revocation list
CSR	Certificate signing request
CSTA	Computer-supported telecommunications applications
CSV	Comma-separated values
DDDS	Dynamic delegation discovery system
DHCP	Dynamic Host Configuration Protocol
DMZ	Demilitarized zone
DN	Distinguished name
DNIS	Dialed number identification service
DNS	Domain name service
DOS	Denial of service
EIM	Enterprise instant messaging
ESD	Electrostatic discharge
ESGW	Emergency services gateway
ESQK	Emergency services query key
ESRN	Emergency services routing number
FQDN	Fully qualified domain name

GUI	Graphical user interface
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
I2	National Emergency Number Association defined VoIP solution
ICAP	Internet Calendar Access Protocol
ICMP	Internet Control Message Protocol
IM	Instant messaging
IP	Internet Protocol
JDBC	Java database connectivity
JMX	Java management extensions
JRE	Java runtime environment
LATA	Local access and transport area
LCR	Least-cost routing
LDAP	Lightweight Directory Access Protocol
LIS	Location information service
MAC	Media access control
MCS	Multimedia Communications Server
MIB	Management information base
MOS	Mean opinion score
MSAG	Master street address guide
MTU	Maximum transmission unit
NAPTR	Naming authority pointer
NAT	Network address translation
NENA	National Emergency Number Association
NIC	Network interface card
NS	Name server
NSE	Named signaling events
NTLM	NT Lan Manager
NTP	Network Time Protocol
OCI	Open Client Interface
ODBC	Open database connectivity
OTP	Over temperature protection

OVP	Over voltage protection
PBX	Private branch eXchange
PEM	Privacy-enhanced mail
PERL	Practical Extraction and Reporting Language
PING	Packet internet groper
PKCS#12	Public Key Cryptography Standard #12
PKI	Public Key Infrastructure
PSAP	Public safety answering point
PSCP	PuTTY secure copy
PSTN	Public switched telephone network
QOP	Quality of protection
QOS	Quality of service
RADIUS	Remote Authentication Dial-in User Service
RTC	Real-time collaboration
RTCP	Real-time Control Protocol
RTP	Real-time Transport Protocol
RTT	Round-trip time
SATA	Serial ATA
SCSI	Small computer system interface
SDK	Software development kit
SDP	Session Description Protocol
SFTP	Secure Shell File Transfer Protocol
SIMPLE	SIP Instant Messaging and Presence Leveraging Extension
SIP	Session Initiation Protocol
SIPS	Session Initiation Protocol over TLS
SLB	Server load balancing
SMB	Server message block
SNMP	Simple Network Management Protocol
SOA	Server of authority
SOAP	Simple Object Access Protocol
SQL	Structured Query Language
SRTP	Secure Real-time Transport Protocol

SRV	Server resource
SSH	Secure Shell
SSL	Secure socket layer
SSRC	Synchronization source
STUN	Simple Traversal of UDP over NATs
TCP	Transmission Control Protocol
TDM	Time division multiplexing
TGRP	Trunk group
TLS	Transport Layer Security
TOS	Type of service
TTL	Time to live
UPS	Uninterruptable power supply
US	User agent
UAC	User agent client
UAS	User agent server
UDP	User Datagram Protocol
UID	Unique identifier
URI	Uniform resource identifier
URL	Uniform resource locator
UTC	Universal coordinated time
VoIP	Voice over IP
VLAN	Virtual local area network
VPC	VoIP positioning center
VRRP	Virtual Router Redundancy Protocol
VSP	Virtual system partition
VXID	Virtual router interface ID
WAR	Web application resource
WAV	Waveform audio
WM	Windows Messenger
WSDL	Web Services Description Language
XML	Extensible Markup Language
XSL	Extensible Stylesheet Language

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Chapter 1. Net-Net OS-E Management Overview

This chapter provides an overview of the tools that allow you to manage Acme Packet OS-E and third-party devices running OS-E software.

For more information on the graphical user interface you are using, refer to Chapter 3, “Using the the OS-E Management System.” See *Net-Net OS-E – Objects and Properties Reference* for information on using the command line interface to manage the OS-E.

Management Tool Options

You can configure, manage, and/or monitor the OS-E using any one of the following interfaces:

- The OS-E command line interface (CLI)
- Web-based management system using the OS-E Management System
- SNMP (Simple Network Management Protocol)
- WSDL (Web Services Description Language)
- XML (Extensible Markup Language)

You can also change between interfaces. See Avoiding Configuration Conflicts with Other Users to understand the process required to do so without losing changes.

Command Line Interface (CLI)

The CLI is a text-based interface that allows you to manage and configure all aspects of the OS-E software. Use the CLI to create, edit, and display the OS-E configuration file. In addition, you can display various components of system status and data. You can access the CLI using a PC or system console, Telnet application, or Secure Shell protocols (SSH1 and SSH2). The CLI is described later in this chapter as well as in the *Net-Net OS-E – Objects and Properties Reference*.

The OS-E CLI provides:

- Industry-standard command syntax, including **show** and **delete** commands.
- Automated command-line completion, where you can type part of an object or property and press the keyboard [TAB] or [SPACE BAR] to complete.
- Online help with objects, properties, and syntax.

Web-Based Management

The OS-E Management System is a graphical user interface (GUI) that allows you to configure and manage systems running the OS-E. The GUI is available as a web application that runs on Internet Explorer Version 5 and later.

The OS-E Management System provides:

- Interactive pull-down menus and tool bars.
- Configurable views that set the system to display only the configuration data that is applicable to a specific application.
- Wizards that step you through complicated configurations such as policy rules and server settings.
- Open from and save to XML functions to allow operation in an offline mode.
- Online help windows that provide you with information during a configuration session.

See Chapter 3, “Using the Net-Net OS-E Management System,” for more information. Refer to the *Net-Net OS-E – Release Notes* for specific information on the supported Web browsers.

SNMP Management

You can use SNMP-based network management applications to monitor OS-E activity. The SNMP agent allows you to:

- Access management information from the MIBs
- Perform SNMP queries (GETs and GET NEXTs) for information contained in the MIBs
- Generate and log SNMP traps in response to system events

The SNMP agent supports SNMP V1 and V2c.

For information on configuring the SNMP protocol on an OS-E interface, see the *Net-Net OS-E – Objects and Properties Reference*. See the *Net-Net OS-E – System Administration Guide* for instructions on configuring the management options.

MIBs

The OS-E uses both standard and enterprise MIBs. To use SNMP to manage certain OS-E components, install these MIBs on an SNMP management station. You can access the OS-E MIBs using the Net-Net OW-E Management System.

MIB name	Description
RFC 1213-MIB	This is the standard MIB-2, formally known as *Management Information Base for Network Management of TCP/IP-based internets: MIB-II*.
cxc.mib	The OS-E enterprise MIB. This MIB also incorporates definitions from: • SNMPv2-SMI • SNMPv2-TC

Web Services Description Language (WSDL)

The WSDL/SOAP (Simple Object Access Protocol) interface is a general-purpose management interface you can use to monitor status, execute actions, and read and write the configuration. It also provides special-purpose functionality to support integration of location information, event, and policy services with external services.

WSDL is an XML-based language for describing Web services and how to access them. SOAP is a communication protocol for communication between applications, based on XML. The OS-E performs session control using the WSDL/SOAP interface.

Specifically, the OS-E allows:

- Authentication of the WSDL interface based on configured user authentication mechanisms
- Access to GET/SET configuration objects
- Access to OS-E status objects for information display
- Addition of external services
- Execution of actions

Avoiding Configuration Conflicts with Other Users

To support two or more users editing the same copy of the configuration, the OS-E implements a configuration conflict feature that checks for concurrent changes made with the OS-E Management System or the CLI. The OS-E warns any user who attempts to update and save a configuration if the configuration has been saved elsewhere since it was loaded or last saved (indicating that the user does not have the most current version).

Note: When using web services (WSDL) to update the configuration, the OS-E does not check for revision numbers and does not implement configuration conflict detection. When the OS-E receives a setConfig message, it overwrites the running configuration regardless of whether unsaved changes have been made by other users or management tools.

Revision management is the mechanism the OS-E uses to detect and avoid configuration file version conflicts. Each top-level configuration object has an associated revision number. The top-level objects are: access, box, cluster, external-services, features, master-services, preferences, services, and vsp. The OS-E increments an object’s revision number each time there is a saved change to that object (or to any subobjects and properties). You can use the **config-details** status provider to display the current revision number for each top-level object. Each time the box is restarted, the revision numbers revert to 1.

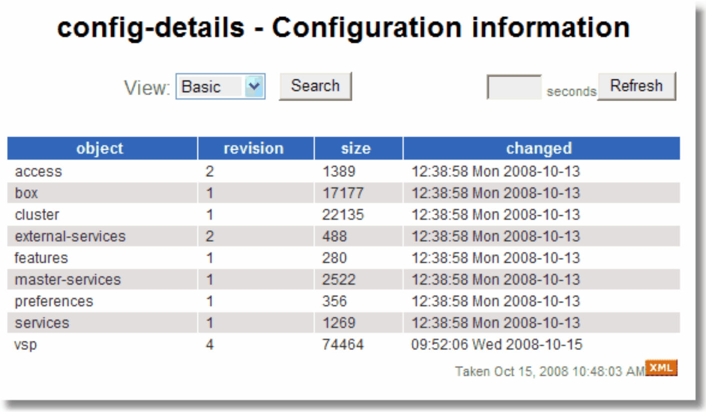
Conflict Detection in the CLI

If you attempt to make changes in the CLI when it has been changed elsewhere, the OS-E displays a message similar to the following:

```
Your vsp changes will overwrite changes made by somebody else.
Are you sure that you want to commit your changes (y or n)?
```

Conflict Detection in the OS-E Management System

The example below shows OS-E Management System sample output of the **config-details** status provider. The system increments the revision counter of the top-level parent of the changed object. A change that increments the revision can be an addition, modification, or deletion—anything that is then saved. The following graphic shows the output of the config-details status provider.

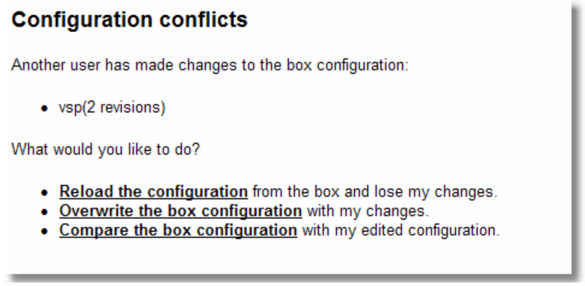


config-details - Configuration information

object	revision	size	changed
access	2	1389	12:38:58 Mon 2008-10-13
box	1	17177	12:38:58 Mon 2008-10-13
cluster	1	22135	12:38:58 Mon 2008-10-13
external-services	2	488	12:38:58 Mon 2008-10-13
features	1	280	12:38:58 Mon 2008-10-13
master-services	1	2522	12:38:58 Mon 2008-10-13
preferences	1	356	12:38:58 Mon 2008-10-13
services	1	1269	12:38:58 Mon 2008-10-13
vsp	4	74464	09:52:06 Wed 2008-10-15

Taken Oct 15, 2008 10:48:03 AM

If one user makes changes to any part of the configuration before another user can save his or her changes, the OS-E Management System presents the following message:



Configuration conflicts

Another user has made changes to the box configuration:

- vsp(2 revisions)

What would you like to do?

- Reload the configuration from the box and lose my changes.
- Overwrite the box configuration with my changes.
- Compare the box configuration with my edited configuration.

Click on one of the three options. If you choose to:

- **Reload the configuration**—The OS-E replaces the configuration file with the latest successful saved configuration. Any changes made since your last save are lost. In the OS-E Management System, this is the equivalent of the **Reload configuration** option in the **Configuration** menu.
- **Overwrite the box configuration**—The box's saved configuration is replaced with the configuration you loaded and any changes you made. Changes made by other users are lost.
- **Compare the box configuration**—Displays the conflicted areas of the configuration file, in XML format, indicating the differences.

Configuration Changes in the Event Log

All configuration changes are recorded in the event log. To view these events, use the **event-log** status provider. To filter the display so that it reports the configuration change events, do the following:

- In the OS-E Management System, on the Event Logs tab, click **Local** under **Databases** in the left pane. Use the drop-down list boxes to set the **Process** to **manager** and the **Log Class** to **system**.
- In the CLI, enter the following command:

```
NNOS-E> show event-log process=manager class=system
```

Net-Net OS-E Management System Overview

The OS-E Management System (OS-E-MS) is an XML-based Web application that allows you to manage and configure OS-E software. The OS-E Management System runs on Internet Explorer versions 5.5 and later by simply pointing your browser to the OS-E interface that you configured for Web management.

The OS-E Management System provides:

- An organized series of menus and pages for creating and validating OS-E configurations.
- A user portal that allows view-only access to call logs (see Providing Access to the User Portal for more information\.)
- The ability to import from XML and save to XML to allow operation in an offline environment.

Configuration Concepts

The OS-E configuration structure consists of a command hierarchy. When you use a management tool to create, edit, or modify the configuration, the software writes the new configuration to the default file named **cxc.cfg**.

Types of Configurations

Before working with the OS-E, you should be familiar with how it uses the cxc.cfg configuration file. There are three levels of configuration:

1. The *working* config, which keeps a record of configuration edit.
2. The *running* config, which is used by the system.
3. The *saved* config, from which the system boots.

A full description of the save actions for these three levels of configuration can be found in the chapters describing the various interfaces. See also the “Methods for saving configuration file changes” table.

Saved Config

The saved (or default) configuration is saved to the /cxc/cxc.cfg file. When the OS-E starts, it loads the saved config into the running config. To save the running config to the saved config:

- In the CLI, use the **save** command at the config prompt (config>) or the **config save** action at the top-level prompt (**NNOS-E>**, by default).
- In the OS-E Management System from the Configuration menu, click **Update and save configuration**. Or, use the **config save** action (in the **Actions** tab).

Running Config

The running config is the current operational configuration. When you make changes to the configuration and use the **Update** option (OS-E Management System) or the **commit** command (CLI), you are saving your changes to the running config. These changes affect the OS-E's current behavior but do not persist at the next reboot if not saved.

You can display the entire running config from the CLI as follows:

```
NNOS-E> config show -v
```

In the OS-E Management System, you can display an object-level outline of the running config by expanding the hierarchy in the left pane.

Edit the running config using the CLI **config** or **set** commands, the OS-E Management System, or another management application. You can save the running config to a file (either the saved config or a different file) by using the **config save** action on the **Actions** tab (OS-E Management System) or at the top-level CLI prompt, or by using the CLI **save** command.

Working Config

When you edit a configuration object, you get a working copy of that object. The working config maintains a record of all configuration changes you have made since the last save to the running config. (In the CLI, these are changes made to an object that you then moved from in the config tree; in the OS-E Management System, these are changes recorded with the **Set** button.) However, your changes are not applied to the running config until you explicitly commit them. In other words, the changes are not yet operational. While you're editing an object, the CLI **show** command displays your working copy.

To save changes from the working config to the running config:

- In the OS-E Management System, use the **Update** option.
- In the CLI, use the **commit** command, or exit from config mode and reply **Yes** to the prompt.

Saving Changes to the Configuration File

The method you use to save a configuration file affects which configuration file is modified. The following table describes each method of saving.

Methods for Saving Configuration File Changes

Method	Accessed from	Description
Update	OS-E Management System: **Update and save configuration** on the **Configuration** menu	Writes changes from the working config to the running config. These changes do not persist. That is, unless they are written to the saved config, they are not part of the configuration the next time the system boots.
commit	CLI only: At the **config *object*>** prompt. Exit from configuration mode without saving and reply **Yes** to the prompt.	Writes changes from the working config to the running config. These changes do not persist. That is, unless they are written to the saved config, they are not part of the configuration the next time the system boots.
save	OS-E Management System: **Update and save configuration** option on the **Configuration** menu CLI: At the **config>** prompt.	Saves the running config to the saved config on the system. After you have selected to update a configuration, the system prompts you as to whether you want to then save it. Select **yes** to modify the configuration from which the system boots; select no to make changes only to the current operating configuration. You may want to do this, for example, to test your changes.
config save	OS-E Management System: **config save** action in the **Actions** tab CLI: At the top-level prompt.	Saves the running config to either the saved config, or, if a pathname is supplied, to that file name on the system. Select either standard, verbose, or XML formats. Standard format only outputs properties with a value different from the default; verbose outputs every property. The files are functionally equivalent. **Note:** In the CLI, the **config save xml** action is the only way to save a configuration as an XML file. See also XML Export and Import.

Method	Accessed from	Description
Save as XML	OS-E Management System: **Save as XML** on the **Configuration** menu CLI: Not applicable	Saves the working config to your local computer as an XML file. When you select this option, the system presents a standard Windows Save dialog box. Enter a file name and browse to the location for saving. You can later import the XML file for use as your your working configuration using the OS-E Management System. See XML Export and Import.

XML Export and Import

Both the CLI and the OS-E Management System allow you to save OS-E configurations to, or import from, XML data. XML is the file format employed that the OS-E Management System. You can manipulate the XML data using any XML tool, but you must use an actual management tool, such as the CLI, to get the configuration file onto the system.

However, when configuration files are saved as XML, you can import them to other OS-E systems or to other XML applications that transform the data for other uses. This can save time if you have identical configuration settings across OS-E systems in a cluster. With XML, you can also edit the configuration file offline. In the CLI, XML and “standard CLI” configuration files are interchangeable with the same default save location.

For more information on working with XML files, see:

Management tool	See...
OS-E CLI	*Net-Net OS-E – Objects and Properties Reference*
OS-E Management System	Importing and Exporting XML Files

There are two methods for saving configuration files in XML format.

- **Save as XML** option

  The **Save as XML** option is available on the **Configuration** menu of the OS-E Management System. When you select this option, the OS-E saves the working config to your local computer. Use one of the following to move the file back on to the system:

  - Use the **Load from XML** option on the **Configuration** menu. The XML file then becomes the system's working config.
  - Use the **config replace** or the **config merge** action. The XML file then becomes the system's startup and running config.

- **config save** action

  The **config save** action allows you to select XML as the format. The system saves the running config to the saved config on the box. Use one of the following to move the file from the system to your local computer for use on another system or for offline editing:

  - Use the **Download File** option on the **Tools** tab of the OS-E Management System. Or, use the **send** operation in the **file** action.
  - In the CLI, use the **file send** action.

Elements of the Configuration File Structure

The OS-E configuration file is a hierarchy of *objects* and *properties*; objects and properties describe the configuration. You use actions and commands to manipulate the data. The following table describes each of these elements.

Element	Description
Object	An object is a configuration container that contains properties of a specific configuration class. Objects are available at all configuration levels. Some examples of objects are: • vsp • box • enterprise

Element	Description
Property	A property is a value for a characteristic of an object. Properties are available at all configuration levels. In the OS-E Management System, when you click on an object, the right-hand pane displays the properties for that object. In the CLI, issuing **set ?** from within an object lists all primary properties. Some examples of properties are: • admin • ip-address • domain-name
Command (CLI only)	A command is a tool used to change the configuration file. The changes do not affect the OS-E until you save or update the configuration. Some examples of commands are: • config • set • reset • move
Action	An action immediately executes from the OS-E system. Some examples of actions are: • config save • dns-lookup • virus-scan

Entering Values into the Configuration

When entering data, you may be creating new objects or referencing existing objects. Regardless of the management tool chosen, the naming rules and building blocks work the same.

Note: The CLI has more specific entry requirements. See the *Net-Net OS-E – Objects and Properties Reference* for detailed information.

Referencing Previously Configured Objects

The OS-E provides a reference mechanism for you to re-use objects in the system. This allows you can define an object once, and then reference it from other configuration objects where it can be applied. For example, you can define a policy and then apply that policy to users belonging to certain named groups.

Commonly referenced objects include:

- policies
- interfaces
- certificates
- groups
- word lists
- permissions
- condition lists
- servers

Entering References

When you reference an object, you must use the full path name to the object. In the OS-E Management System, all previously configured objects for selection are available and displayed in a drop-down list box or check-box list. In the CLI, you enter the full path name at the command line. Note that in the CLI, if you enter a path name to a reference that does not exist, the system creates an object with that name and supplies it with default values.

String Requirements

When a property or object requires a string (e.g., user name, directory service instance, etc.) the following rules apply:

- Any printable character is acceptable.
- If the string contains a backslash character (\ ), you must use double backslash (\\ ) to get a single backslash in the result.
- Strings are case sensitive (i.e., admin is not the same as Admin).

- In the CLI, any string that contains spaces must be enclosed in quotation marks.

The following string length limits are advised:

- Object names up to 16 characters
- Descriptions up to 32 characters
- Regular expressions up to 128 characters.

Using Regular Expressions

A *regular expression* is a formula for matching strings that follow some pattern. Many of the conditions and predicates require a regular expression entry. The system uses PERL-compliant regular expressions. Refer to one of the following sites for more complete instructions on writing regular expressions:

- http://www.perl.com/doc/manual/html/pod/perlre.html
- http://www.oreilly.com/catalog/regex/
- http://www.oreilly.com/catalog/regexppr/

Using Relational Operators

In policy building, the OS-E uses some pre-defined relational operators for building conditions lists and predicate statements with elements of the same type. For example, use these operators to define ranges or compare values for equality or inequality. With them, your statements form logical expressions to determine choice, such as inclusion or exclusion, and sometimes action. The operators are as follows:

- eq = equal to
- ne = not equal to
- gt = greater than
- lt = less than
- ge = greater than or equal to
- le = less than or equal to

In addition, you can use match and exclude statements to define the use of the string. A match statement includes values that match the specified string; an exclude statement ignores them. For example, use match and exclude statements for enumerated lists, IP addresses, ports, and regular expressions.

Understanding Passwords and Tags

For increased security, the OS-E uses a two-part password mechanism for passwords shared with other devices (also known as shared secrets). You must configure both a password and a tag. An enterprise or RADIUS server, for example, probably has a configured password that the OS-E must use to access the server. This shared secret is the password. The tag is not the password, but a configured name used to access the real password. By managing shared secrets, you can maintain the secrecy of the other device's password. An administrator can set up the tags and passwords where end users can work with the configuration files and use the password tag without having access to the password itself.

For example, if the secret for your RADIUS server is **RadPswd**, you can create a secret-tag of **myTag** on the OS-E. When administrators configure the OS-E to communicate with the RADIUS server, they must supply the tag, **myTag**. The real password for server authentication, **RadPswd,** remains hidden to the user. In this way, the tag can be reused when creating other configurations that use the same real password. Or, if the password is compromised, it can be changed without changing the OS-E configuration.

The OS-E uses a password store to maintain the actual password known to the other device. Using a password store allows the shared passwords to be stored outside of the configuration file. Password tags are stored in the OS-E configuration.

➡ **Note:** You can create a blank password by creating a tag without a corresponding password. This may cause problems with the external system when it tries to authenticate the OS-E system.

This password mechanism applies only to cases where the OS-E is using a shared secret. It does not apply to passwords created for users under the **access** object. (These are stored as hashed data, and never as plaintext.)

➡ Passwords are maintained in a separate store; simply copying the configuration file between devices does not copy the password store. You can manually enter your passwords on each OS-E system. Or, you can use the **secret synchronize** action on the master device to copy your passwords on to other devices in the cluster. See the *Net-Net OS-E – Objects and Properties Reference* for information on the secret action.

For more information on working with passwords, see:

Management tool	See...
OS-E CLI	*Net-Net OS-E – Objects and Properties Reference*
OS-E Management System	Managing Passwords and Tags

Simplifying the Configuration Display

The OS-E Management System allows you to customize the complexity of your display (with options on the **View** menu) to better suit your needs and to hide more advanced objects and properties.

Modifying the Configuration Options with Views

The View feature sets the system to display only the configuration data that is applicable to a specific application. For example, you can set the display to show data only for **Phone services**. To access the view feature open the **View** menu in the left pane of the OS-E Management System when the Configuration, Services, or Access tabs are displayed.

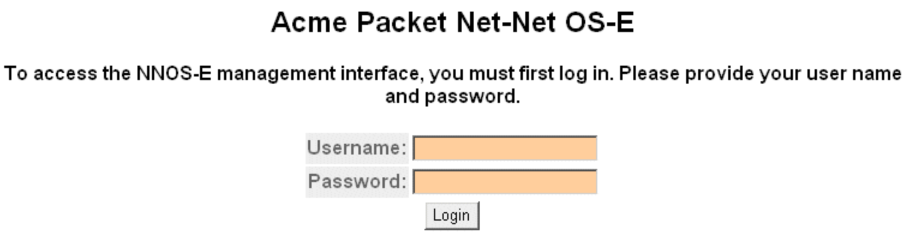
Displaying Secondary Commands

The OS-E uses the concept of secondary objects and properties to limit the display of those items that are rarely used. These would be advanced properties for fine-tuning a configuration, and would never be necessary for normal operations. These objects and properties can be made visible on any configuration page when you click the **Advanced** or **Show advanced** button. For information on accessing them via the CLI, see the *Net-Net OS-E – Objects and Properties Reference*.

Accessing the Net-Net OS-E Management System

To access the OS-E, enter the IP address as the URL in your Web browser using HTTPs (for example, https://192.168.100.100). The system prompts you to enter the username and password that the system administrator assigned to you. If there are no configured users, you are granted access without entering login information.

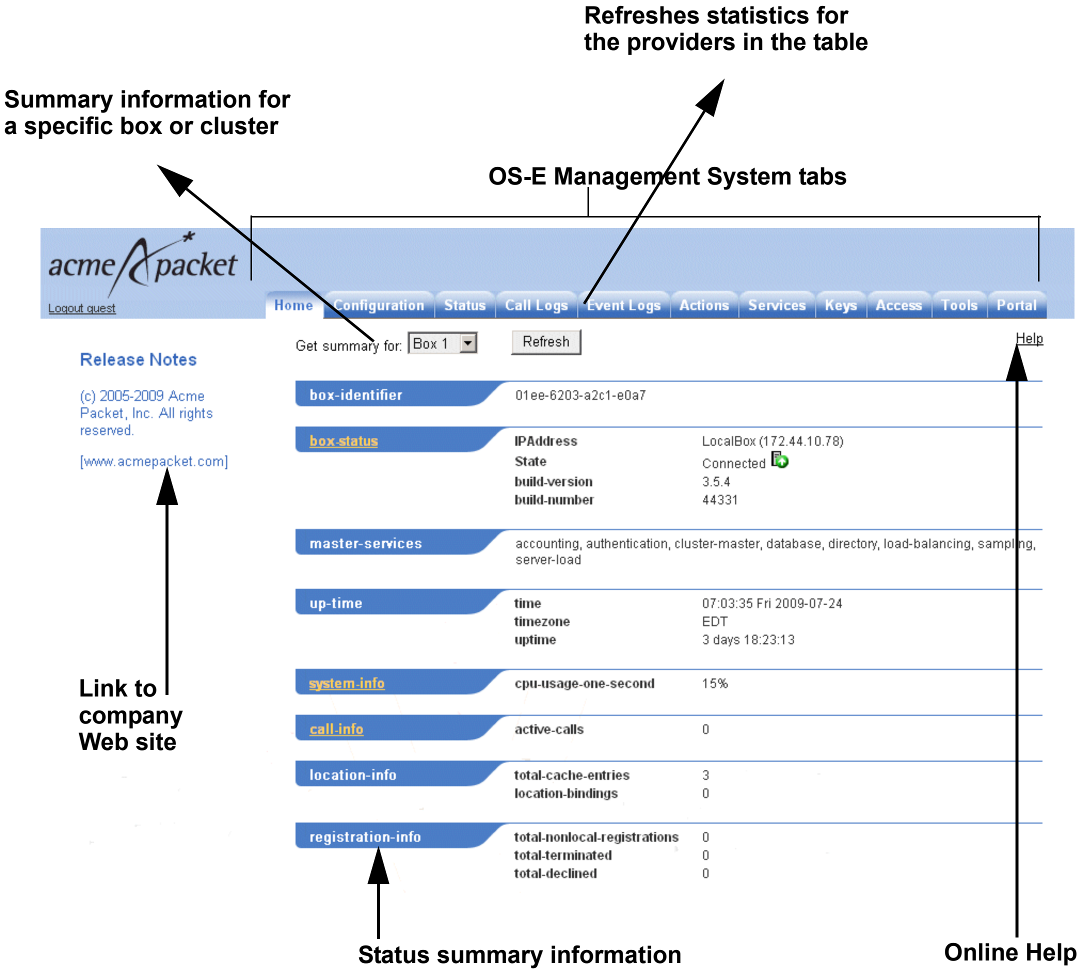
Note: Before the management system is available, you must first use the CLI to assign an IP address to the management interface, as well as enable the **web** object. See *Net-Net OS-E – Release Notes* for information on assigning this address and enabling the Web interface.



Acme Packet Net-Net OS-E

To access the NNOS-E management interface, you must first log in. Please provide your user name and password.

Once you are logged on, the system displays the OS-E Management System home page.



Refreshes statistics for the providers in the table

Summary information for a specific box or cluster

OS-E Management System tabs

Link to company Web site

Status summary information

Online Help

acme packet
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Get summary for: Box 1
Refresh
Help
Release Notes

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[www.acmepacket.com]

box-identifier	01ee-6203-a2c1-e0a7	
box-status	IPAddress	LocalBox (172.44.10.78)
	State	Connected
	build-version	3.5.4
	build-number	44331
master-services	accounting, authentication, cluster-master, database, directory, load-balancing, sampling, server-load	
up-time	time	07:03:35 Fri 2009-07-24
	timezone	EDT
	uptime	3 days 18:23:13
system-info	cpu-usage-one-second	15%
call-info	active-calls	0
location-info	total-cache-entries	3
	location-bindings	0
registration-info	total-nonlocal-registrations	0
	total-terminated	0
	total-declined	0

The following table describes the components in the OS-E Management System home page.

Window component	Description
Get summary for	Allows you to display summary information for a specific box or cluster.
Refresh	Updates the statistics for the providers displayed in the summary table.
OS-E Management System tabs	Provide access to the main functions of the Web-based version of the management system. Each tab opens a page that allows you to set, view, run, or manage elements of the Acme Packet family of devices. Refer to Page Selection Tabs for information on each link selection.
www.acmepacket.com	Launches the company Web site.
Status summary information	Displays status summaries for a select group of status providers. See Status Summary Page for more information.
Help	Launches the online help system in a separate window, providing more information about configuration objects.

Status Summary Page

The home page of the OS-E Management System displays status summaries for a select group of status providers. You can also choose to display information for a specific device or for the cluster using the **Get summary for** drop-down list box. You can configure the providers that display summaries using the **summary-preferences** configuration object on the **Services** tab by expanding **preferences** in the left pane, selecting **cms-preferences**, and by clicking **Configure** in the **summary-preferences** row.

See the chapter on the **preferences** object in the *Net-Net OS-E – Objects and Properties Reference* for a description of each status summary display.

Chapter 2. Comparing Management Tools

This chapter compares the tools that you can use to configure and edit the Acme Packet OS-E. The chapter illustrates the methodology for completing a variety of tasks using the various tools. For a brief overview of each tool, see Chapter 1, “Net-Net OS-E Management Overview.”

Comparing Management Tools

Each management tool offers specific types of benefits. Because they share a single configuration file, you can, if you choose, select a combination of tools that work best for you. (Note that you cannot use the tools simultaneously, but you can swap between them.) The following table summarizes the benefits of each tool.

Management tool	Benefits
OS-E CLI	Lightweight tool that provides full configuration and display access. Straightforward, hierarchical command line interaction.
OS-E Management System	Graphical interface to all configuration and management tasks via a Web browser. Includes wizards that step you through complicated tasks. Displays session and accounting call logs, and graphs various usage data. See Chapter 3, “Using the Net-Net OS-E Management System,” for specific information.
WSDL API	Provides an industry standard XML SOAP interface to manage, configure, and monitor the OS-E. See Chapter 4, “Using the Web services SDK,” for specific information.
SNMP	Provides an interface for SNMP management applications to monitor OS-E activity (GETs and GETNEXTs).

Using the Show Commands

Show commands display data collected by status providers. The following sections display current sessions on the OS-E.

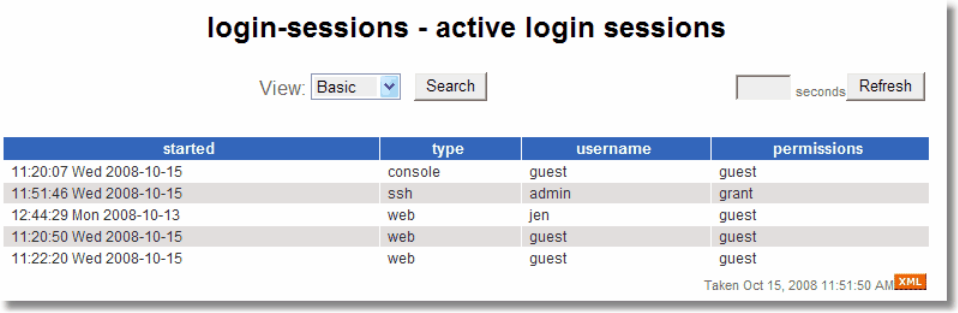
Using the CLI to Show Sessions

From the top-level prompt (NNOS-E> by default):

```
NNOS-E> show login-sessions

started                  type       username             permissions
-------                  ----       --------             -----------
08:55:15 Mon 2006-05-01  console    guest                guest
11:33:24 Mon 2006-05-01  telnet     guest                guest
11:29:06 Mon 2006-05-01  web        guest                guest
```

Using the OS-E Management System to Show Sessions

On the **Status** tab, expand the **Access** category and click **login-sessions**:



login-sessions - active login sessions

started	type	username	permissions
11:20:07 Wed 2008-10-15	console	guest	guest
11:51:46 Wed 2008-10-15	ssh	admin	grant
12:44:29 Mon 2008-10-13	web	jen	guest
11:20:50 Wed 2008-10-15	web	guest	guest
11:22:20 Wed 2008-10-15	web	guest	guest

Taken Oct 15, 2008 11:51:50 AM

Using WSDL to Return Session Status

You can send a SOAP message to the OS-E using either Java code in the SDK to generate the XML or by constructing the XML directly.

Java

Use the following Java code to send a SOAP message to the OS-E to receive a SOAP response.

```
CallOutsPortType port =
       new CallOutsService (wsdl, service).getCallOutsPort();
List<StatusClassesType> list =
       new LinkedList<StatusClassesType>();
Holder<List<StatusClassesType>> holder =
       new Holder<List<StatusClassesType>>(list);


// Request the login-sessions status.
StatusClassesType requestProcess = new StatusClassesType();
ProcessStatusType process = new UserSessionsType();

 requestProcess.getIPInterfaceStatusOrInterfaceStatusOrVLANStatus().a
 dd (process);
list.add (requestProcess);

// Make the request.
port.getStatus (holder);
```

XML

Send the following SOAP message to the OS-E to receive a SOAP response containing the XML representation of the status.

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
              xmlns:cxc="http://www.acmepacket.com/ws/callouts"
              xsi:schemaLocation="http://schemas.xmlsoap.org/soap/
 envelope/ cxc_webservice.xsd">
  <soap:Body>
              <cxc:getStatus>
                             <status>
                                    <UserSessions/>
                             </status>
              </cxc:getStatus>
  </soap:Body>
</soap:Envelope>
```

Using SNMP and the MIB to Access Session Status

The following section of the OS-E MIB corresponds to the login sessions data. You can view session status using a MIB browser.

```
-- UserSessions

loginSessionsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF LoginSessionsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION ""
    ::= { cxcStatus 109 }

loginSessionsEntry OBJECT-TYPE
```

```
    SYNTAX      LoginSessionsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    INDEX       { loginSessionsProcess, loginSessionsStarted }
    ::= { loginSessionsTable 1 }

LoginSessionsEntry ::= SEQUENCE {
        loginSessionsProcess SysProcessInstance,
        loginSessionsStarted INTEGER,
        loginSessionsType UserSessionMode,
        loginSessionsUsername OCTET STRING,
        loginSessionsPermissions OCTET STRING
    }

loginSessionsProcess OBJECT-TYPE
    SYNTAX      SysProcessInstance
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { loginSessionsEntry 1 }

loginSessionsStarted OBJECT-TYPE
    SYNTAX      INTEGER
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { loginSessionsEntry 2 }

loginSessionsType OBJECT-TYPE
    SYNTAX      UserSessionMode
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { loginSessionsEntry 3 }

loginSessionsUsername OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { loginSessionsEntry 4 }

loginSessionsPermissions OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { loginSessionsEntry 5 }
```

Using the Config Commands

The following sections present the steps to create an autonomous IP group.

Using the CLI to Configure an Object

From the top-level prompt:

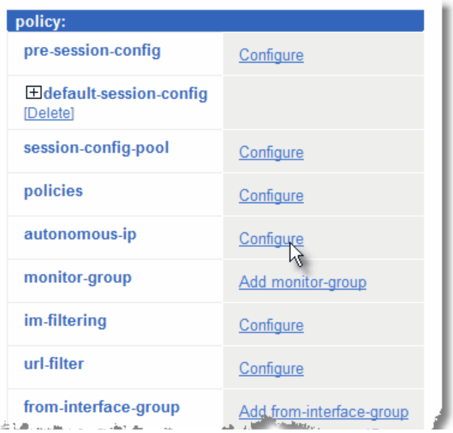
```
NNOS-E> config vsp
config vsp> config autonomous-ip
config autonomous-ip> config group cliExample
Creating 'group cliExample'
config group cliExample> set subnet 192.168.0.0/16
config group cliExample>
```

Alternatively:

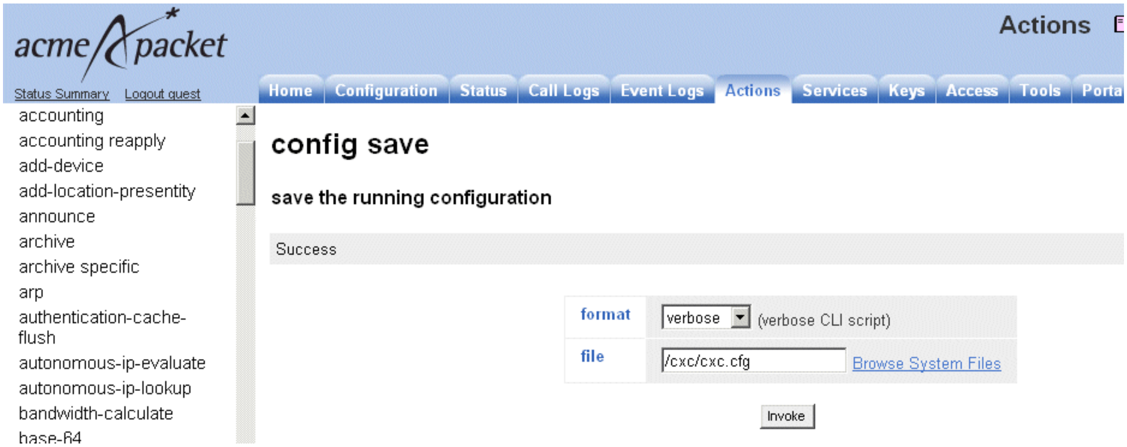
```
NNOS-E> config vsp autonomous-ip group cliExample
Creating 'group cliExample'
config group cliExample> set subnet 192.168.0.0/16
config group cliExample>
```

Using the OS-E Management System to Configure an Object

On the **Configuration** tab, select **vsp** in the left pane. Scroll to the policy grouping, and click the Configure link next to autonomous-ip::


policy:
pre-session-config
Configure
⊞default-session-config
[Delete]
session-config-pool
Configure
policies
Configure
autonomous-ip
Configure
monitor-group
Add monitor-group
im-filtering
Configure
url-filter
Configure
from-interface-group
Add from-interface-group

Click **Add group** to create a new group:


acme packet
Actions
Status Summary
Logout quest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Porta
accounting
accounting reapply
add-device
add-location-presentity
announce
archive
archive specific
arp
authentication-cache-flush
autonomous-ip-evaluate
autonomous-ip-lookup
bandwidth-calculate
base-64
Browse System Files
Invoke

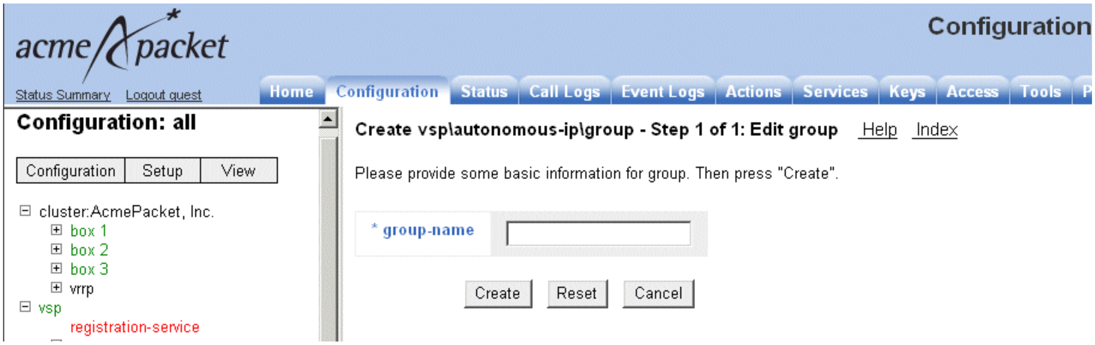
config save

save the running configuration

Success

format	verbose (verbose CLI script)
file	/cxc/cxc.cfg

Enter a name for the group and click **Create**:


acme packet
Configuration
Status Summary
Logout quest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
P
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
Help
Index
Create
Reset
Cancel

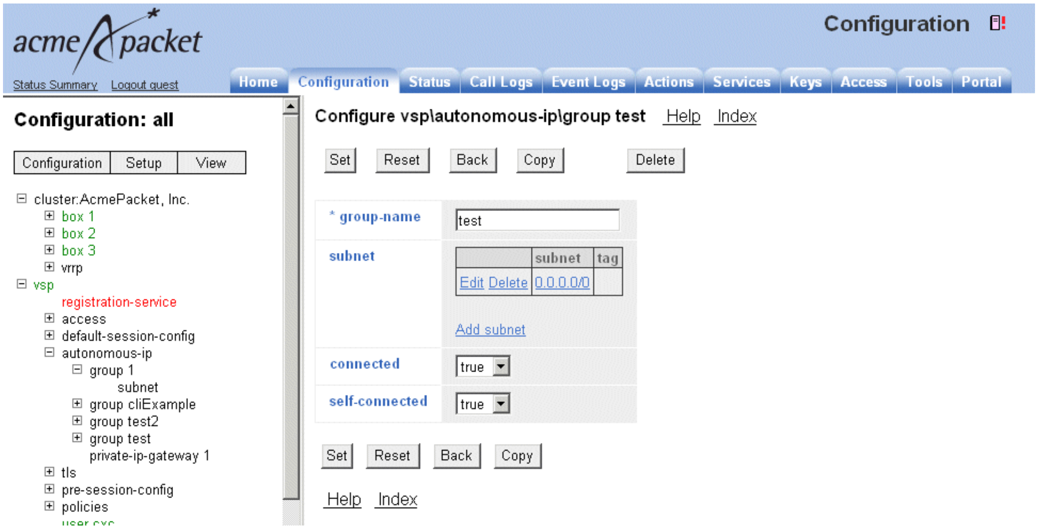
Configuration: all

Create vsp\autonomous-ip\group - Step 1 of 1: Edit group

Please provide some basic information for group. Then press "Create".

* group-name	

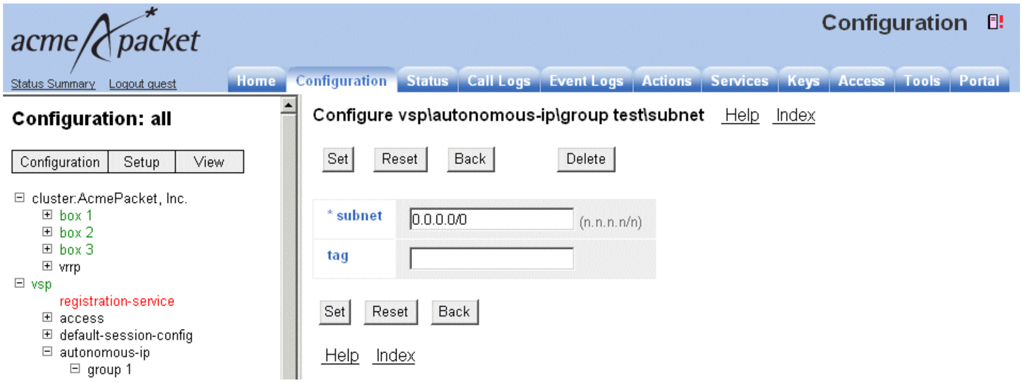
Click **Edit** in the subnet row to define the subnet for the group:


acme packet
Status Summary
Logout guest
Configuration
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
group 1
subnet
group cliExample
group test2
group test
private-ip-gateway 1
tls
pre-session-config
policies
Help
Index
Set
Reset
Back
Copy
Delete
Edit
Delete
Add subnet

Configure vsp\autonomous-ip\group test

* group-name	test
subnet	subnet: 0.0.0.0/0
connected	true
self-connected	true

Change the subnet from the default value to the appropriate value and click **Set**:


acme packet
Status Summary
Logout guest
Configuration
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
group 1
Help
Index
Set
Reset
Back
Delete

Configure vsp\autonomous-ip\group test\subnet

* subnet	0.0.0.0/0 (n.n.n.n/n)
tag	

Using WSDL to Configure an Object

Java

Use the following Java code to send a SOAP message to the OS-E to merge the new configuration of an autonomous IP group into the existing saved configuration.

```
// Form the config request to create a new box in the cluster.
ClusterType cluster = new ClusterType();
ClusterType.Box box = new ClusterType.Box();
cluster.getBox().add (box);
```

```
box.setBox (new BoxType());
box.getBox().setNumber (7);
box.getBox().setAdmin (Admin.ENABLED);
box.getBox().setHostname ("webservice");
ConfigClassesType config = new ConfigClassesType();
config.getClusterOrLocalBoxOrServices().add (cluster);

// Prepare the parameters.
SetConfigType set = new SetConfigType ();
set.setConfig (config);
set.setMode (SetConfigMode.MERGE);

// Make the request to update configuration.
SetConfigResponseType response = port.setConfig (set);
```

XML

Send the following SOAP message to the OS-E to merge the new configuration of an autonomous IP group into the existing saved configuration.

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
               xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
               xmlns:cxc="http://www.acmepacket.com/ws/callouts"
               xsi:schemaLocation="http://schemas.xmlsoap.org/soap/
 envelope/ ../btools/cxc_webservice.xsd">
 <soap:Body>
             <cxc:setConfig mode="merge">
                             <config>
                                    <autonomousIP>
                                       <AutonomousIP>
                                                       <group>

 <AutonomousIPGroup name="WSDLexample">

 <subnet>192.168.0.0/16</subnet>
                                                       </
 AutonomousIPGroup>
                                       </group>
                                    </AutonomousIP>
                             </autonomousIP>
                             </config>
             </cxc:setConfig>
 </soap:Body>
</soap:Envelope>
```

Entering References

References are pointers to previously configured objects. Creating the original object that the reference points to is an ordinary configuration task. The following example illustrates referencing a configured server to function as the default server.

Using the CLI to Create a Reference

The first example references a server named “NNOS-E@SanJose:”

```
NNOS-E> config vsp
config vsp> config enterprise
config enterprise> config servers
config servers> set default-server "vsp enterprise servers sip-gateway
 NNOS-E@SanJose"
config servers>
```

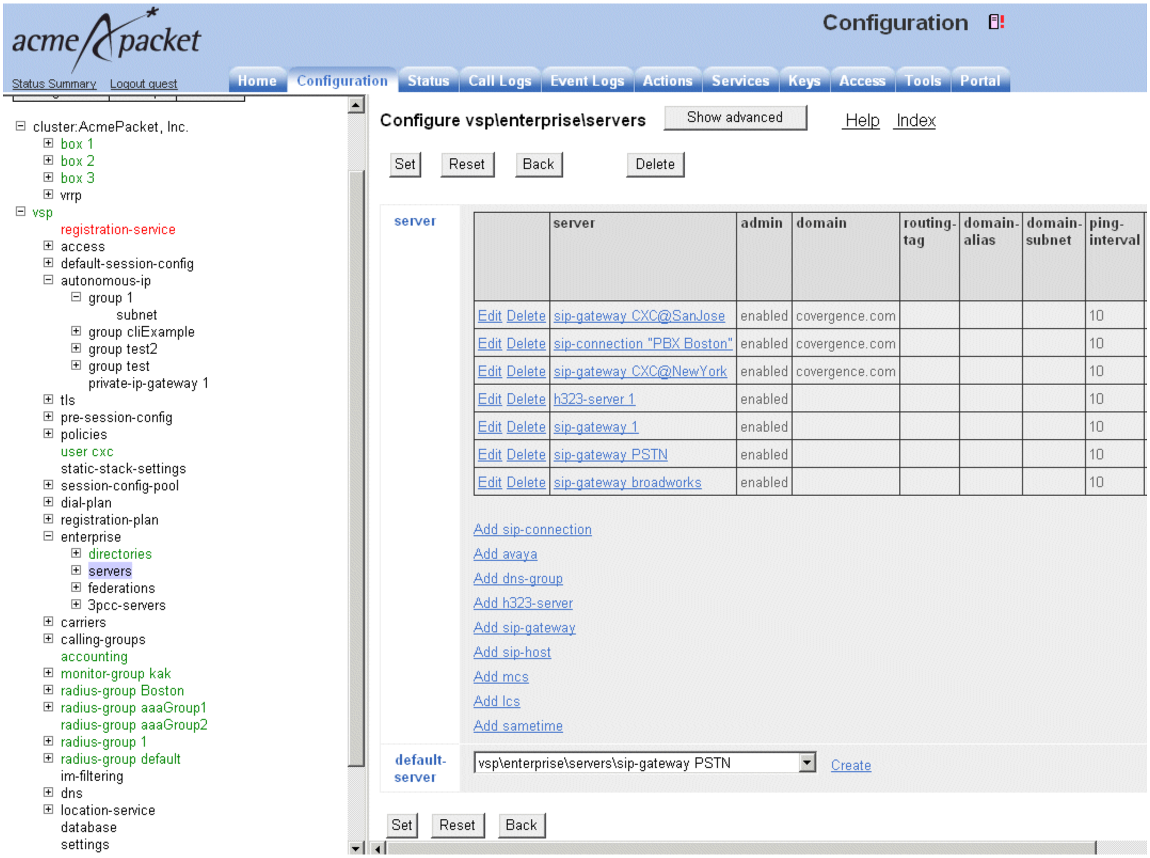
Note: You can both create an object and reference it simultaneously in the CLI, as the following example shows.

The next example references a server that was not previously configured. The OS-E created the server configuration named Boston and gave it default values:

```
NNOS-E> config vsp
config vsp> config enterprise
config enterprise> config servers
config servers> set default-server "vsp enterprise servers sip-gateway
 Boston"
Creating 'vsp\enterprise\servers\sip-gateway Boston'
config servers>
```

Using the OS-E Management System to Specify a Reference

On the **Configuration** tab, click **enterprise** and then **servers** in the left pane. The OS-E lists all configured servers in the **default-server** drop-down list box. Select the appropriate server:


acme packet
Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
group 1
subnet
group cliExample
group test2
group test
private-ip-gateway 1
tls
pre-session-config
policies
user cxc
static-stack-settings
session-config-pool
dial-plan
registration-plan
enterprise
directories
servers
federations
3pcc-servers
carriers
calling-groups
accounting
monitor-group kak
radius-group Boston
radius-group aaaGroup1
radius-group aaaGroup2
radius-group 1
radius-group default
im-filtering
dns
location-service
database
settings
Show advanced
Help
Index
Set
Reset
Back
Delete
Add sip-connection
Add avaya
Add dns-group
Add h323-server
Add sip-gateway
Add sip-host
Add mcs
Add lcs
Add sametime
Create
Set
Reset
Back

Configure vsp\enterprise\servers

server

	server	admin	domain	routing-tag	domain-alias	domain-subnet	ping-interval
Edit Delete	sip-gateway CXC@SanJose	enabled	covergence.com				10
Edit Delete	sip-connection "PBX Boston"	enabled	covergence.com				10
Edit Delete	sip-gateway CXC@NewYork	enabled	covergence.com				10
Edit Delete	h323-server 1	enabled					10
Edit Delete	sip-gateway 1	enabled					10
Edit Delete	sip-gateway PSTN	enabled					10
Edit Delete	sip-gateway broadworks	enabled					10

default-server: vsp\enterprise\servers\sip-gateway PSTN

Using WSDL to Create an Object and Reference It

Java

Use the following Java code to send a SOAP message to the OS-E to merge the new configuration of a referenced server into the existing saved configuration.

```
ConfigClassesType config = new ConfigClassesType();
// create vsp
SCPType scp = new SCPType();
config.getClusterOrLocalBoxOrServices().add(scp);
scp.setAdmin(Admin.ENABLED);
// create enterprise
scp.setEnterprise(new SCPType.Enterprise());
EnterpriseType enterprise = new EnterpriseType();
scp.getEnterprise().setEnterprise(enterprise);
// create servers
enterprise.setServers(new EnterpriseType.Servers());
EnterpriseServersType enterpriseServers = new EnterpriseServersType();
 enterprise.getServers().setEnterpriseServers(enterpriseServers);
// create sip-gateway named NNOS-E@SanJose
EnterpriseServersType.Server serverHolder = new
 EnterpriseServersType.Server();
 enterprise.getServers().getEnterpriseServers().getServer().add(serve
 rHolder);
serverHolder.setSipApplicationServer(new SipApplicationServerType());
 serverHolder.getSipApplicationServer().setName("NNOS-E@SanJose");
// set servers default-server property
enterpriseServers.setDefaultServer(new
 EnterpriseServersType.DefaultServer());
 enterpriseServers.getDefaultServer().setSipApplicationServer(new
 ObjectReference());
 enterpriseServers.getDefaultServer().getSipApplicationServer().setNa
 me("vsp enterprise servers sip-gateway NNOS-E@SanJose");
 // Prepare the parameters.
SetConfigType set = new SetConfigType ();
set.setConfig (config);
set.setMode (SetConfigMode.MERGE);

// Update the configuration.
SetConfigResponseType response = port.setConfig (set);
if (response != null)
{
   System.out.println ("Response: " + response.getCode() + ": " +
 response.getText());
}
```

XML

Send the following SOAP message to the OS-E to merge the new configuration of a referenced server into the existing saved configuration.

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
               xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
               xmlns:cxc="http://www.acmepacket.com/ws/callouts"
               xsi:schemaLocation="http://schemas.xmlsoap.org/soap/
 envelope/ ../btools/cxc_webservice.xsd">
  <soap:Body>
              <cxc:setConfig mode="merge">
                              <config>
                                     <SCP>
                                        <enterprise>
                                                         <Enterprise>
                                                            <servers>

 <EnterpriseServers>

 <defaultServer>

 <SipApplicationServer name="vsp\enterprise\servers\sip-gateway
 NNOS-E@SanJose"/>
                                                                   </
 defaultServer>
                                                               </
 EnterpriseServers>
                                                            </servers>
                                                         </Enterprise>
                                        </enterprise>
                                     </SCP>
                              </config>
              </cxc:setConfig>
  </soap:Body>
</soap:Envelope>
```

Creating a Policy

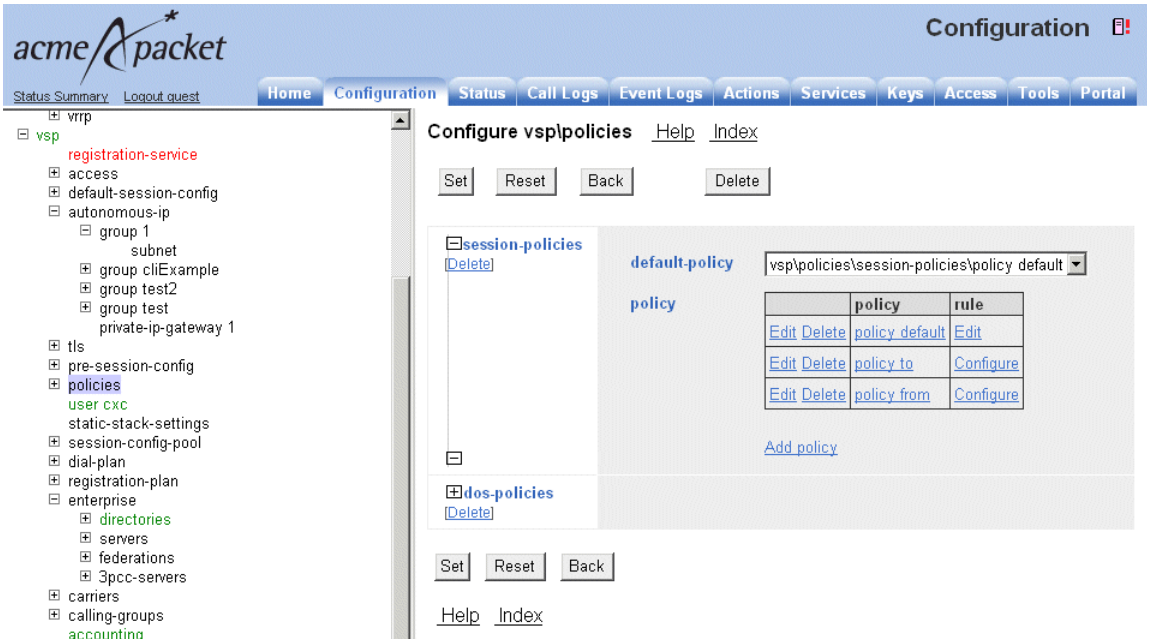
The following examples create an authentication policy that uses a RADIUS server to authenticate users. The OS-E applies this policy to messages received over the VSP (named **default)** and sent from a domain with a host portion matching **phishing.com**. When the OS-E receives traffic from that host on the specified VSP, it forwards the traffic to the specified RADIUS server, which then provides the configured authentication challenges. See the *Net-Net OS-E – Session Services Configuration Guide* for detailed information on SIP session policies.

Using the CLI to Create a Policy

```
NNOS-E> config vsp
config vsp> config policies
config policies> config session-policies
config session-policies> config policy CLIexample
Creating 'policy CLIexample'
config policy CLIexample> config rule CLIpolicyRule
Creating 'rule CLIpolicyRule'
config rule CLIpolicyRule> config condition-list
config condition-list> set mode evaluate
config condition-list> set sip-message-condition request-uri match
 badguy
config condition-list> set from-uri-condition host match
 “.phishing\.com”
config condition-list> show

vsp
 policies
  session-policies
   policy CLIexample
    rule CLIpolicyRule
     condition-list
      operation AND
      mode evaluate
      sip-message-condition[1] request-uri match badguy
      from-uri-condition[1] host match ".phishing\.com"

config condition-list> return
config rule CLIpolicyRule> config session-config
config session-config> config authentication
config authentication> set mode RADIUS disabled "vsp radius-group
 Boston"
config authentication> show

vsp
 policies
  session-policies
   policy CLIexample
    rule CLIpolicyRule
     session-config
      authentication
       mode RADIUS disabled "vsp\radius-group Boston”
       handle-challenge-locally disabled
       apply-to-methods INVITE+REGISTER+BYE
```

Using the OS-E Management System to Create a Policy

1. In the left pane, expand **policies** and click **session-policies**. When the **session-policies** page opens, click **Add policy**.


acme packet
Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
group 1
subnet
group cliExample
group test2
group test
private-ip-gateway 1
tls
pre-session-config
policies
user cxc
static-stack-settings
session-config-pool
dial-plan
registration-plan
enterprise
directories
servers
federations
3pcc-servers
carriers
calling-groups
accounting
Help
Index
Set
Reset
Back
Delete
session-policies
[Delete]
dos-policies
[Delete]
Add policy
Set
Reset
Back
Help
Index

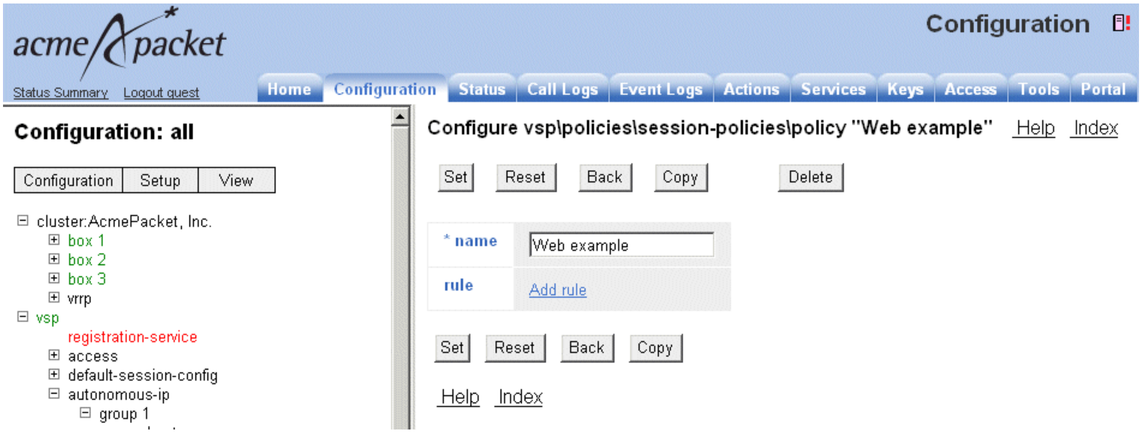
Configure vsp\policies

default-policy: vsp\policies\session-policies\policy default

policy:

	policy	rule
Edit Delete	policy default	Edit
Edit Delete	policy to	Configure
Edit Delete	policy from	Configure

2. Enter a name for the new policy and click **Create**. When the rule summary page for that policy loads, click **Add rule**:

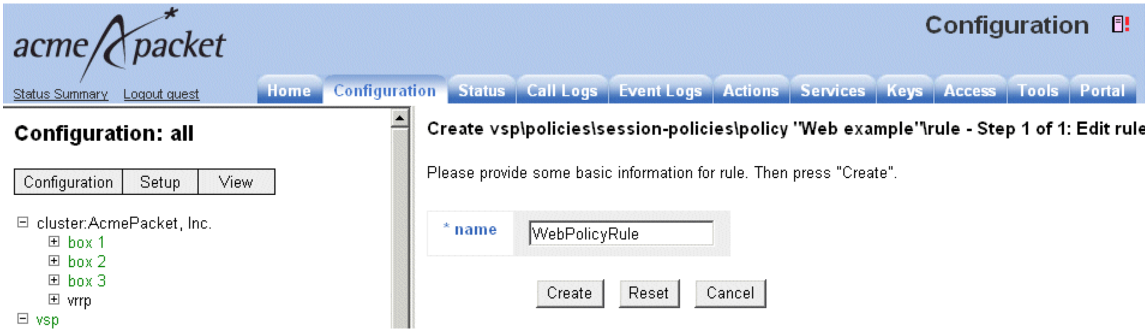

acme packet
Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
group 1
Help
Index
Set
Reset
Back
Copy
Delete
Add rule
Set
Reset
Back
Copy
Help
Index

Configure vsp\policies\session-policies\policy "Web example"

* name: Web example

rule: Add rule

3. Enter a name for the new rule then click **Create**.

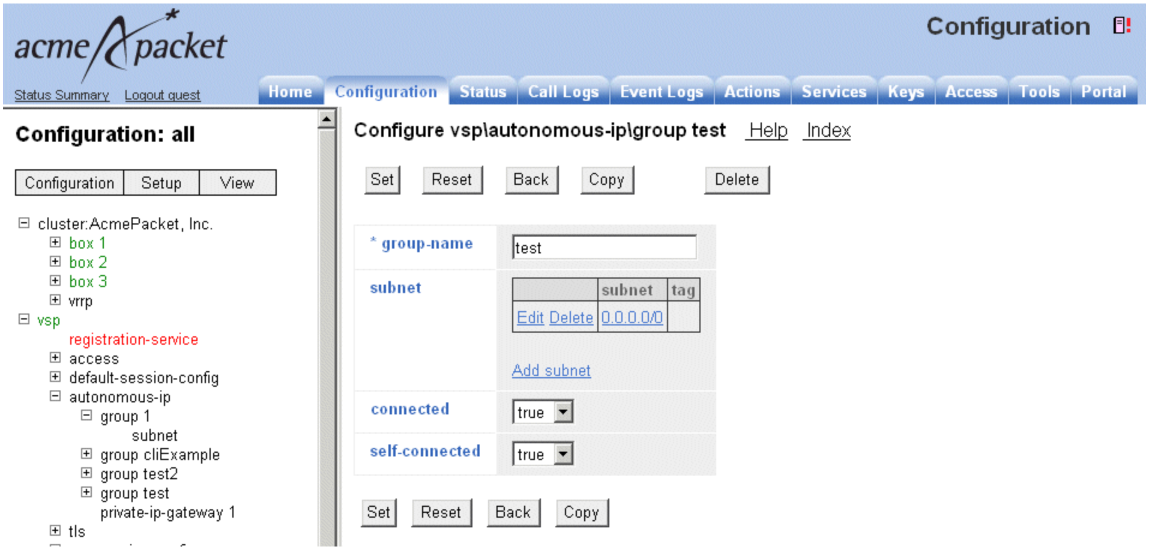

acme packet
Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
Create
Reset
Cancel

Create vsp\policies\session-policies\policy "Web example"\rule - Step 1 of 1: Edit rule

Please provide some basic information for rule. Then press "Create".

* name: WebPolicyRule

4. In the **condition-list** row, click **Configure.**


acme packet
Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
group 1
subnet
group cliExample
group test2
group test
private-ip-gateway 1
tls
Help
Index
Set
Reset
Back
Copy
Delete
Edit
Delete
Add subnet
Set
Reset
Back
Copy

Configure vsp\autonomous-ip\group test

* group-name: test

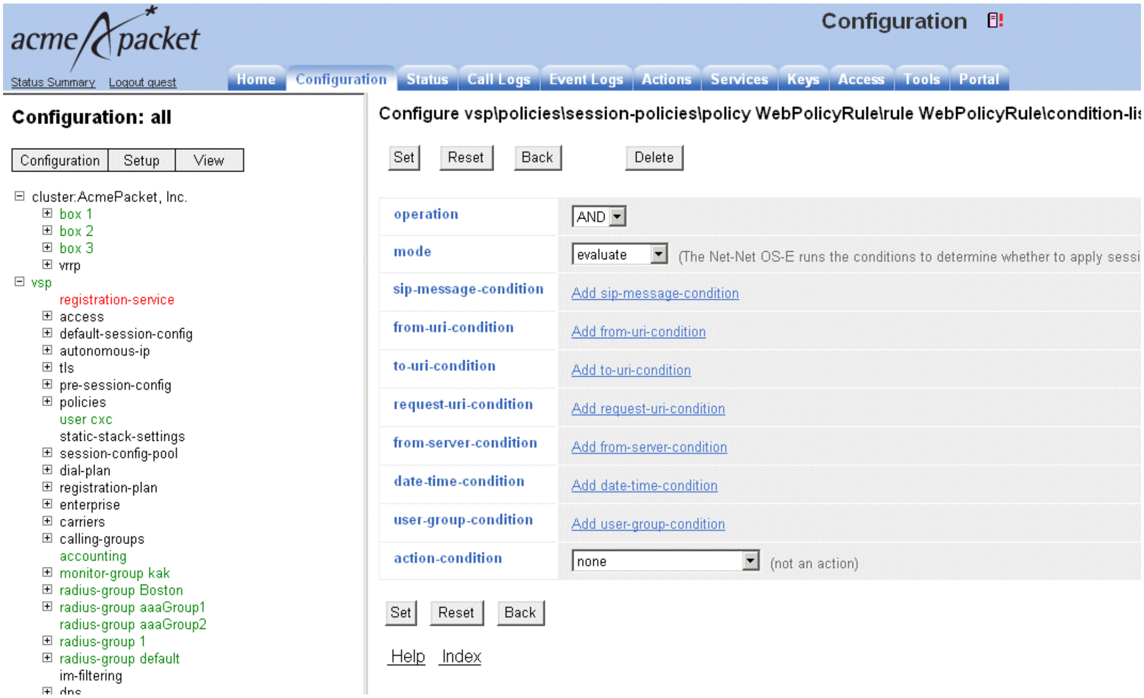
subnet:

	subnet	tag
Edit Delete	0.0.0.0/0	

connected: true

self-connected: true

5. Set **operation** to AND; set **mode** to evaluate. In the **sip-message-condition** row, click **Add sip-message-condition.**

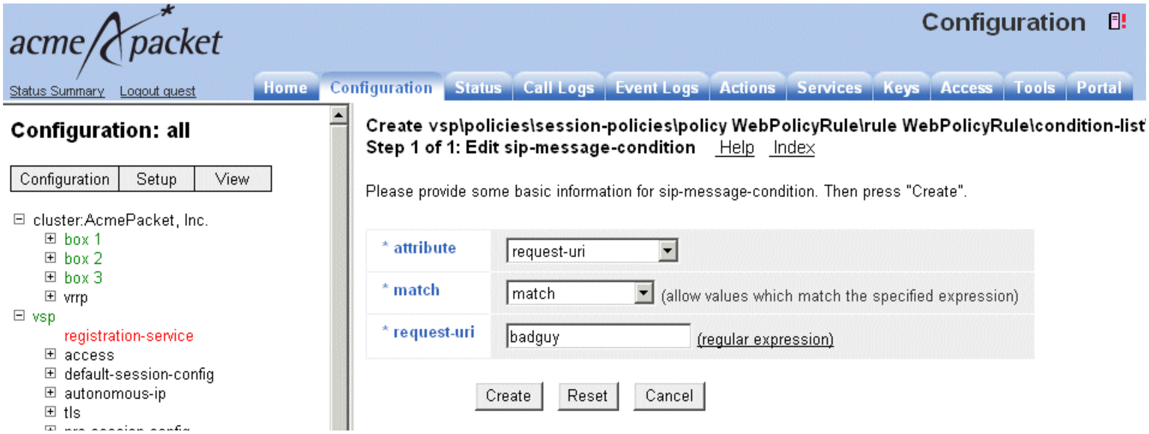


Configure vsp\policies\session-policies\policy WebPolicyRule\rule WebPolicyRule\condition-lis

operation	AND
mode	evaluate (The Net-Net OS-E runs the conditions to determine whether to apply sessi
sip-message-condition	Add sip-message-condition
from-uri-condition	Add from-uri-condition
to-uri-condition	Add to-uri-condition
request-uri-condition	Add request-uri-condition
from-server-condition	Add from-server-condition
date-time-condition	Add date-time-condition
user-group-condition	Add user-group-condition
action-condition	none (not an action)

Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
tls
pre-session-config
policies
user cxc
static-stack-settings
session-config-pool
dial-plan
registration-plan
enterprise
carriers
calling-groups
accounting
monitor-group kak
radius-group Boston
radius-group aaaGroup1
radius-group aaaGroup2
radius-group 1
radius-group default
im-filtering
Set
Reset
Back
Delete
Help
Index

6. In the **attribute** drop-down list box, click **request-uri**. This displays additional entry fields. In the **match** drop-down list box, click **match**. In the **request-uri** text box, type a text string. Click **Create**. When the page refreshes, click **Set**.



Create vsp\policies\session-policies\policy WebPolicyRule\rule WebPolicyRule\condition-list
Step 1 of 1: Edit sip-message-condition

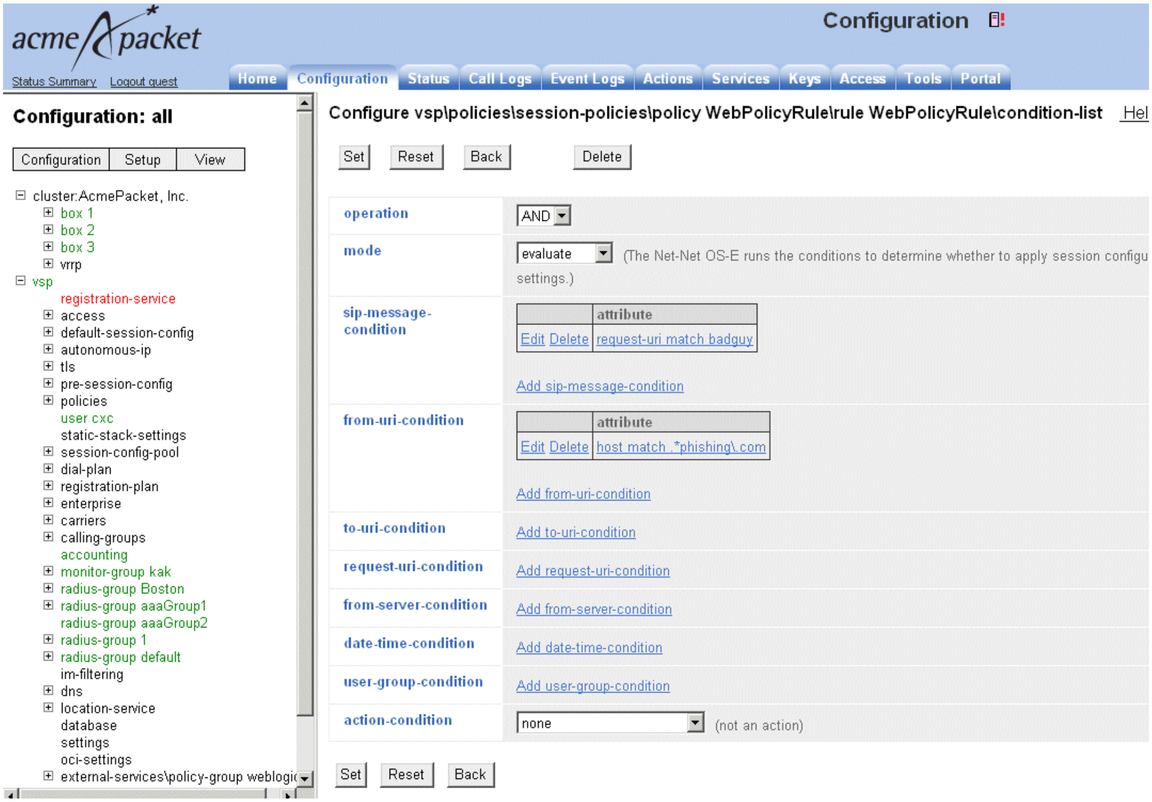
Please provide some basic information for sip-message-condition. Then press "Create".

* attribute	request-uri
* match	match (allow values which match the specified expression)
* request-uri	badguy (regular expression)

Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
tls
Help
Index
Create
Reset
Cancel

The OS-E Management System displays the new **sip-message-condition** attribute in the corresponding summary box.

7. Click **Add from-uri-condition** to add another attribute to the condition list. On the “Edit from-uri-condition” page, in the **attribute** drop-down list box, select **host**. This displays additional entry fields. In the **match** drop-down list box, select **match**. In the **value** text box, type **.*phishing\.com**. Click **Create**. When the page refreshes, click **Set**. You are returned to the rule page, with a display of configured rules for each condition..

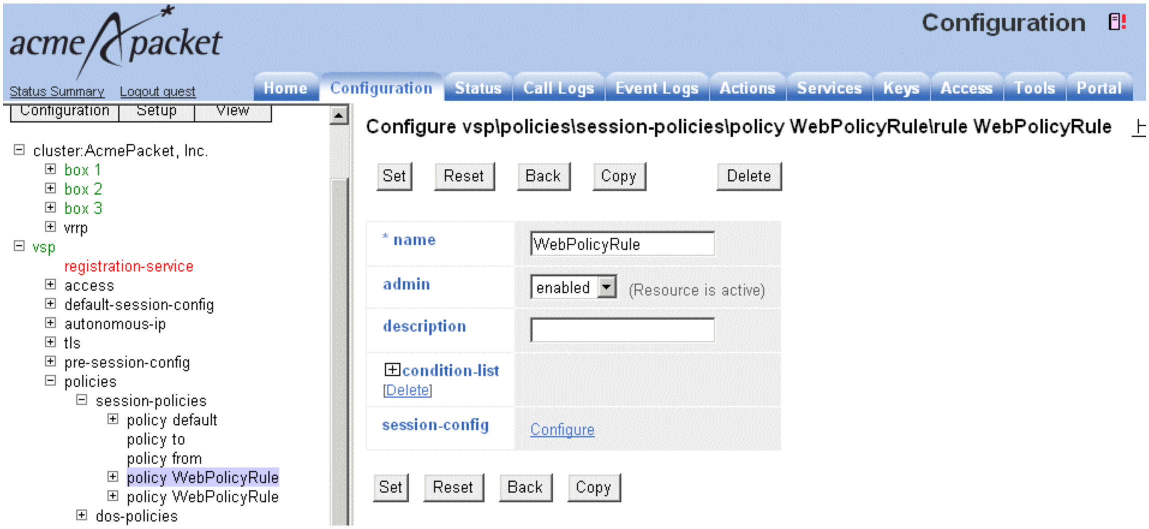

acme packet
Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
tls
pre-session-config
policies
user cxc
static-stack-settings
session-config-pool
dial-plan
registration-plan
enterprise
carriers
calling-groups
accounting
monitor-group kak
radius-group Boston
radius-group aaaGroup1
radius-group aaaGroup2
radius-group 1
radius-group default
im-filtering
dns
location-service
database
settings
oci-settings
external-services\policy-group weblogic
Hel
Set
Reset
Back
Delete

Configure vsp\policies\session-policies\policy WebPolicyRule\rule WebPolicyRule\condition-list

operation	AND
mode	evaluate (The Net-Net OS-E runs the conditions to determine whether to apply session configu settings.)
sip-message-condition	attribute: Edit Delete request-uri match badguy Add sip-message-condition
from-uri-condition	attribute: Edit Delete host match .*phishing\.com Add from-uri-condition
to-uri-condition	Add to-uri-condition
request-uri-condition	Add request-uri-condition
from-server-condition	Add from-server-condition
date-time-condition	Add date-time-condition
user-group-condition	Add user-group-condition
action-condition	none (not an action)

Set
Reset
Back

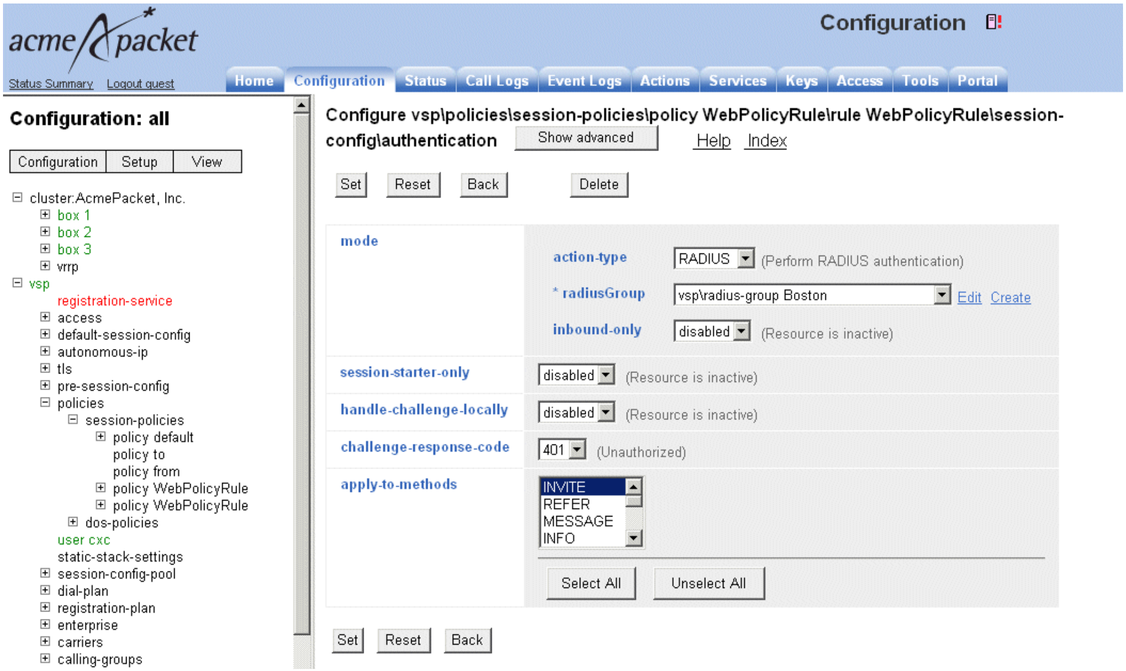
8. Return to the rule configuration page. (In the left pane, expand policies, session-policies, the specific policy, and click the specific rule.) Scroll down to the **session-config** row, and click **Configure**:


acme packet
Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
tls
pre-session-config
policies
session-policies
policy default
policy to
policy from
policy WebPolicyRule
policy WebPolicyRule
dos-policies
Set
Reset
Back
Copy
Delete
Configure
[Delete]
Set
Reset
Back
Copy

Configure vsp\policies\session-policies\policy WebPolicyRule\rule WebPolicyRule

* name	WebPolicyRule
admin	enabled (Resource is active)
description	
condition-list	
session-config	Configure

9. In the **authentication** row of the **session-config** table in the AAA grouping), click **Configure**. In the drop-down list box for **action-type**, click **RADIUS**. When the table expands, select a previously configured RADIUS group. Leave the **inbound-only** setting to **disabled** and set the challenge handling as desired. In the **apply-to-methods** list box, click one or more items to specify which methods the policy will apply to. Click **Set**, and then **Set** again on the next page.


acme packet
Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
tls
pre-session-config
policies
session-policies
policy default
policy to
policy from
policy WebPolicyRule
policy WebPolicyRule
dos-policies
user cxc
static-stack-settings
session-config-pool
dial-plan
registration-plan
enterprise
carriers
calling-groups
Show advanced
Help
Index
Set
Reset
Back
Delete
Edit
Create
Select All
Unselect All
Set
Reset
Back

Configure vsp\policies\session-policies\policy WebPolicyRule\rule WebPolicyRule\session-config\authentication

mode
action-type RADIUS (Perform RADIUS authentication)
* radiusGroup vsp\radius-group Boston
inbound-only disabled (Resource is inactive)
session-starter-only disabled (Resource is inactive)
handle-challenge-locally disabled (Resource is inactive)
challenge-response-code 401 (Unauthorized)
apply-to-methods INVITE, REFER, MESSAGE, INFO

Using WSDL to Create a Policy

Java

Use the following Java code to send a SOAP message to the OS-E to merge the new configuration of a session authentication policy into the existing saved configuration.

```
ConfigClassesType config = new ConfigClassesType();
// create vsp
SCPType scp = new SCPType();
config.getClusterOrLocalBoxOrServices().add(scp);
scp.setAdmin(Admin.ENABLED);
// create policies
scp.setPolicies(new SCPType.Policies());
VspPoliciesType policies = new VspPoliciesType();
scp.getPolicies().setVspPolicies(policies);
```

```
// create session-policies
policies.setSessionPolicies(new VspPoliciesType.SessionPolicies());
SessionPoliciesType sessionPolicies = new SessionPoliciesType();
 policies.getSessionPolicies().setSessionPolicies(sessionPolicies);
// create policy-entry
SessionPoliciesType.Policies policyHolder = new
 SessionPoliciesType.Policies();
sessionPolicies.getPolicies().add(policyHolder);
PolicyEntryType policyEntry = new PolicyEntryType();
policyHolder.setPolicyEntry(policyEntry);
policyEntry.setName("WebExample");
// create policy rule
PolicyEntryType.Rule ruleHolder = new PolicyEntryType.Rule();
policyEntry.getRule().add(ruleHolder);
PolicyRuleType rule = new PolicyRuleType();
ruleHolder.setPolicyRule(rule);
rule.setAdmin(Admin.ENABLED);
rule.setName("WebPolicyRule");
// create rule condition list
rule.setConditionList(new PolicyRuleType.ConditionList());
RuleConditionListType conditionList = new RuleConditionListType();
 rule.getConditionList().setRuleConditionList(conditionList);
conditionList.setMode(ConditionEval.EVALUATE);
conditionList.setOperation(ListOperation.AND);
// add sip message condition
CXCSipMessagePredicate sipMessageCondition = new
 CXCSipMessagePredicate();
 conditionList.getSipMessageCondition().add(sipMessageCondition);
 sipMessageCondition.setAttribute(CXCSipMessagePropertyName.VSP);
sipMessageCondition.setScpNamematch(MatchString.MATCH);
sipMessageCondition.setScpNamevalue("default");
// add from URI condition
URIClassPredicate fromURI = new URIClassPredicate();
conditionList.getFromURICondition().add(fromURI);
fromURI.setAttribute(URIClassPropertyName.HOST);
fromURI.setUsermatch(MatchString.MATCH);
fromURI.setUservalue(".*phishing\\.com");
// create session config
rule.setSessionConfig(new PolicyRuleType.SessionConfig());
SessionConfigType sessionConfig = new SessionConfigType();
rule.getSessionConfig().setSessionConfig(sessionConfig);
// create authentication policy
sessionConfig.setAuthenticationPolicy(new
 SessionConfigType.AuthenticationPolicy());
AuthenticationPolicyType authPolicy = new AuthenticationPolicyType();
 sessionConfig.getAuthenticationPolicy().setAuthenticationPolicy(auth
 Policy);
AuthenticationMode authMode = new AuthenticationMode();
authPolicy.setMode(authMode);
authMode.setActionType(AuthenticationProvider.RADIUS);
authMode.setInboundOnly(Admin.ENABLED);
```

```
AuthenticationMode.RADIUSradiusGroup radius = new
 AuthenticationMode.RADIUSradiusGroup();
authMode.setRADIUSradiusGroup(radius);
ObjectReference radiusRef = new ObjectReference();
radius.setRadiusGroup(radiusRef);
radiusRef.setName("vsp radius-group Boston");

 // Prepare the parameters.
SetConfigType set = new SetConfigType ();
set.setConfig (config);
set.setMode (SetConfigMode.MERGE);

// Make the request.
System.out.println ("Invoking setConfig(merge,box)");
SetConfigResponseType response = port.setConfig (set);
if (response != null)
{
     System.out.println ("Response: " + response.getCode() + ": " +
 response.getText());
}
```

XML

Send the following SOAP message to the OS-E to merge the new configuration of a session authentication policy into the existing saved configuration.

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
               xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
               xmlns:cxc="http://www.acmepacket.com/ws/callouts"
               xsi:schemaLocation="http://schemas.xmlsoap.org/soap/
 envelope/ ../btools/cxc_webservice.xsd">
 <soap:Body>
   <cxc:setConfig mode="merge">
     <config>
       <SCP>
         <SessionPolicies>
           <SessionPolicies>
             <policies>
               <PolicyEntry name="WebExample">
                 <Rule>
                   <PolicyRule name="webPolicyRule">
                     <admin>enabled</admin>
                     <conditionList>
                       <RuleConditionList>
                         <operation>AND</operation>
                         <mode>evaluate</mode>
                         <sipMessageCondition>
                           <attribute>vsp</attribute>
                           <scpNamematch>match</scpNamematch>
                           <scpNamevalue>default</scpNamevalue>
                     </sipMessageCondition>
                     <fromURICondition>
                       <attribute>host</attribute>
                       <usermatch>match</usermatch>
                       <uservalue>.*phishing\.com</uservalue>
                     </toURICondition>
                   </RuleConditionList>
                  </conditionList>
                <sessionConfig>
                  <SessionConfig>
                   <AuthenticationPolicy>
                     <AuthenticationPolicy>
                       <mode>
                         <actionType>RADIUS</actionType>
                         <inboundOnly>enabled</inboundOnly>
                         <RADIUSradiusGroup>
                         <RadiusGroup name="vsp\radius-group Boston"/>
                         </RADIUSradiusGroup>
                       </mode>
                     </AuthenticationPolicy>
                   </AuthenticationPolicy>
                  </SessionConfig>
                </sessionConfig>
                </PolicyRule>
              </Rule>
             </PolicyEntry>
           </policies>
         </SessionPolicies>
        </SessionPolicies>
      </SCP>
    </config>
   </cxc:setConfig>
 </soap:Body>
</soap:Envelope>
```

Executing an Action

An action is a command that immediately acts on the OS-E and effects one of the components. In the following examples, the **config save** action is invoked to save a copy of the configuration file with different format outputs to /cxc/example.cfg.

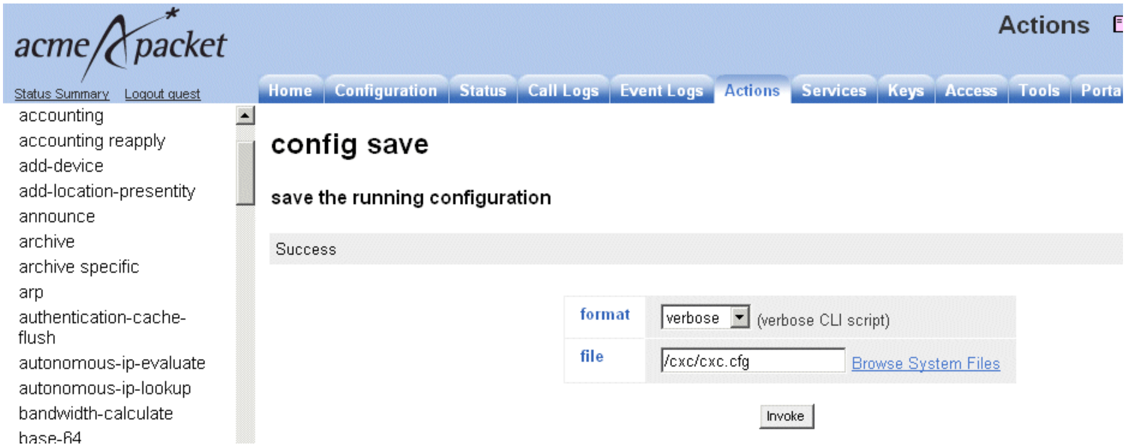
Using the CLI to Save the Configuration

From the top-level prompt:

```
NNOS-E> config save verbose /cxc/example.cfg
Success!
NNOS-E>
```

Using the OS-E Management System to Save the Configuration

On the **Actions** tab, click **config save** in the left pane. In the drop-down list box for format, click **verbose**. In the text box for file, type a path and file name, or click Browse System Files to find the appropriate configuration file. Click **Invoke**:


acme packet
Actions
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Porta
accounting
accounting reapply
add-device
add-location-presentity
announce
archive
archive specific
arp
authentication-cache-flush
autonomous-ip-evaluate
autonomous-ip-lookup
bandwidth-calculate
base-64
Browse System Files
Invoke

config save

save the running configuration

Success

format: verbose (verbose CLI script)

file: /cxc/cxc.cfg

Using WSDL to Save the Configuration

Java

Use the following Java code to send a SOAP message to the OS-E, saving the configuration in verbose format.

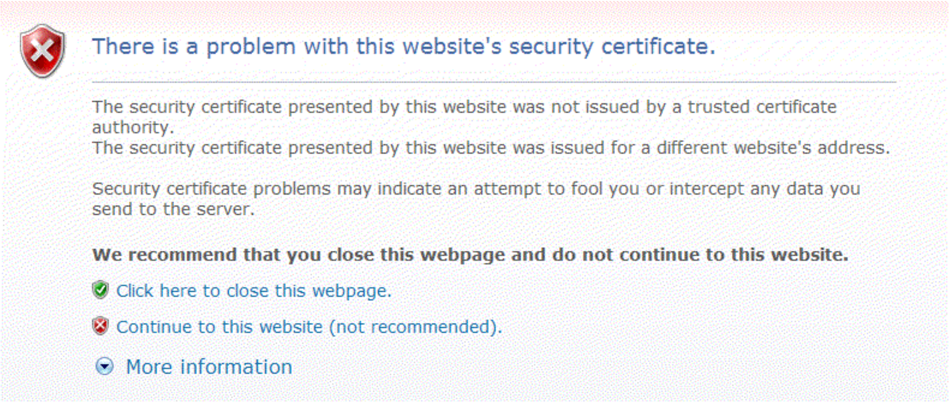
```
Holder<CallOutResult> eResultCode = new Holder<CallOutResult>();
Holder<String> sResultString = new Holder<String>();
Holder<String> sMessage = new Holder<String>();

// Ask the configuration to be saved as xml.
ActionClassesType action = new ActionClassesType();
ConfigSaveType save = new ConfigSaveType();
save.setFormat (ConfigFormat.XML);
save.setFile ("/cxc/cxc.xml");
action.setConfigSave (save);

// Invoke the action.
port.doAction (action, eResultCode, sResultString, sMessage);
System.out.println (eResultCode.value + ": " + sResultString.value +
  ": " + sMessage.value);
```

Chapter 3. Using the Net-Net OS-E Management System

The OS-E Management System provides a Web application interface for controlling all aspects of OS-E software. It runs on Internet Explorer 5.5 and later. (See the *Net-Net OS-E – Release Notes* for information on supported Web browsers.)

Logging on to the Net-Net OS-E Management System

If you are using HTTPS (Port 443) to connect to the OS-E system (HTTPS://<ipaddress> from your Web browser), you will need to configure the Web service so that a valid SSL certificate is referenced at login time. Otherwise, your Web browser will display a screen similar to the image below, warning you of the security issues with the absence of an SSL certificate.



There is a problem with this website's security certificate.

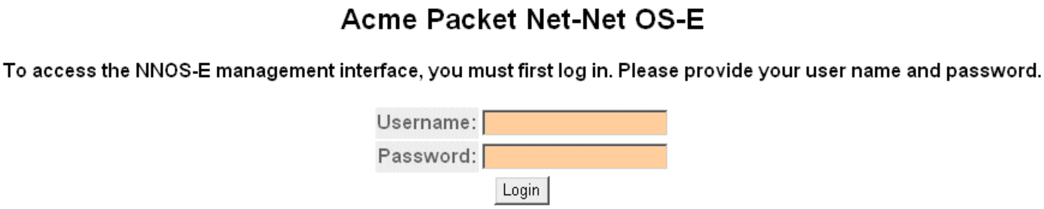
The security certificate presented by this website was not issued by a trusted certificate authority.
The security certificate presented by this website was issued for a different website's address.

Security certificate problems may indicate an attempt to fool you or intercept any data you send to the server.

We recommend that you close this webpage and do not continue to this website.

Click here to close this webpage.
Continue to this website (not recommended).
More information

To proceed immediately to the login page, select **Continue to this website**, as illustrated in the image below. Then, click **Login** to bypass the Username and Password prompts. Once you are logged in, you can configure usernames and passwords for access to this OS-E system using the **access\users\user** configuration path.



Acme Packet Net-Net OS-E

To access the NNOS-E management interface, you must first log in. Please provide your user name and password.

Acquiring and Configuring the Certificate

The OS-E requires a signed SSL certificate from a valid Certificate Authority (CA), or you can use the OS-E to create a self-signed certificate. The supported format for the certificate is PKCS#12, (Public Key Cryptography, standard #12 format).

For complete information on managing certificates, refer to the *Net-Net OS-E – System Installation and Commissioning Guide*.

Configuring the Web Service for HTTPS

Once you have installed a valid certificate, you will need to edit the OS-E **web-service** object to reference the certificate at the OS-E Management System login time. This will remove the security certificate warning. The following CLI session references the certificate over Port 443 using the **protocol** property under the **web-service** object.

CLI Session

```
NNOS-E> config box
config box> config interface eth1
config interface eth1> config ip 172.26.2.14
Creating 'ip 172.26.2.14'
config ip 172.26.2.14> config web-service
config web-service> set protocol https 443 “vsp tls certificate
   company.pfx”
```

Opening the Net-Net OS-E Management System

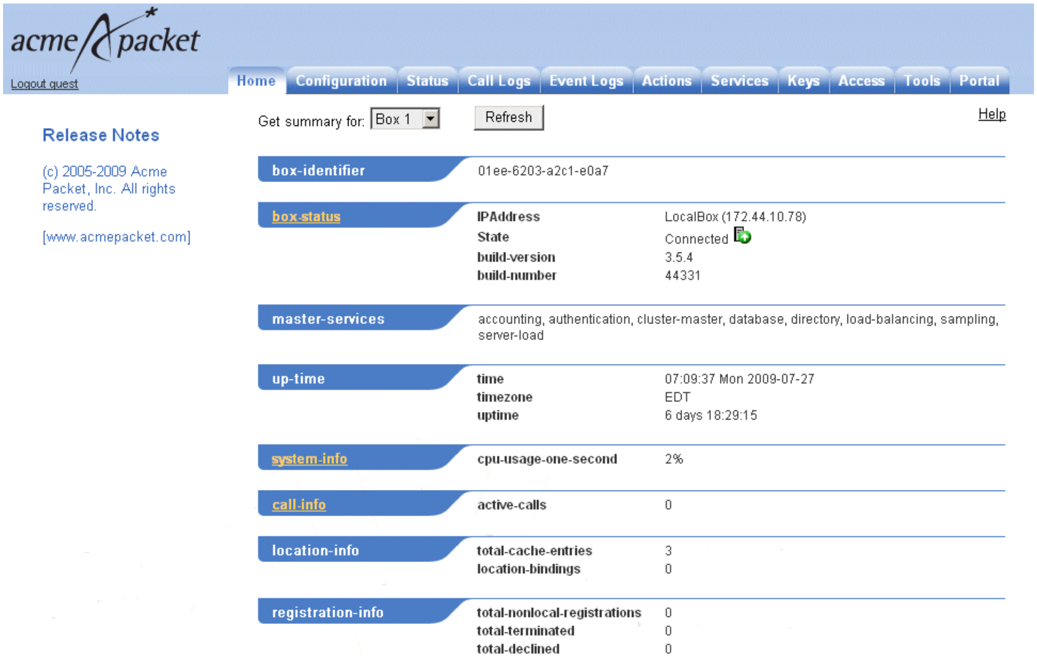
When you open the OS-E Management System, the start page provides tabs to access features in the Web application and summary statistics for the local box.

➡ **Note:** Before the OS-E Management System is available, you must first assign an IP address to the management interface using the CLI. In addition, you must enable the **web** object. See the *Net-Net OS-E – Release Notes* for information on assigning this address and enabling the web interface.

Summary Statistics

Summary statistics display box- and cluster-specific information on a variety of topics. The output gives a quick indication of system health and can be useful, for example, in determining interface status.

On the start page (**Home** tab), you can select the target for the statistics from the **Get summary for** drop-down list box. You can set which status providers are displayed in the summary using the **preferences/cms-preferences/summary-preferences** object within the **Services** tab. The **Refresh** button updates the statistics for each status provider displayed in the summary. Click on the links within the display to view further details for each of the providers. The following image illustrates a sample default status summary display.



Get summary for: Box 1

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[www.acmepacket.com]

box-identifier: 01ee-6203-a2c1-e0a7

box-status:

IPAddress	LocalBox (172.44.10.78)
State	Connected
build-version	3.5.4
build-number	44331

master-services: accounting, authentication, cluster-master, database, directory, load-balancing, sampling, server-load

up-time:

time	07:09:37 Mon 2009-07-27
timezone	EDT
uptime	6 days 18:29:15

system-info:

cpu-usage-one-second	2%

call-info:

active-calls	0

location-info:

total-cache-entries	3
location-bindings	0

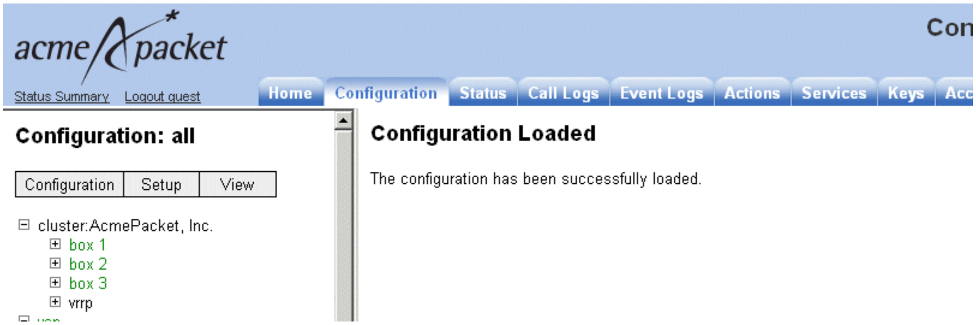
registration-info:

total-nonlocal-registrations	0
total-terminated	0
total-declined	0

You can also display box statistics from any of the other OS-E Management System pages if you click the **Status Summary** link.

Accessing the Configuration

On the start page, click the **Configuration** tab to access the OS-E configuration objects. (The Services and Access tabs also contain configuration items.) The following image displays the initial configuration page.


acme packet
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Acc
Con
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp

Configuration Loaded

The configuration has been successfully loaded.

If you have errors in your configuration, the OS-E Management System validation displays error messages in the right pane when you first click the Configuration tab. The validation message specifies what the error is (such as missing a required value) and indicates the location of the error in the configuration. To remove the displayed errors, click on the link provided by the validation to open the configuration page containing the error and fix it. When you have corrected all errors, click **Reload configuration** on the **Configuration** menu. The OS-E then displays a successful load message or remaining errors. Or, to re-display the error messages, click **Validate configuration**.

Note: If there are errors in your configuration, the OS-E does not update/save when you click **Update and save configuration** on the **Configuration** menu. You must first correct the errors and then save.

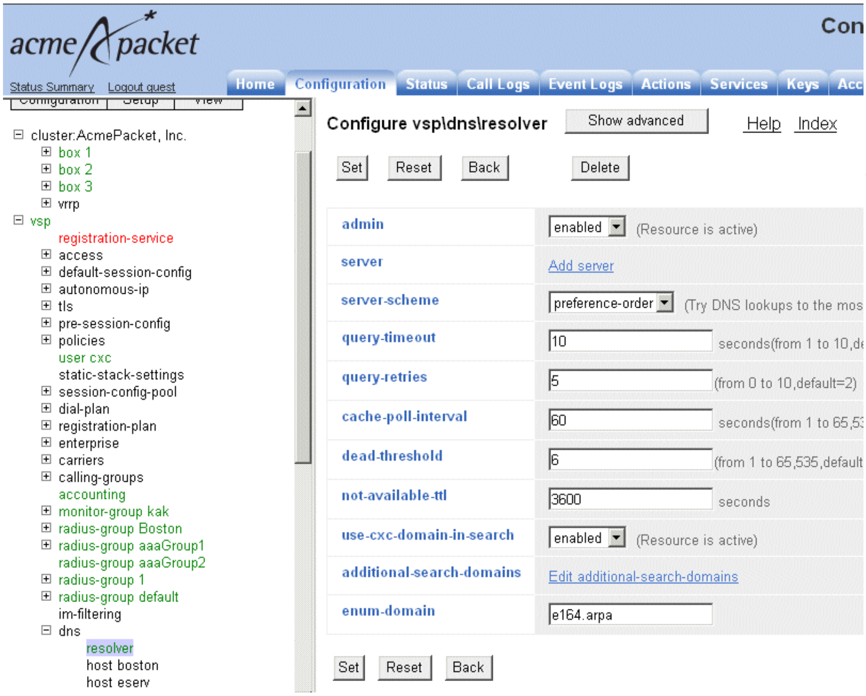
Navigational tools

You can use the following page elements to navigate within the OS-E Management System:

- Menus
- Configuration hierarchy
- Web page selection tabs
- Set and Reset buttons
- Carrier Services and Server wizards, available on the **Setup** menu
- Online help

The following image identifies each of these elements.

Function tabs


acme packet
Con
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Acc
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
tls
pre-session-config
policies
user cxc
static-stack-settings
session-config-pool
dial-plan
registration-plan
enterprise
carriers
calling-groups
accounting
monitor-group kak
radius-group Boston
radius-group aaaGroup1
radius-group aaaGroup2
radius-group 1
radius-group default
im-filtering
dns
resolver
host boston
host eserv
Show advanced
Help
Index
Set
Reset
Back
Delete
Set
Reset
Back

Configure vsp\dns\resolver

admin: enabled (Resource is active)
server: Add server
server-scheme: preference-order (Try DNS lookups to the mos
query-timeout: 10 seconds(from 1 to 10,d
query-retries: 5 (from 0 to 10,default=2)
cache-poll-interval: 60 seconds(from 1 to 65,53
dead-threshold: 6 (from 1 to 65,535,default
not-available-ttl: 3600 seconds
use-cxc-domain-in-search: enabled (Resource is active)
additional-search-domains: Edit additional-search-domains
enum-domain: e164.arpa

Online Help and Index

Configuration menus

Configuration pane

Set, Reset, and Back buttons.

Menus

The following menus are available on the **Configuration** tab:

- **Configuration** menu—Provides access to basic configuration tasks, such as saving, validating, searching, and reloading a configuration.
- **Setup** menu—Includes wizards that step you through complicated tasks.
- **View** menu—Allows you to customize the display to meet your needs.

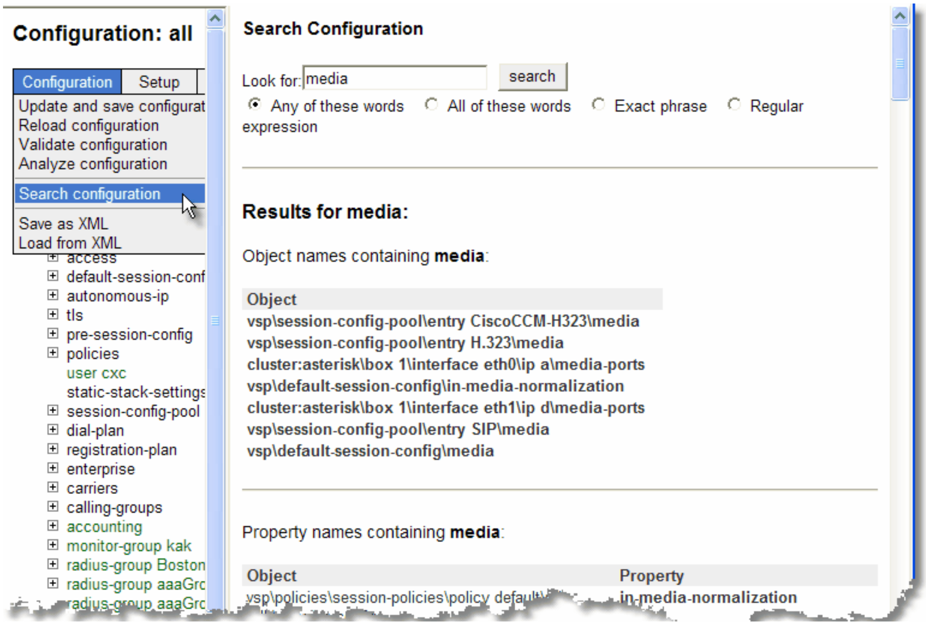
Configuration Menu

The following table describes the options on the **Configuration** menu.

Option	Description
Update and save configuration	Updates and then saves the configuration. Updating writes changes from the working config to the running config. These changes are not persisted. That is, unless they are then saved, they are not part of the configuration the next time the system boots. After you have selected to update a configuration, the system prompts you as to whether you want to then save it. The save function saves the running config to the saved config. Select **yes** to modify the configuration from which the system boots; select **no** to make changes only to the current operating configuration. You may want to do this, for example, to test your changes.
Reload configuration	Replaces the working configuration with the running configuration. In other words, all unsaved changes are lost and values are replaced with the values stored in the running configuration.
Validate configuration	Inspects the OS-E configuration, and, in the right pane, displays a report for any invalid configuration elements.
Analyze configuration	Audits and summarizes the current configuration. Auditing the configuration results in configuration warnings to help troubleshoot and fine-tune operations. These are not configuration errors, but application-based suggestions. Summarizing the configuration results in a summary overview grouped by function. For example, the output lists all configured interfaces and the services configured for each one.
Search configuration	Provides a search page that allows you to search the OS-E Management System for a configuration property or object. See Search Configuration Feature for more information.
Save as XML	Saves the working config as an XML file. When you select this option, the system presents a standard Windows Save dialog box. Enter a file name and browse to the location for saving. You can later import the XML file to make it your working configuration.
Load from XML	Imports an XML file into the OS-E, to serve as your working config.

Search Configuration Feature

The **Search configuration** option on the **Configuration** menu allows you to search the configuration file for any string. When the search is complete, the system displays, in the right pane, a list of all the objects and properties in the configuration containing that string. Each name is a link to the configuration page containing the string, as illustrated in The following image.


Configuration: all
Configuration
Setup
Update and save configurat
Reload configuration
Validate configuration
Analyze configuration
Search configuration
Save as XML
Load from XML
access
default-session-conf
autonomous-ip
tls
pre-session-config
policies
user cxc
static-stack-settings
session-config-pool
dial-plan
registration-plan
enterprise
carriers
calling-groups
accounting
monitor-group kak
radius-group Boston
radius-group aaaGrc
radius-group aaaGrc
search

Search Configuration

Look for: media

● Any of these words ○ All of these words ○ Exact phrase ○ Regular expression

Results for media:

Object names containing **media**:

Object
vsp\session-config-pool\entry CiscoCCM-H323\media
vsp\session-config-pool\entry H.323\media
cluster:asterisk\box 1\interface eth0\ip a\media-ports
vsp\default-session-config\in-media-normalization
cluster:asterisk\box 1\interface eth1\ip d\media-ports
vsp\session-config-pool\entry SIP\media
vsp\default-session-config\media

Property names containing **media**:

Object	Property
vsp\policies\session-policies\policy defau	in-media-normalization

Setup Menu

The **Setup** menu provides wizards for configuring **Carrier Services** and **Servers**. Follow the steps, as instructed, to set up these configurations.

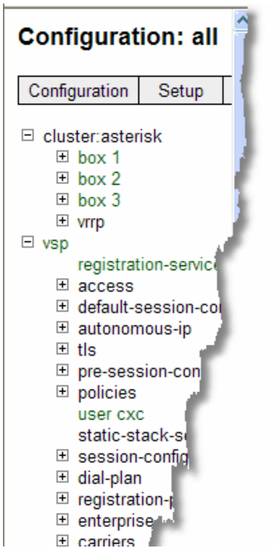
View Menu

The **View** menu allows you to display only the configuration data that is applicable to a specific application. That is, the left-pane provides access only to specific objects. The **View** menu options are enabled only for the **Configuration**, **Services**, and **Access** tabs.

Currently the system supports several application views. The **Minimal** option displays the most basic view, which provides access only to the objects necessary to communicate with the device. Other options, such as **Secure Media** or **PSTN**, display application-specific views.

On the **View** menu, the **All** option allows access to all configuration objects in the software. Some objects are located in advanced tabs, but all are available.

Configuration Hierarchy

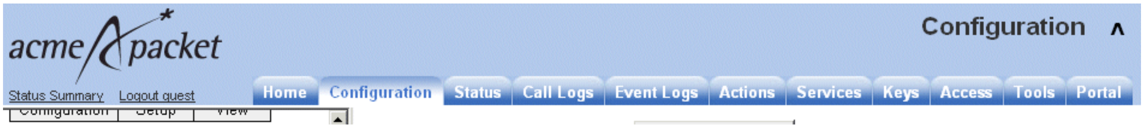

Configuration: all
Configuration
Setup
⊟ cluster:asterisk
⊞ box 1
⊞ box 2
⊞ box 3
⊞ vrrp
⊟ vsp
registration-servic
⊞ access
⊞ default-session-co
⊞ autonomous-ip
⊞ tls
⊞ pre-session-con
⊞ policies
user cxc
static-stack-s
⊞ session-config
⊞ dial-plan
⊞ registration-
⊞ enterprise
⊞ carriers

The OS-E Management System configuration hierarchy is displayed in the left pane and grows as you build the configuration. Use the expand and collapse buttons (the plus and minus icons) to display or hide the object hierarchy levels. Click on an object in the left-pane to access add, edit, configure, and delete functions in the right pane.

The illustration to the left shows a portion of the configuration hierarchy.

Note that the configuration hierarchy displayed will vary depending on the view you select. See View Menu for more information.

Page Selection Tabs



The OS-E Management System page selection tabs are located at the top of the page. Each tab displays a different function of the OS-E Management System.

- **Home**—Returns to the OS-E Management System start page.
- **Configuration**—Opens the configuration hierarchy. The right pane displays the available configuration objects and properties for the item selected in the hierarchy. Each time you start the OS-E Management System, it refreshes the configuration hierarchy.
- **Status**—Displays a list of available status providers in the left pane, grouped by function. Each functional grouping contains all the providers relating to that function. Click a grouping to list the available status providers; click a provider to cause the system to execute the command and display statistics or report status or configuration.
- **Call Logs**—Displays a list of call categories for which you can display call logs, such as sessions, devices, SIP messages, and queries. To use the query tool, you must configure the query manually on the **Services** tab in the OS-E Management System).
- **Event Logs**—Displays a list of log files and databases (if you sent events to a database) for a specific box. These are the logs specified in the **event-log** services object.
- **Actions**—Displays available actions that you can take, such as setting the clock, pinging a remote device, reactivating a failed RADIUS server, and resetting an enterprise communications server. An action immediately acts on the OS-E and affects one of the components. (In contrast, if you make a change to an object on another tab (**Configuration**, **Services**, or **Access**), you are changing the working configuration file, but the change does not affect the box until you update and save the configuration.

- **Services**—Opens a list of objects for services, master-services, and preferences. You can enable and disable directory, accounting, and database services on the master, set services on the drones, set OS-E Management System preferences, and configure queries.
- **Keys**—Provides access to the key stores used to manage keys and certificates. These keys are password protected.
- **Access**—Opens the **access** object from which you define the users that are allowed access to the OS-E and the specific privileges that they are granted.
- **Tools**—Provides an XML viewer and tools to manage files and licenses, view call details and archives, manage phone registrations, and view management information.
- **Portal**—Allows a user view-only access to only his/her own call logs. This tab provides a scaled-down version of those features available from the OS-E Management System **Call Logs** tab. A user must be specifically configured for portal access.

Set and Reset Buttons

When working in the configuration context, you make changes to object values in the right-pane configuration tables, which provide text boxes, drop-down list boxes, references, and other ways to edit objects. Once you have made your changes, use the **Set** and **Reset** buttons to control the outcome of the changes.

The following table describes the Set and Reset buttons.

Button	Description
Set	Accepts the values you entered in the configuration table and writes them to the working config. (The values are not used by the box until they are saved to the running config.) Until you click the **Set** button, the values are not written to any configuration. Therefore, if you move to a different screen, your changes are lost. Even if you select Update and Save Configuration, if you have not clicked **Set**, the changes are not saved.

Button	Description
Reset	When configuring a new object, **reset** reverts all values in the configuration table displayed back to their defaults, or null if there is no default. When editing an existing object, **reset** returns each field to the value it contained when the page loaded (the saved value).

Using Help

There is context-sensitive help available for the configuration tables by clicking the Help button on any configuration page in the OS-E Management System. The help explains the properties and objects associated with a configuration entry. When you click the help button, the system launches context-specific help in a secondary window.

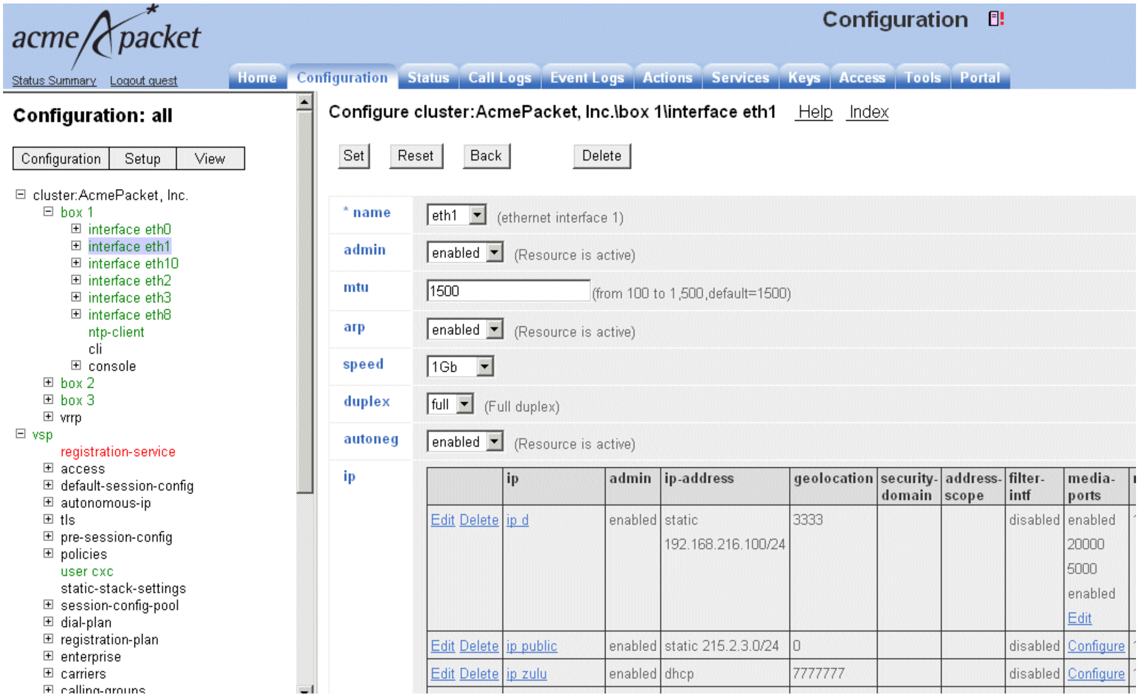
Net-Net OS-E Management System Operations

When you use the OS-E Management System to configure OS-E software, you add or edit objects in the system's database. The OS-E supports a variety of functions, some of the more common of which are listed below and described in the following sections:

- Displaying Configuration Objects and Properties
- Adding, Editing, and Deleting Configuration Objects
- Using References
- Re-Ordering Configuration Objects
- Looking Up Groups or Users
- Updating and Saving the Configuration

Displaying Configuration Objects and Properties

To display configuration objects and properties, first ensure that you have the **Configuration** tab active. When you select an object from the left-pane configuration hierarchy, the OS-E Management System displays the current settings (properties) for that configuration object in the right pane. The following image shows a portion of a sample page that appears when you select one of the **interface** configuration objects from the configuration hierarchy.


acme packet
Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
interface eth0
interface eth1
interface eth10
interface eth2
interface eth3
interface eth8
ntp-client
cli
console
box 2
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
tls
pre-session-config
policies
user cxc
static-stack-settings
session-config-pool
dial-plan
registration-plan
enterprise
carriers
calling-groups
Help
Index
Set
Reset
Back
Delete

Configure cluster:AcmePacket, Inc.\box 1\interface eth1

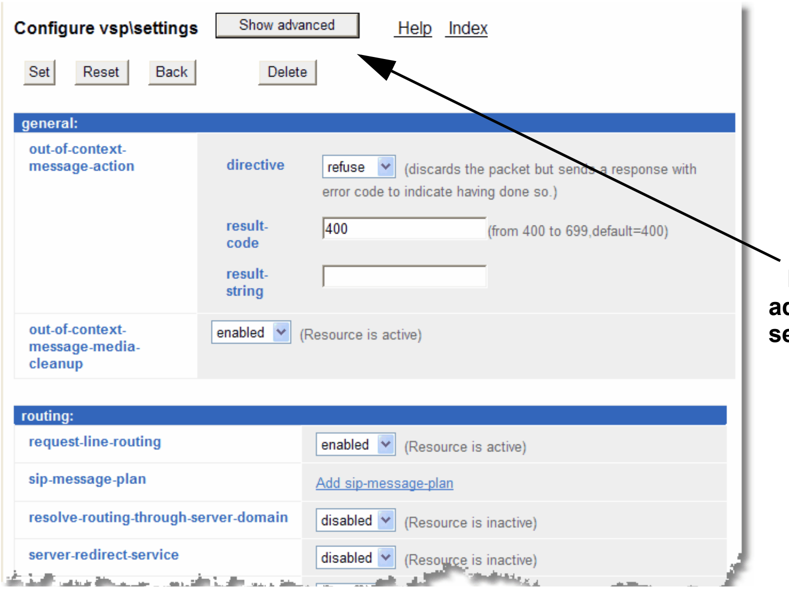
* name	eth1	(ethernet interface 1)
admin	enabled	(Resource is active)
mtu	1500	(from 100 to 1,500,default=1500)
arp	enabled	(Resource is active)
speed	1Gb	
duplex	full	(Full duplex)
autoneg	enabled	(Resource is active)

ip

	ip	admin	ip-address	geolocation	security-domain	address-scope	filter-intf	media-ports
Edit Delete	ip d	enabled	static 192.168.216.100/24	3333			disabled	enabled 20000 5000 enabled Edit
Edit Delete	ip public	enabled	static 215.2.3.0/24	0			disabled	Configure
Edit Delete	ip zulu	enabled	dhcp	7777777			disabled	Configure

Basic vs. Advanced Settings

To simplify the initial display of configuration properties, the OS-E separates basic and advanced settings. On first accessing a page, the OS-E displays the related basic properties and objects, as shown in the following image.



general:

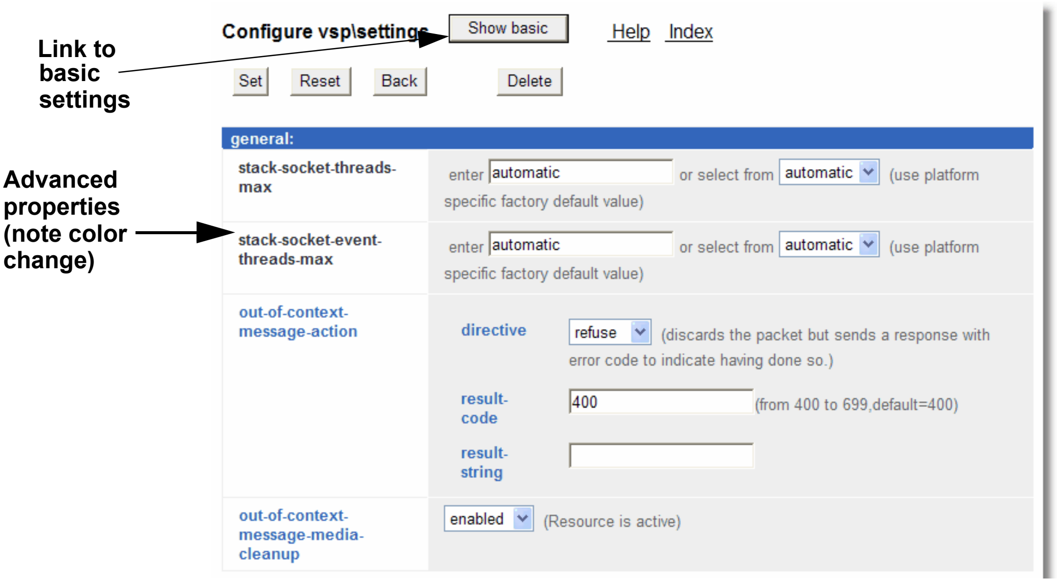
out-of-context-message-action	directive	refuse (discards the packet but sends a response with error code to indicate having done so.)
	result-code	400 (from 400 to 699,default=400)
	result-string	
out-of-context-message-media-cleanup	enabled (Resource is active)	

routing:

request-line-routing	enabled (Resource is active)
sip-message-plan	Add sip-message-plan
resolve-routing-through-server-domain	disabled (Resource is inactive)
server-redirect-service	disabled (Resource is inactive)

Link to advanced settings

You can click on the **Show advanced** link to display more advanced related settings. These are the settings that typically do not require modification, but are used to fine-tune a configuration. When you click **Show advanced**, the OS-E redisplays an expanded page with the advanced properties indicated by a different color, as shown in the following image.



Link to basic settings

Advanced properties (note color change)

stack-socket-threads-max: enter automatic or select from automatic (use platform specific factory default value)

stack-socket-event-threads-max: enter automatic or select from automatic (use platform specific factory default value)

out-of-context-message-action:
- directive: refuse (discards the packet but sends a response with error code to indicate having done so.)
- result-code: 400 (from 400 to 699,default=400)
- result-string:

out-of-context-message-media-cleanup: enabled (Resource is active)

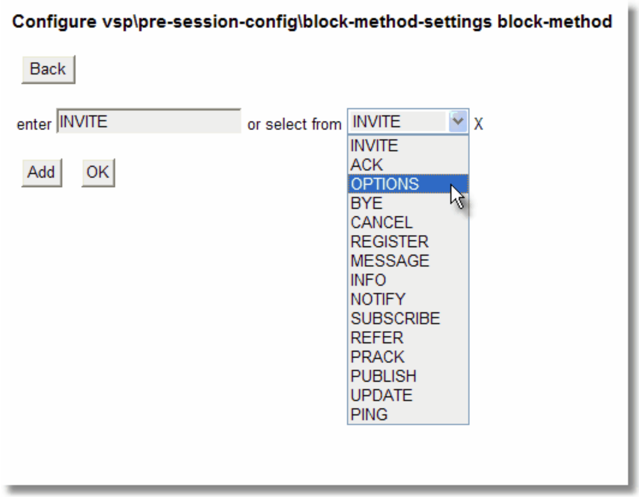
Click the **Show basic** link to return to the simplified view.

Adding, Editing, and Deleting Configuration Objects

For most objects, you can select argument values from a simple list or you can type values in a text box. You can also configure subobjects by clicking the Add link in the configuration table.

➡ **Note:** When you configure or add a new object, you must first click **Set** to create the object before you can begin configuration or add subobjects.

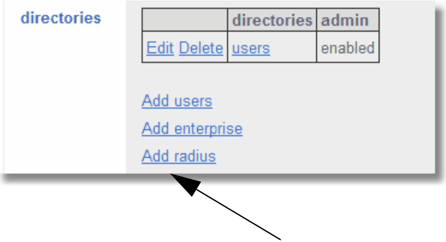
There are some fields in the configuration that allow you to select a value from a drop-down list or type in a value. These values are preceded by the words “enter text or select from list” in the field. The following image shows a sample of this form of entry.


Configure vsp\pre-session-config\block-method-settings block-method

Back
enter INVITE
or select from INVITE
X
INVITE
ACK
OPTIONS
BYE
CANCEL
REGISTER
MESSAGE
INFO
NOTIFY
SUBSCRIBE
REFER
PRACK
PUBLISH
UPDATE
PING
Add
OK

To Add a Configuration Object

The **Add** function adds a new object to the configuration. To do this, click on the parent object in the left-pane configuration hierarchy. The right pane then displays the configuration table for that object. If there are any subobjects that can be added, the system displays a link below the configuration table. The following image displays an example of the add object link.


directories

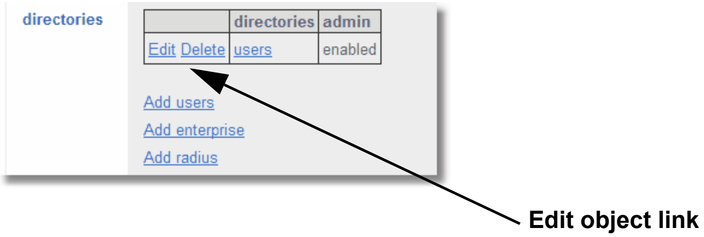
	directories	admin
Edit Delete	users	enabled

Add users
Add enterprise
Add radius

Add object links

To Edit a Configuration Object

The **Edit** function modifies an existing object in the configuration. To do this, click on the parent object in the left-pane configuration hierarchy. The right pane then displays the configuration table for that object. If there are any existing subobjects that can be edited, the system displays a link to the left of the entry in the configuration table. The following image displays an example of the Edit object link.



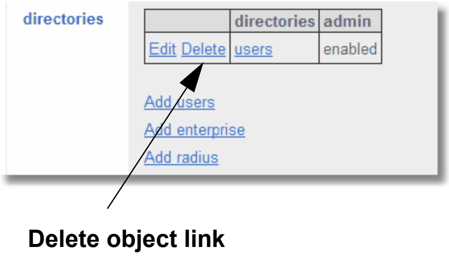
directories
Add users
Add enterprise
Add radius
Edit object link

	directories	admin
Edit Delete	users	enabled

If you select the **Edit** link, the system displays the configuration table for just that object in the right pane. Make your changes and press **Set** to write changes to the working config. Use your browser's Back button to return to the previous display.

To Delete a Configuration Object

The **Delete** function removes an existing object from the configuration. To do this, click on the parent object in the left-pane configuration hierarchy. The right pane then displays the configuration table for that object. If there are any existing subobjects that can be deleted, the system displays a link to the left of the entry in the configuration table. The following image displays an example of the Delete object link.



directories
Add users
Add enterprise
Add radius
Delete object link

	directories	admin
Edit Delete	users	enabled

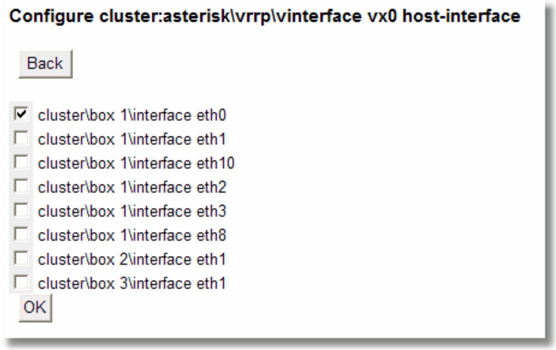
If you select the **Delete** link, the system prompts you before removing the object from the configuration.

Using References

The *reference* functionality provides a mechanism for you to re-use objects in the system. In this way, you can define an object once, and then reference it later for other uses. For example, you must include an existing interface when configuring backing interfaces for load balancing. You also must include an existing interface when configuring a cluster-network within the box object. In both cases, all previously configured interfaces are available for selection.

Adding References

If you have highlighted an object in the configuration hierarchy that supports a referenced object, you will notice a different configuration page when you try to add a new object. Instead of entering a value, the OS-E Management System presents either a drop-down list box that displays your configured values (indicating that you select one value) or a list with associated checkboxes (if you can select multiple values). The following image illustrates a reference configuration page where you can select multiple objects.



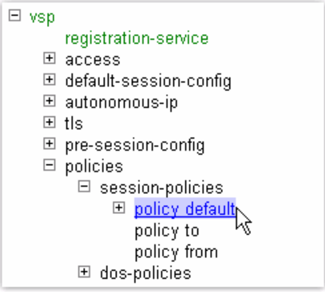
Configure cluster:asterisk\vrrp\vinterface vx0 host-interface

☑ cluster\box 1\interface eth0
☐ cluster\box 1\interface eth1
☐ cluster\box 1\interface eth10
☐ cluster\box 1\interface eth2
☐ cluster\box 1\interface eth3
☐ cluster\box 1\interface eth8
☐ cluster\box 2\interface eth1
☐ cluster\box 3\interface eth1

Editing Referenced Objects

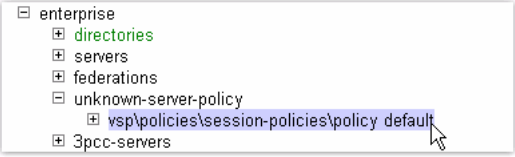
You can edit a referenced object either through the original object configuration or through the configuration page that includes the reference. In either case, all changes are reflected throughout the configuration. To edit a reference, click the original or the referenced object in the left-pane hierarchy. For example, if you have selected the policy named “default” for your **unknown-server-policy**, you can edit it from either of the following places:

- vsp policies session-policies policy default



```
⊟ vsp
    registration-service
  ⊞ access
  ⊞ default-session-config
  ⊞ autonomous-ip
  ⊞ tls
  ⊞ pre-session-config
  ⊟ policies
    ⊟ session-policies
      ⊞ policy default
        policy to
        policy from
    ⊞ dos-policies
```

- vsp enterprise unknown-server-policy “vsp\policies\session-policies\ policy default”



```
⊟ enterprise
  ⊞ directories
  ⊞ servers
  ⊞ federations
  ⊟ unknown-server-policy
    ⊞ vsp\policies\session-policies\policy default
  ⊞ 3pcc-servers
```

By clicking either, the system displays an edit box for the original object in the right pane.

Removing References

There is a distinction between deleting and removing references. You do not delete an included object, you remove the reference to it. To remove a reference, simply uncheck the box in the configuration page. This does not delete the original configuration object, only removes the reference to it. If you delete the point of the reference (for example, a certificate that is pointed to in your cluster-network), you must do so from within the configuration page for the reference.

If you try to delete an object that is the point of a reference, and that reference is a required field, the system displays an error message. Before you can delete the object, you must first change the reference to point at a different object.

Managing Passwords and Tags

The OS-E uses a two-part password mechanism for passwords shared with other devices (also known as shared secrets)—passwords and tags. The password is the shared secret with the other device. The tag is a user-configurable name used to access the real password. There are several instances throughout the OS-E configuration where you can manage passwords and tags. These include the various external databases, enterprise servers and directories, and phone configurations, among others. For complete information on the password and tag mechanism, see Managing Passwords and Tags in Chapter 1, “Net-Net OS-E Management Overview.”

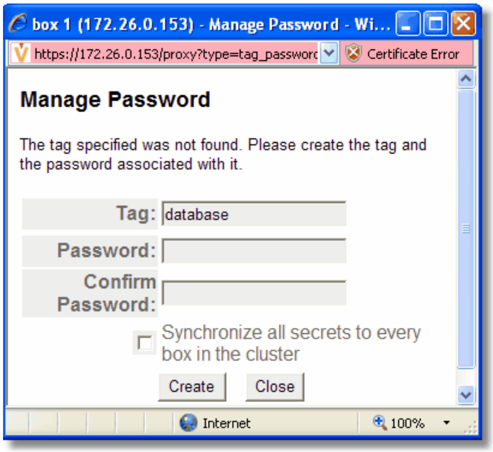
Note that this approach does not apply to passwords created for users under the **access** object.

In the OS-E Management System, the property you set is either password-tag or secret-tag. Use the following table to determine the correct action for use with the password- or secret-tag:

If you have...	Action
...not previously associated a password with the tag...	Use the **Manage tag and password** button to create an association. Alternatively, you can create the association with the **secret set** action. See Using the Manage Password Link for information.
...previously created a password/tag association...	Enter the configured tag. N2600 associates the tag with the correct password in its password store.

Using the Manage Password Link

If you need to create or change a password/tag association, click on the **Manage Password** link to access the Manage password dialog box.


box 1 (172.26.0.153) - Manage Password - Wi...
https://172.26.0.153/proxy?type=tag_passwor
Certificate Error

Manage Password

The tag specified was not found. Please create the tag and the password associated with it.

Tag: database
Password:
Confirm Password:
☐ Synchronize all secrets to every box in the cluster

Create
Close
Internet
100%

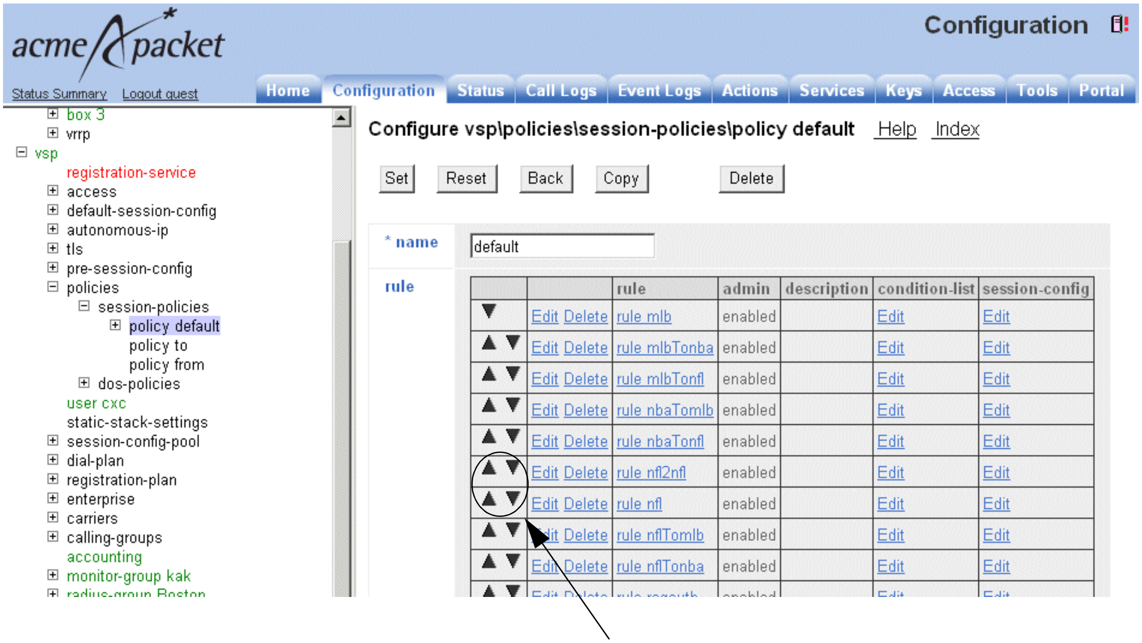
Depending on what you are trying to accomplish, do one of the following:

Goal	Action
To create a new password/tag	Enter a tag and password.
To change the tag associated with a password	Enter a new tag and the existing password.
To change the password associated with a tag	Enter the existing tag, and a new password.
To remove a password	Enter the existing tag with no password. Note that this creates a blank password, which may disable communication.

In some cases, the Manage Password dialog box may report an error indicating that the tag specified was not found. To correct the error, you must create the tag and the password associated with it.

Re-Ordering Configuration Objects

In instances when an object's position in the configuration affects the actions of the OS-E, the OS-E Management System allows you to re-order items. For example, the OS-E evaluates policy rules in the order in which they are listed. On the relevant policy screens, re-order arrows let you move rules or entries up and down in the list to change their precedence, as displayed in the following image:


acme packet
Configuration
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
tls
pre-session-config
policies
session-policies
policy default
policy to
policy from
dos-policies
user cxc
static-stack-settings
session-config-pool
dial-plan
registration-plan
enterprise
carriers
calling-groups
accounting
monitor-group kak
Help
Index
Set
Reset
Back
Copy
Delete

Configure vsp\policies\session-policies\policy default

* name: default

rule

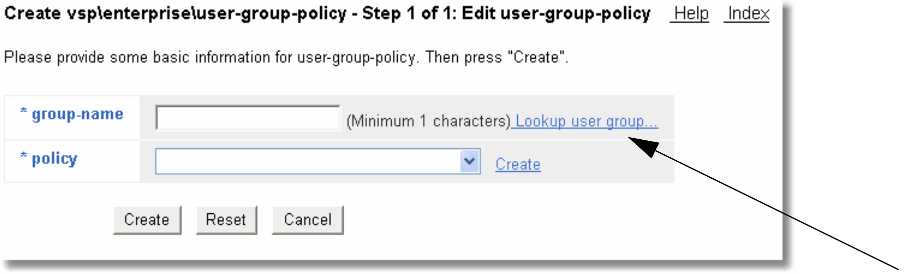
		rule	admin	description	condition-list	session-config
▼	Edit Delete	rule mlb	enabled		Edit	Edit
▲ ▼	Edit Delete	rule mlbTonba	enabled		Edit	Edit
▲ ▼	Edit Delete	rule mlbTonfl	enabled		Edit	Edit
▲ ▼	Edit Delete	rule nbaTomlb	enabled		Edit	Edit
▲ ▼	Edit Delete	rule nbaTonfl	enabled		Edit	Edit
▲ ▼	Edit Delete	rule nfl2nfl	enabled		Edit	Edit
▲ ▼	Edit Delete	rule nfl	enabled		Edit	Edit
▲ ▼	Edit Delete	rule nflTomlb	enabled		Edit	Edit
▲ ▼	Edit Delete	rule nflTonba	enabled		Edit	Edit

Re-order arrows

Press the appropriate arrow in an entry until it has reached the desired position.

Looking Up Groups or Users

When you are configuring an object that requires you to enter a configured user or group, the OS-E provides a **Lookup** link to help locate the desired entries. For example, the server configuration Lookup link finds and lists user groups in configured directories.



Create vsp\enterprise\user-group-policy - Step 1 of 1: Edit user-group-policy

Please provide some basic information for user-group-policy. Then press "Create".

Lookup link

Press the Lookup link and browse to the directory that contains the user or group configuration.

Updating and Saving the Configuration

As you add or edit objects in the running configuration database, you will need to update the configuration in memory so that the latest changes take effect on the network. Even if you exit the OS-E Management System, the running configuration is still in effect. However, if you reboot the OS-E, the latest running configuration is lost unless you saved the configuration changes. In the OS-E Management System, use one of the following methods to save:

- Click the **Update and save configuration** link in the configuration menu
- Click the **config save** action from the action tab.

See, “Accessing the Net-Net OS-E Management System,” in Chapter 1, “Net-Net OS-E Management Overview,” for a complete description of all saving options.

Note: You must click **Set** or **Finish** on a configuration screen before the changes can be saved to the configuration. If you do not click one of these first, the changes are not saved.

Importing and Exporting XML Files

The OS-E Management System supports **Open from XML** and **Save as XML** options to allow operation in an offline mode or copying of configuration files to another system. Use the **Save as XML** option on the **Configuration** menu to save the configuration data to a named XML file. You can then import this XML configuration to other OS-E systems, saving you time if you have similar configuration settings.

To Export the Running Configuration to XML:

Step	Action
1.	On the Configuration tab, open the **Configuration** menu, and click **Save as XML**.
2.	Browse to the location in which you'd like to save the file, enter a file name, and ensure that the file type is set to .xml. Click **Save** to export the configuration file to the named XML file.

To Import From an Existing XML File:

Step	Action
1.	Connect to the cluster on the device on which you want to import the XML file.
2.	On the Configuration tab, open the **Configuration** menu, and click **Load from XML**.
3.	Browse to the location where the XML file is stored or enter the file name. Click **Open** to copy the XML file to the working configuration.
4.	On the **Configuration** menu, click **Update and save configuration** to save the XML file to the running configuration.

Viewing Traps

You can enable a Traps display in the OS-E Management System, which allows you to view all traps sent to your trap target. To do so:

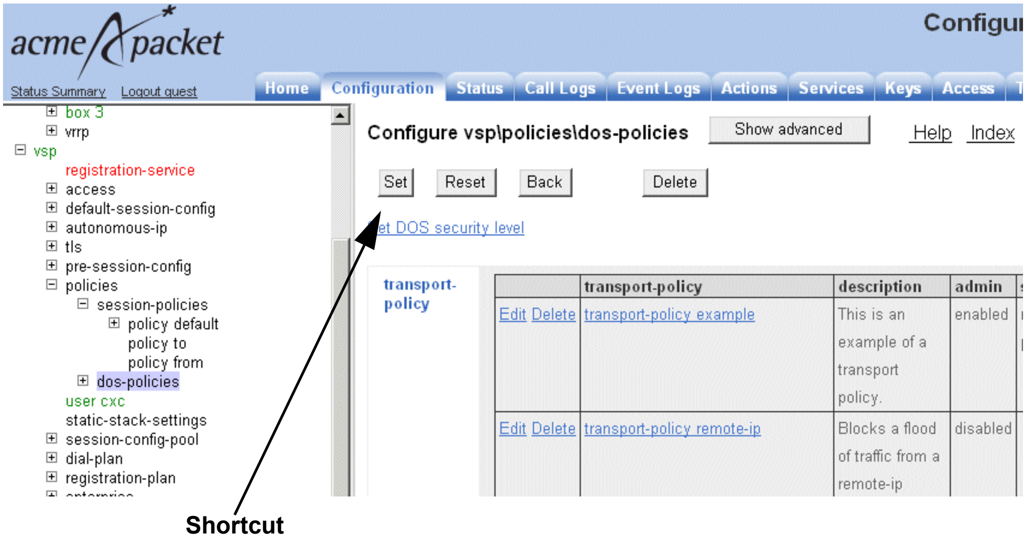
1. Enable the **trap-target** property in the **web** object of the **Configuration** tab. (The object is located under the cluster/box/interface/**ip** object). The trap target itself is set in the **snmp** object (also under **ip**).
2. Update and save the configuration.

The trap icon displays in the upper right of the header, next to the word Configuration. Clicking on the icon displays a page that lists the traps that the OS-E has received. (Click on another tab to leave the trap report.) A green icon indicates that there are no new traps; red indicates that new traps have appeared since the last time you viewed the traps page.

OS-E Management System Shortcuts

The Shortcuts tool is found throughout the OS-E Management System, as a link on the configuration pages, when it is applicable. Shortcuts simplify complex tasks by providing preconfigured settings that cover common situations.

For example, you can set DOS security-level properties with a shortcut. When you select a shortcut, you are offered a choice of protection levels. The text that accompanies each setting indicates the shortcut's function.


acme packet
Configu
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
box 3
vrrp
vsp
registration-service
access
default-session-config
autonomous-ip
tls
pre-session-config
policies
session-policies
policy default
policy to
policy from
dos-policies
user cxc
static-stack-settings
session-config-pool
dial-plan
registration-plan
Configure vsp\policies\dos-policies
Show advanced
Help
Index
Set
Reset
Back
Delete
et DOS security level
transport-policy
Shortcut

		transport-policy	description	admin
Edit	Delete	transport-policy example	This is an example of a transport policy.	enabled
Edit	Delete	transport-policy remote-ip	Blocks a flood of traffic from a remote-ip	disabled

Using Tab Features

The tabs across the top of the OS-E Management System provide access to all functions of the OS-E.

Managing the Cluster Configuration

The **Configuration** tab provides access to all cluster-specific configuration objects. In conjunction with the **Services** and **Access** tabs, the three provide the equivalent of the CLI hierarchy.

Viewing Status Reports

The OS-E Management System allows you to view statistics, configuration, and counters for a wide variety of operations by using the **Status** tab. Statistics and counters show how the system is allocating computing and networking resources. You can view basic details, or more verbose (advanced) reports. You can also filter the output using the **Search** button.

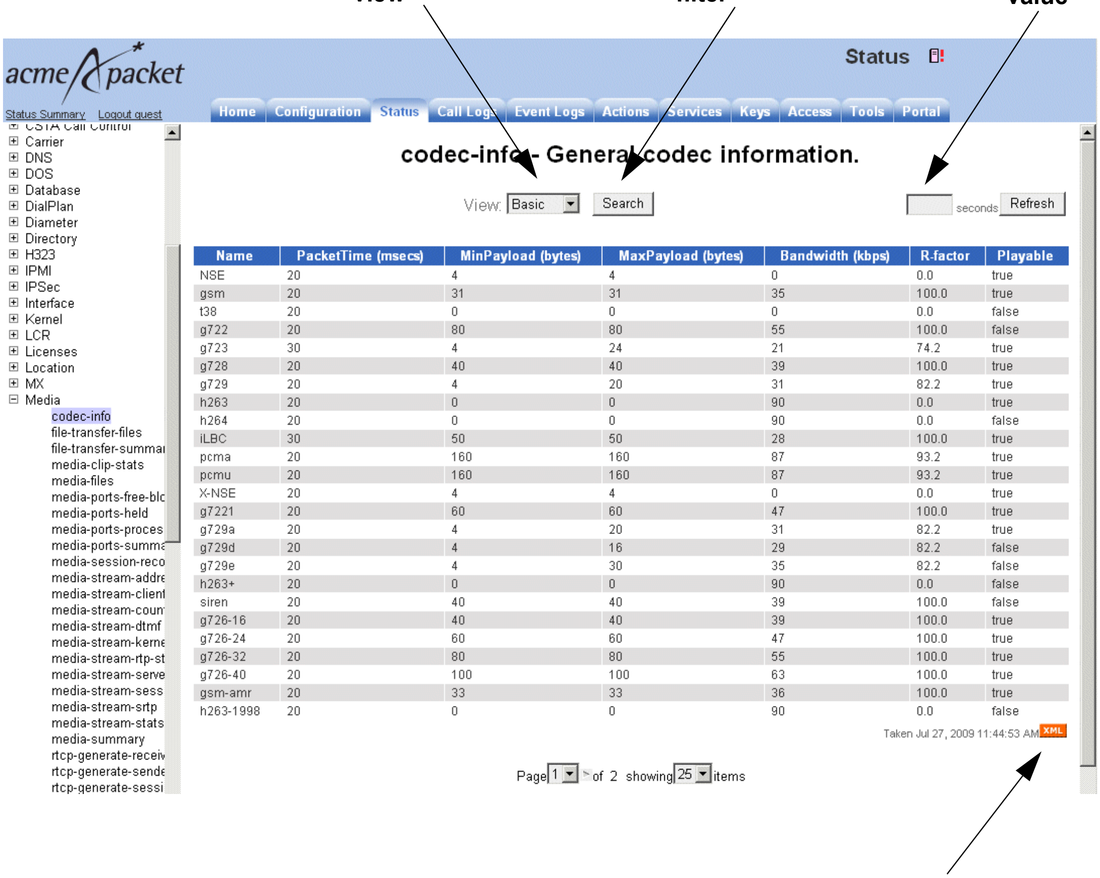
Status reports are organized in groups. Clicking on a group in the left panel brings up a list of status reports belonging to that group in the right. Click on a status report to display results. You can also display results by expanding the group in the left pane and selecting a report.

Once the system displays a report, you can set a refresh rate to keep the data fresh. In addition, you can click on the XML button to save the data to an XML file. You can then view this data from the **Tools** tab. (See Using Tools for more information.) In this way, you can later view information that has aged out of the database. The following image displays a sample status report.

Set display view

Status report filter

Enter refresh value



acme packet
Status Summary
Logout guest
Status
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
CSTA Call Control
Carrier
DNS
DOS
Database
DialPlan
Diameter
Directory
H323
IPMI
IPSec
Interface
Kernel
LCR
Licenses
Location
MX
Media
codec-info
file-transfer-files
file-transfer-summai
media-clip-stats
media-files
media-ports-free-blc
media-ports-held
media-ports-proces
media-ports-summa
media-session-reco
media-stream-addre
media-stream-client
media-stream-coun
media-stream-dtmf
media-stream-kerne
media-stream-rtp-st
media-stream-serve
media-stream-sess
media-stream-srtp
media-stream-stats
media-summary
rtcp-generate-receiv
rtcp-generate-sende
rtcp-generate-sessi
View:
Basic
Search
seconds
Refresh
XML
Page
1
of 2
showing
25
items

codec-info - General codec information.

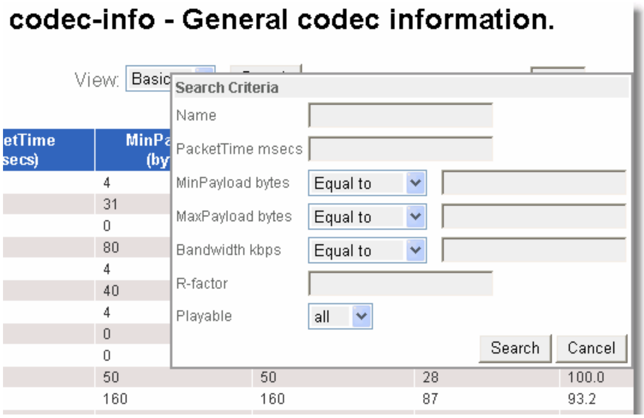
Name	PacketTime (msecs)	MinPayload (bytes)	MaxPayload (bytes)	Bandwidth (kbps)	R-factor	Playable
NSE	20	4	4	0	0.0	true
gsm	20	31	31	35	100.0	true
t38	20	0	0	0	0.0	false
g722	20	80	80	55	100.0	false
g723	30	4	24	21	74.2	true
g728	20	40	40	39	100.0	true
g729	20	4	20	31	82.2	true
h263	20	0	0	90	0.0	true
h264	20	0	0	90	0.0	false
iLBC	30	50	50	28	100.0	true
pcma	20	160	160	87	93.2	true
pcmu	20	160	160	87	93.2	true
X-NSE	20	4	4	0	0.0	true
g7221	20	60	60	47	100.0	true
g729a	20	4	20	31	82.2	true
g729d	20	4	16	29	82.2	false
g729e	20	4	30	35	82.2	false
h263+	20	0	0	90	0.0	false
siren	20	40	40	39	100.0	false
g726-16	20	40	40	39	100.0	true
g726-24	20	60	60	47	100.0	true
g726-32	20	80	80	55	100.0	true
g726-40	20	100	100	63	100.0	true
gsm-amr	20	33	33	36	100.0	true
h263-1998	20	0	0	90	0.0	false

Taken Jul 27, 2009 11:44:53 AM

Save to XML

Filtering on Status Reports

When you first select a status provider, the OS-E Management System returns all entries for that provider. You can filter the entries that appear in status provider output by using the **Search** button. When you click the button, a window with all properties for the provider appears. Enter a value in the appropriate field(s) and click **Search** to see a new display filtered to match your criteria. To see a list of acceptable values, refer to the complete entry display. For example, if you wanted to list only the playable CODECs, you could use the **Search** button with the **codec-info** provider. Enter “true” in the **Playable** field:



codec-info - General codec information.

Search Criteria

Name

PacketTime msecs

MinPayload bytes: Equal to

MaxPayload bytes: Equal to

Bandwidth kbps: Equal to

R-factor

Playable: all

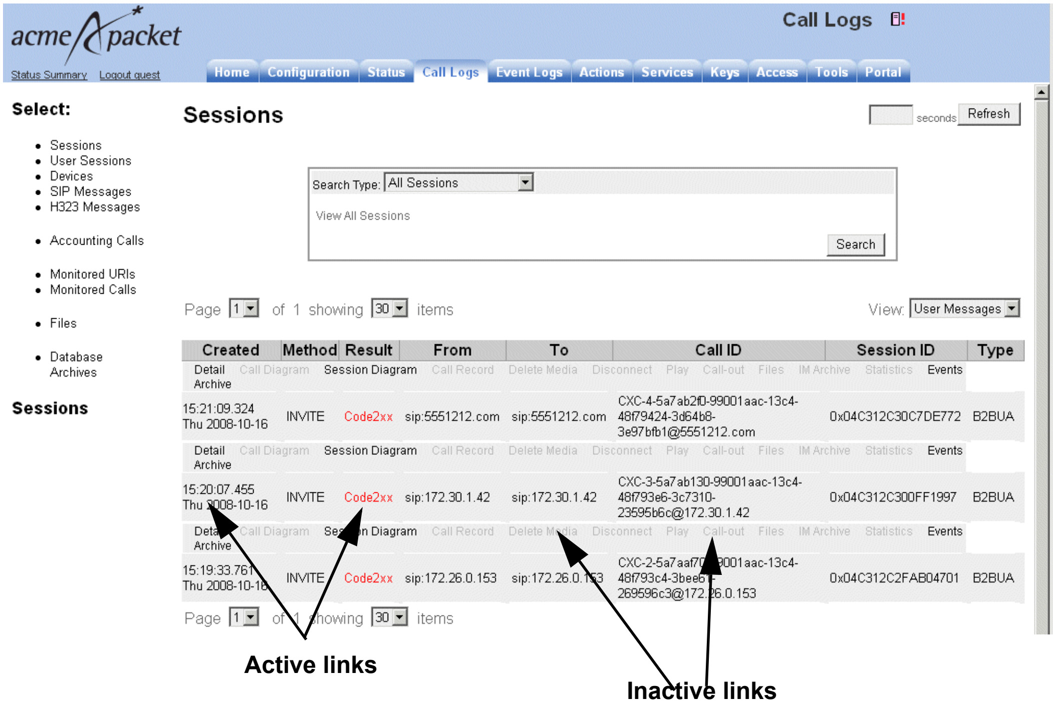
Note that the Search button is only available for providers that have the potential of returning multiple entries.

Working with Call Logs

The **Call Logs** tab provides access to accounting, session, and file transfer records, archives, and loopback test results, as well as the query tool. See the next section, Call Logs Links, for more information about each type of Call Log.

➡ **Note:** The user portal displays some, but not all, of the information available through the **Call Logs** tab. If you are viewing records from the portal and need access to options described in this section that you do not see, speak with your administrator. For more information on the user portal, see Providing Access to the User Portal.

The following image displays the initial Call Logs page, with **Sessions** selected. To access other call logs, select the type on the left side of the page.



Select:

- Sessions
- User Sessions
- Devices
- SIP Messages
- H323 Messages
- Accounting Calls
- Monitored URIs
- Monitored Calls
- Files
- Database Archives

Sessions

Sessions

Search Type: All Sessions

View All Sessions

Page 1 of 1 showing 30 items

View: User Messages

Created	Method	Result	From	To	Call ID	Session ID	Type
Detail Archive Call Diagram Session Diagram Call Record Delete Media Disconnect Play Call-out Files IM Archive Statistics Events							
15:21:09.324 Thu 2008-10-16	INVITE	Code2xx	sip:5551212.com	sip:5551212.com	CXC-4-5a7ab2f0-99001aac-13c4-48f79424-3d64b8-3e97bfb1@5551212.com	0x04C312C30C7DE772	B2BUA
Detail Archive Call Diagram Session Diagram Call Record Delete Media Disconnect Play Call-out Files IM Archive Statistics Events							
15:20:07.455 Thu 2008-10-16	INVITE	Code2xx	sip:172.30.1.42	sip:172.30.1.42	CXC-3-5a7ab130-99001aac-13c4-48f793e6-3c7310-23595b6c@172.30.1.42	0x04C312C300FF1997	B2BUA
Detail Archive Call Diagram Session Diagram Call Record Delete Media Disconnect Play Call-out Files IM Archive Statistics Events							
15:19:33.761 Thu 2008-10-16	INVITE	Code2xx	sip:172.26.0.153	sip:172.26.0.153	CXC-2-5a7aaf70[illegible]9001aac-13c4-48f793c4-3bee6[illegible]-269596c3@172.26.0.153	0x04C312C2FAB04701	B2BUA

Page 1 of 1 showing 30 items

A number of the call log displays have links that provide more detailed information about a call. The following table describes the various links that are available in the displays for **Sessions**, **User Sessions**, and **Accounting Calls**.

Use the **Sessions** and **User Sessions** logs for short term debugging purposes and the **Accounting Calls** logs for longer term records and billing.

If an action is not relevant to a particular call/session, it is grayed out. For example, you cannot play a call that is not anchored and recorded, and you cannot view a call record for a REGISTER session. The Details and the two Diagram options are always available.

Link	Description
Detail	Lists all SIP activity for the duration of a call, in text format. That is, it breaks down a call to represent all message activity that made up the communication. Click **more...** for header and content information.

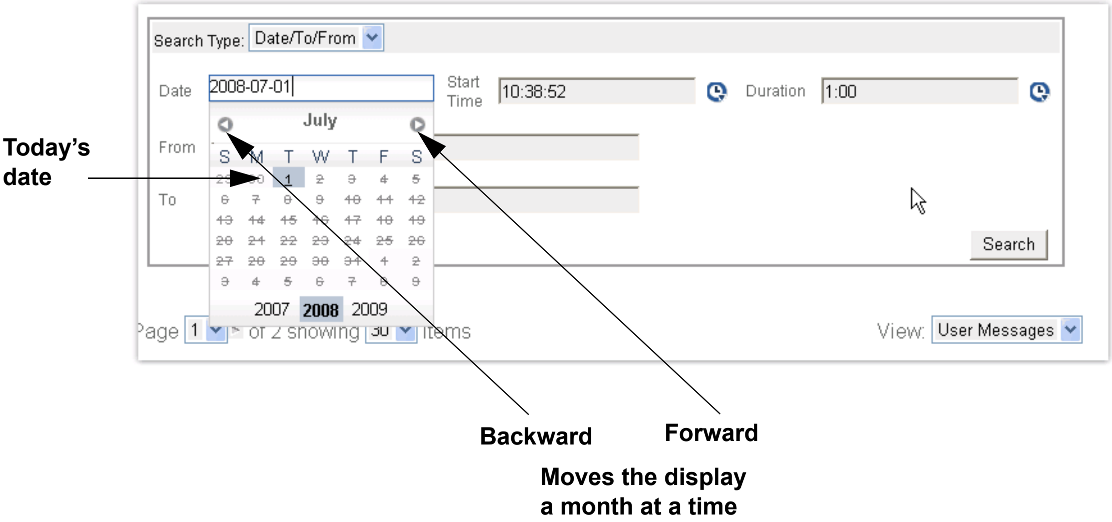
Link	Description
Call Diagram	Displays a call sequence diagram, a visualization of the call flow. A call can be made up of multiple sessions. See Viewing Call and Session Sequence Diagrams for more information.
Session Diagram	Displays a call sequence diagram for a session, a visualization of the sessions segment of a call flow. A call can be made up of multiple sessions. See Viewing Call and Session Sequence Diagrams for more information.
Call Record	Displays detailed call information (next hops, time stamps, IDs, MOS scores, etc.). This is the accounting data, which is also available via the **Accounting Calls** link. See Viewing Call Records for more information.
Delete Media	Removes an entry from the call database. Using this link does not delete the session or accounting call record, it just deletes the media associated with the call. The actual record is not deleted until the database has been purged, the time of which is set by the associated history property of the **database** object. Use this to free up disk space, for example, to remove the contents of a multigigabit recorded conference call. See the *Net-Net OS-E – Objects and Properties Reference* for information on the database object.
Disconnect	Stops a call if it is currently in progress.
Play	If you have selected to record a voice call (with the session configuration **media** object), the play link is active. Click on the link to play the audio portion of the call. See the *Net-Net OS-E – Session Services Configuration Guide* for more information on media recording. See the *Net-Net OS-E – Objects and Properties Reference* for information on the media object.
Call-out	Allows an endpoint to listen to the call. This link is only active for voice calls recorded to the OS-E. When selected, a dialog box prompts for “To” and “From” fields. In the To field enter the IP address of the endpoint allowed to listen to the call. Optionally, in the From field enter the URI sending the call to the endpoint.
Files	Clicking this links lists any files that were transferred during the IM session and archived.
IM archive	Displays the text of all inbound IM messages between users of a selected association, with the duplicate entries stripped out. See Viewing IM Archiving for more information.
Statistics	Displays QOS statistics for calls and sessions in the **Call Logs** and/or **User Portal** pages.
Events	Displays any events written to the event log relating to the specified session.

Link	Description
Archive	Opens or saves the call's SIP detail or accounting archive record. You must have first enabled archiving in the vsp/accounting object.

In addition, several of the Call Log reports have an XML button that allows you to save your data to an XML file. Use this feature to keep data that would otherwise eventually age out of the database. See Using Tools for information on how to retrieve and view this data.

Searching Call Records

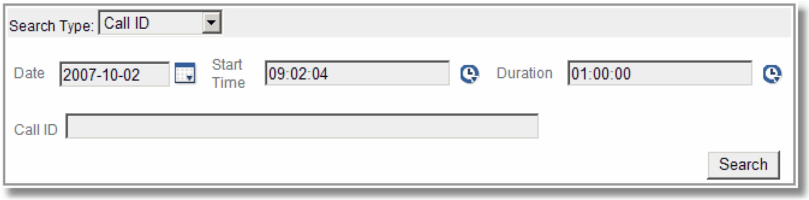
The **Sessions**, **Accounting Calls**, and **SIP Messages** pages provide search mechanisms to refine the list of items displayed, helping to quickly locate a call for further investigation, for example. Several of these searches use a calendar function, as illustrated in The following image.



Search Type: Date/To/From
Date: 2008-07-01
Start Time: 10:38:52
Duration: 1:00
View: User Messages

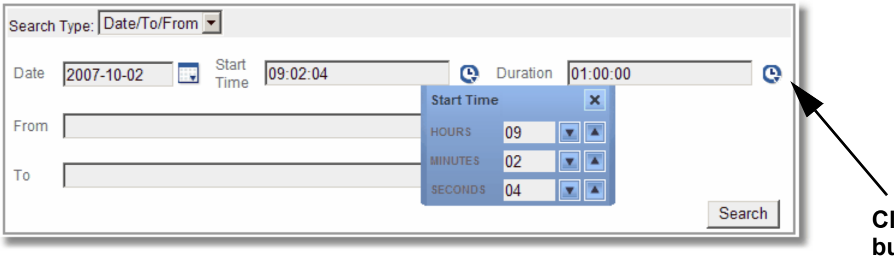
The calendar lets you select dates by clicking on the day. You call the calendar by clicking within the date field. To change the display, click the small arrow to move the calendar by a week, the large arrows to move by a month. Left-hand arrows move the display back in time, right-hand arrows move it forward.

The **Sessions**, **User Sessions**, and **Accounting Calls** pages allow you to search by call ID or date/to/from. In addition, on the **Sessions** and **User Sessions** pages, you can search by all sessions or session ID; on the **Accounting Calls** pages, by all calls. Note that you can further refine the search by call ID to a date, time, and duration. The following image shows an example of the search screen when the search type is by call ID.



Search Type: Call ID
Date: 2007-10-02
Start Time: 09:02:04
Duration: 01:00:00
Call ID:

You can also search by session ID from the **Sessions** page. The page functions the same as the call ID search, except that you supply a session ID instead. To retrieve a range of records based on the time stamp, use the date/to/from search, as illustrated in the following image. Use the clock buttons to specify hours, minutes, and seconds.



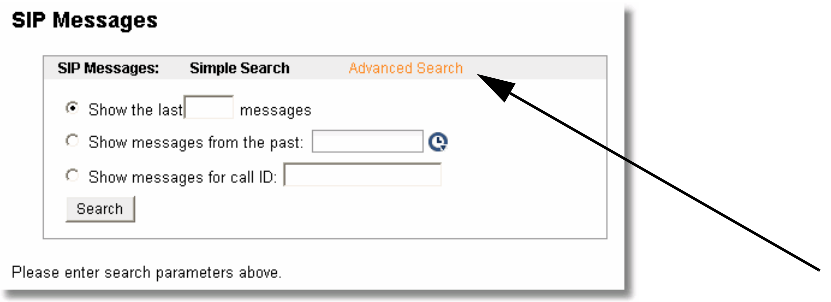
Search Type: Date/To/From
Date: 2007-10-02
Start Time: 09:02:04
Duration: 01:00:00
From:
To:

Start Time
HOURS: 09
MINUTES: 02
SECONDS: 04

Clock button

Enter the date in the appropriate field, in the format mm-dd-yyyy or click on the calendar to select the date with that tool. From that date, you then select a start time and the length of time (duration) for which you want entries returned. Simply click in these timing fields to engage a tool for setting them. Optionally, you can specify the From or To fields of the URI to help refine your search.

The **SIP Messages** page has its own search options, providing both simple and advanced search features. The following image displays the simple search screen. Enter a number of the past messages, messages received over *X* amount of time, or a specific message to display.



SIP Messages

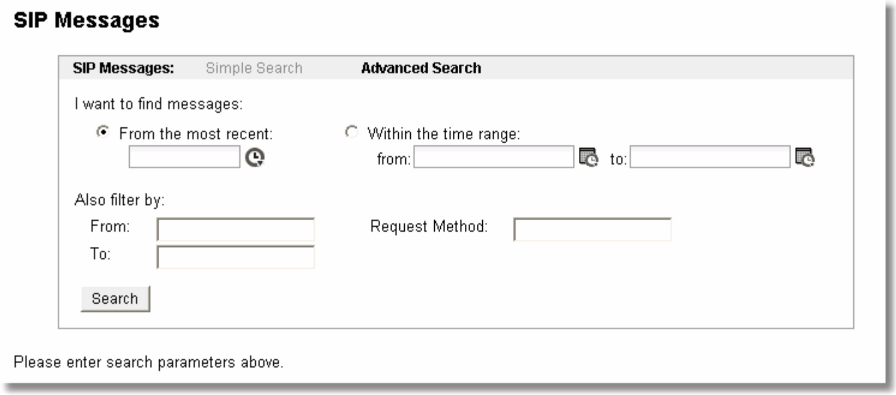
SIP Messages: Simple Search Advanced Search

● Show the last ☐ messages
○ Show messages from the past: ☐
○ Show messages for call ID: ☐
Search

Please enter search parameters above.

Advanced search link

To fine-tune your search, use the Advanced Search link, as shown in the following image. Using this method, you can pinpoint the time period and optionally identify the caller, recipient, or request method in the message.



SIP Messages

SIP Messages: Simple Search Advanced Search

I want to find messages:
● From the most recent: ☐
○ Within the time range: from: ☐ to: ☐

Also filter by:
From: ☐
To: ☐
Request Method: ☐
Search

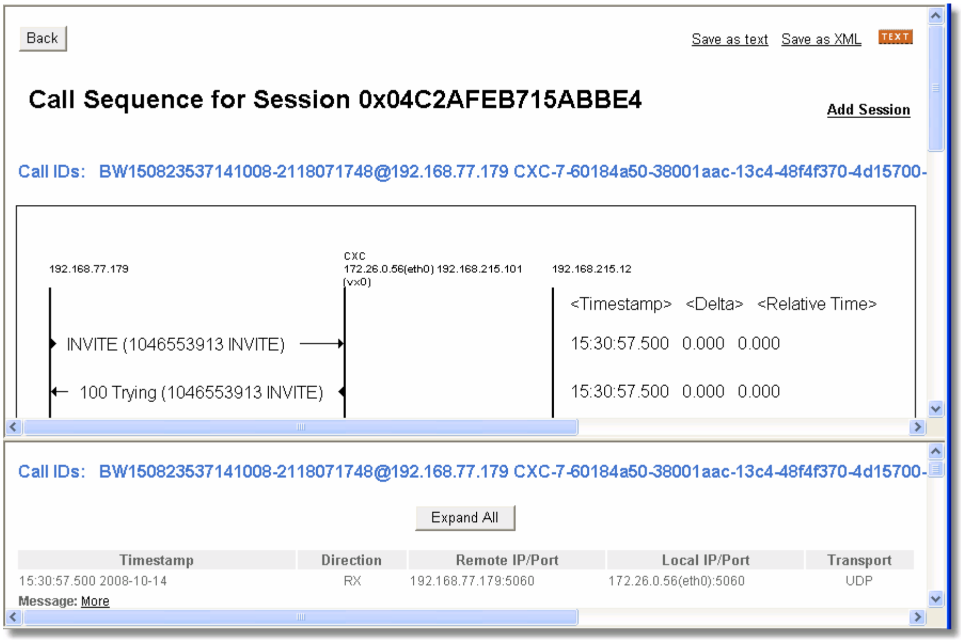
Please enter search parameters above.

Viewing Call and Session Sequence Diagrams

Call sequence diagrams provide a visualization of SIP call flows. As such, they can be used as a tool to debug and analyze SIP message traces, much simpler to interpret than a call log.

A call can be made up of multiple sessions. For example, in a B2B configuration, the OS-E receives the call, terminates the session, and then creates a new session and sends it on to the recipient. In this case, there are multiple sessions associated with the call. When you select **Call Diagram**, the OS-E displays the call flow for all sessions with the selected and associated call ID. This option provides a complete picture of the call. When you select **Session Diagram**, the OS-E displays the content of that session. In some cases (e.g., in a proxy configuration), there is only a single session associated with a call. In that case, both session and call diagrams would display the same thing. Note that the Call Diagram is not active if the preferences\cms-preferences\more-than-one-session-in-call property is set to false (the default).

Click the **Session Diagram** link to access the call sequence diagram. The following image illustrates a sample diagram.


Back
Save as text
Save as XML
TEXT
Add Session
192.168.77.179
CXC
172.26.0.56(eth0) 192.168.215.101
(vx0)
192.168.215.12
INVITE (1046553913 INVITE)
100 Trying (1046553913 INVITE)
Expand All
Message: More

Call Sequence for Session 0x04C2AFEB715ABBE4

Call IDs: BW150823537141008-2118071748@192.168.77.179 CXC-7-60184a50-38001aac-13c4-48f4f370-4d15700-

<Timestamp>	<Delta>	<Relative Time>
15:30:57.500	0.000	0.000
15:30:57.500	0.000	0.000

Call IDs: BW150823537141008-2118071748@192.168.77.179 CXC-7-60184a50-38001aac-13c4-48f4f370-4d15700-

Timestamp	Direction	Remote IP/Port	Local IP/Port	Transport
15:30:57.500 2008-10-14	RX	192.168.77.179:5060	172.26.0.56(eth0):5060	UDP

The XML button allows you to download to XML not only the messages listed in the Call Sequence Diagram but also the content of those messages.

Viewing Call Records

You can access a call detail record (CDR) from either the **Sessions** or the **Accounting Call**s links.

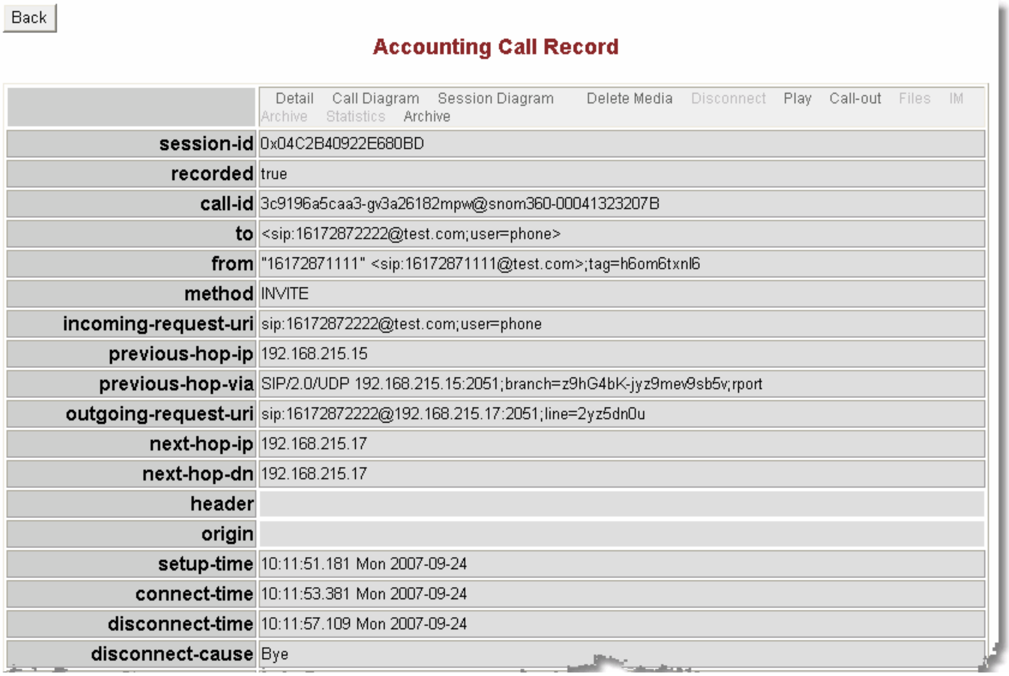
In order for the OS-E to save accounting records (making them available for display), you must set the following:

- enable accounting in master-services/**accounting**
- enable accounting in vsp/**accounting**
- configure a database group in vsp/accounting/database/**group**
- configure a server for the database group in vsp/accounting/database/group/**server**. Set the server type to **local**.
- ensure that a policy turns on accounting for the session and also specifies the database group for the configured target. Use vsp/default-session-config/**accounting** to save accounting records for all users or vsp/policies/session-policies/policy/rule/**session-config** for specific users.
- enable RTP statistics if you want to view MOS scores in the call record. Set **rtp-stats** to enabled in the **media** session-config object (default or policy-specific).

For the OS-E Management System to display accounting records, you must configure a database group that is set to local. You can also configure the system to send records offboard by setting the type to one of the other options (oracle, postgres, sqlserver, generic, external-file-system). If accounting is not enabled, or your record target(s) do not include the local database, the OS-E displays no records.

See the *Net-Net OS-E – Session Services Configuration Guide* for a description of how MOS is calculated.

The following image illustrates a sample call record.



Accounting Call Record

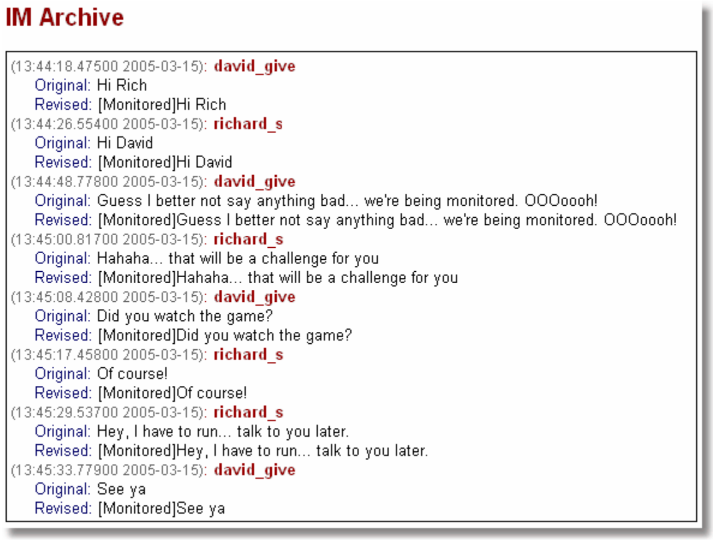
session-id	0x04C2B40922E680BD
recorded	true
call-id	3c9196a5caa3-gv3a26182mpw@snom360-00041323207B
to	<sip:16172872222@test.com;user=phone>
from	"16172871111" <sip:16172871111@test.com>;tag=h6om6txnl6
method	INVITE
incoming-request-uri	sip:16172872222@test.com;user=phone
previous-hop-ip	192.168.215.15
previous-hop-via	SIP/2.0/UDP 192.168.215.15:2051;branch=z9hG4bK-jyz9mev9sb5v;rport
outgoing-request-uri	sip:16172872222@192.168.215.17:2051;line=2yz5dn0u
next-hop-ip	192.168.215.17
next-hop-dn	192.168.215.17
header	
origin	
setup-time	10:11:51.181 Mon 2007-09-24
connect-time	10:11:53.381 Mon 2007-09-24
disconnect-time	10:11:57.109 Mon 2007-09-24
disconnect-cause	Bye

For a complete list of field descriptions for the call record fields, refer to the *Net-Net OS-E – Session Services Configuration Guide*.

Viewing IM Archiving

IM archiving, available from the session reports, provides a reproduction of an instant messaging session. All duplicate entries that were a result of the configuration are stripped out. See Eliminating Duplicate Entries for information on the origin of the duplication.

The archive displays both the original message and, if applicable, a revised version of the message. These may be the same, or, if the instant-messaging configuration resulted in text replacement, the messages may differ. (The configuration for text replacement is managed in the default-session-configuration/**instant-messaging** object or via policy.) The following image illustrates a sample of the OS-E archive output.

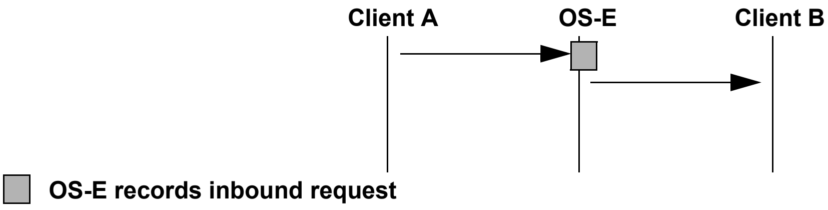


IM Archive

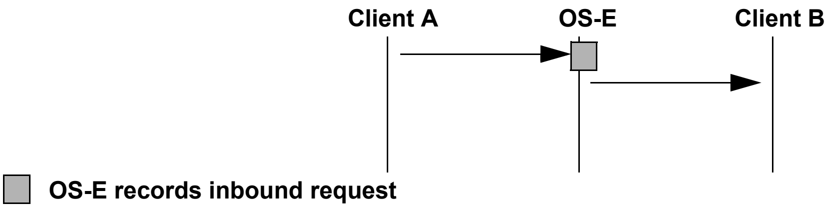
```
(13:44:18.47500 2005-03-15): david_give
    Original: Hi Rich
    Revised: [Monitored]Hi Rich
(13:44:26.55400 2005-03-15): richard_s
    Original: Hi David
    Revised: [Monitored]Hi David
(13:44:48.77800 2005-03-15): david_give
    Original: Guess I better not say anything bad... we're being monitored. OOOoooh!
    Revised: [Monitored]Guess I better not say anything bad... we're being monitored. OOOoooh!
(13:45:00.81700 2005-03-15): richard_s
    Original: Hahaha... that will be a challenge for you
    Revised: [Monitored]Hahaha... that will be a challenge for you
(13:45:08.42800 2005-03-15): david_give
    Original: Did you watch the game?
    Revised: [Monitored]Did you watch the game?
(13:45:17.45800 2005-03-15): richard_s
    Original: Of course!
    Revised: [Monitored]Of course!
(13:45:29.53700 2005-03-15): richard_s
    Original: Hey, I have to run... talk to you later.
    Revised: [Monitored]Hey, I have to run... talk to you later.
(13:45:33.77900 2005-03-15): david_give
    Original: See ya
    Revised: [Monitored]See ya
```

Eliminating Duplicate Entries

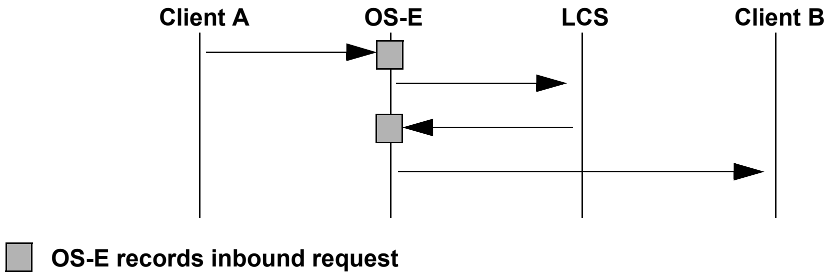
The database stores, among other things, a record of all inbound IM messages. Certain IM programs, LCS for example, sends duplicate messages to the OS-E, which are then written to the database, for each single message actually sent. The following image illustrates the typical message process that results in a single inbound entry.



The following image illustrates the message process for LCS with the OS-E:



The following image illustrates the message process resulting in duplicate entries:



The SIP message database maintains two entries for each message. (You may notice this in the call details or the sequence diagrams.) To view sessions without the duplicates, click **IM Archive**.

Note: IM Archiving must be enabled for records to be cleaned and written to the archive database. To do so, set archiving to enabled in the vsp/default-session-configuration/**instant-messaging** object. If you do not enable archiving, all records are still available by viewing the session details. Alternatively, you can set a policy to archive selected sessions.

Call Logs Links

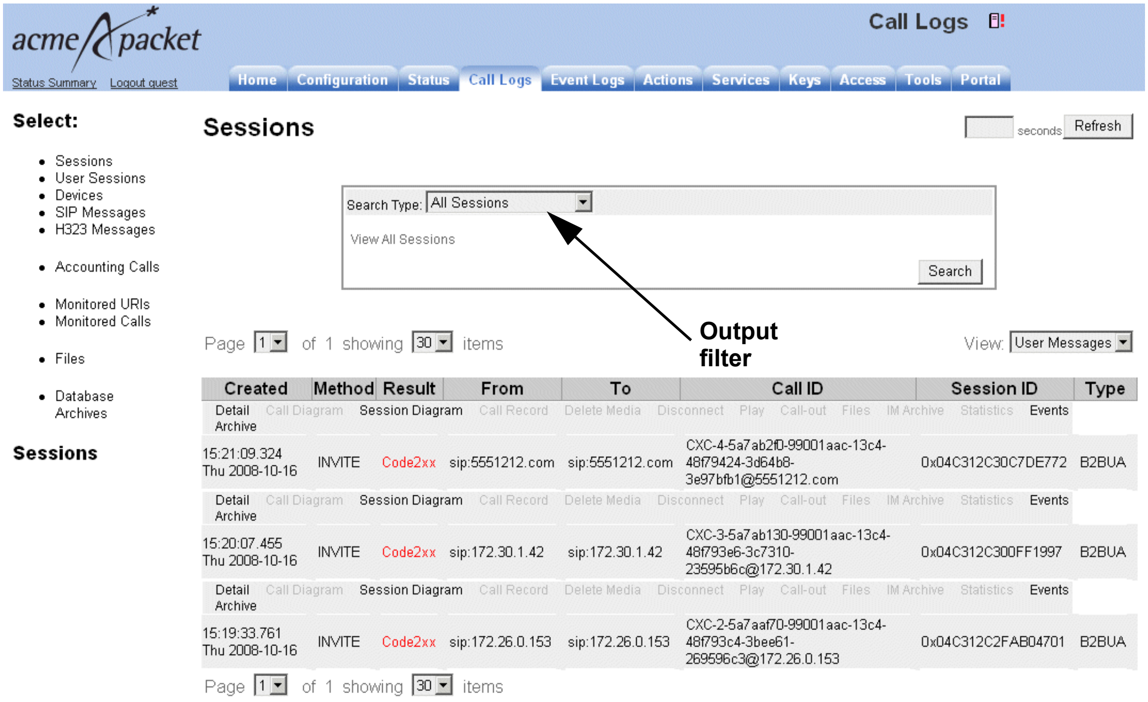
The following sections describe each link available from within **Call Logs**. See the previous section, Working with Call Logs, for more information about the fields and search functions.

Sessions

The **Sessions** page lists all the sessions in the database for all users. This list is helpful if you do not have a directory service configured to help you isolate users for selection. Use this tab when you want to sort records to view by date. The information available is the same as that seen using the User Sessions link.

Session logs are for recent sessions only and are useful for debugging purposes. The session table is always populated but since it can fill up quickly, it is not practical to store the information for long. The **Accounting Calls** link essentially archives session information.

On the **Configuration** page, under vsp/**database**, you can set the number of days of call logs sessions that the OS-E preserves with two properties—**call-details-history** and **accounting history** (the latter is preserved in the local database)


acme packet
Status Summary
Logout guest
Call Logs
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Select:
Sessions
User Sessions
Devices
SIP Messages
H323 Messages
Accounting Calls
Monitored URIs
Monitored Calls
Files
Database Archives
Sessions
Sessions
seconds
Refresh
View All Sessions
Search
Output filter
Detail
Call Diagram
Session Diagram
Call Record
Delete Media
Disconnect
Play
Call-out
Files
IM Archive
Statistics
Events
Archive

Search Type: All Sessions

Page 1 of 1 showing 30 items

View: User Messages

Created	Method	Result	From	To	Call ID	Session ID	Type
15:21:09.324 Thu 2008-10-16	INVITE	Code2xx	sip:5551212.com	sip:5551212.com	CXC-4-5a7ab2f0-99001aac-13c4-48f79424-3d64b8-3e97bfb1@5551212.com	0x04C312C30C7DE772	B2BUA
15:20:07.455 Thu 2008-10-16	INVITE	Code2xx	sip:172.30.1.42	sip:172.30.1.42	CXC-3-5a7ab130-99001aac-13c4-48f793e6-3c7310-23595b6c@172.30.1.42	0x04C312C300FF1997	B2BUA
15:19:33.761 Thu 2008-10-16	INVITE	Code2xx	sip:172.26.0.153	sip:172.26.0.153	CXC-2-5a7aaf70-99001aac-13c4-48f793c4-3bee61-269596c3@172.26.0.153	0x04C312C2FAB04701	B2BUA

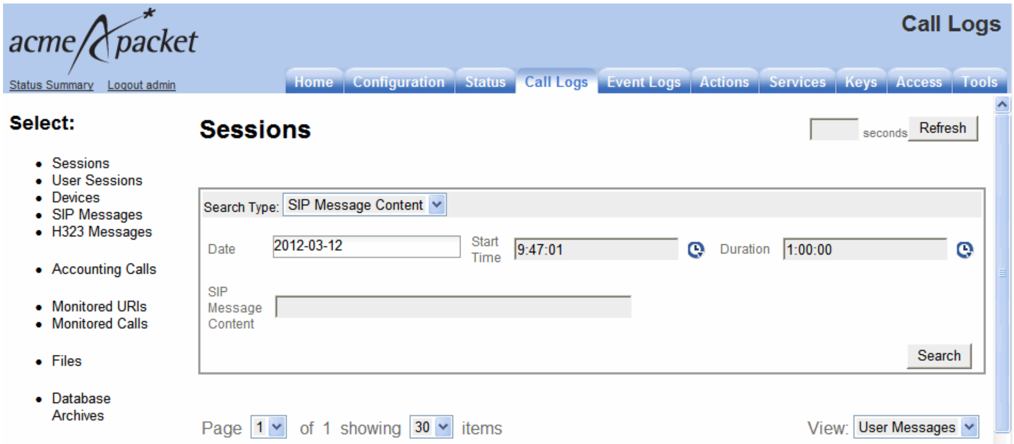
Page 1 of 1 showing 30 items

The Sessions (and User Sessions) page allows you to further filter your output by using the View pull down. The following table describes the options for all users or a selected user.

Option	Description
User Messages	Displays sessions that are of type MESSAGE and INVITE. This results in a display of information that has been passed between users, such as IM or voice traffic.
Registers	Displays only sessions containing a REGISTER request.
Recorded Calls	Displays only those sessions in which a voice call was recorded (INVITES).

Option	Description
Other	DIsplays sessions containing message types that are not MESSAGE, INVITE, or REGISTER (handled in other views), such as NOTIFY, OPTIONS, and SUBSCRIBE.

The Call Logs Sessions page also allows you to search for SIP Message Content, specific text within the content of a SIP message.


acme packet
Status Summary
Logout admin
Call Logs
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Select:
Sessions
User Sessions
Devices
SIP Messages
H323 Messages
Accounting Calls
Monitored URIs
Monitored Calls
Files
Database Archives
Sessions
seconds
Refresh
Search
Page
of 1
showing
items
View:

Search Type: SIP Message Content

Date: 2012-03-12
Start Time: 9:47:01
Duration: 1:00:00
SIP Message Content:

Page 1 of 1 showing 30 items
View: User Messages

The required search parameters are:

- Date
- Start Time
- Duration
- SIP Message Content (The text you are searching for within the SIP message content)

The search results include the following:

- Created
- Method
- Result
- From
- To

- Call ID
- Session ID
- Type

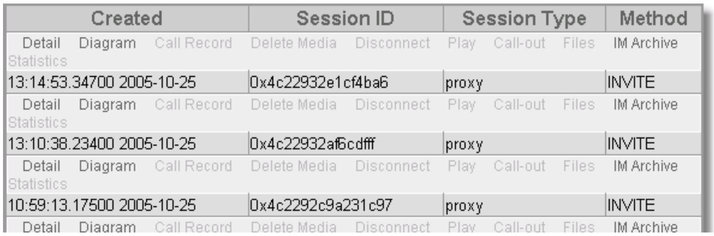
User Sessions

When you select the **User Sessions** link, the system displays all users known in all configured directories. Use this link when you want to sort users to view by name.

From the list of users, you can click on a user name to highlight and view collected data. This data includes a record of database entries, associations, and group memberships, among other things

An *association* is a relationship between two users, registered because the two parties participated in a SIP session. Each association is listed only once—all SIP session data is contained in that log. Expand the users associations and choose the user name for whom you want to view association details.

The following image illustrates a session of a user session.



Created	Session ID	Session Type	Method
Detail Diagram Call Record Delete Media Disconnect Play Call-out Files IM Archive Statistics			
13:14:53.34700 2005-10-25	0x4c22932e1cf4ba6	proxy	INVITE
Detail Diagram Call Record Delete Media Disconnect Play Call-out Files IM Archive Statistics			
13:10:38.23400 2005-10-25	0x4c22932af6cdfff	proxy	INVITE
Detail Diagram Call Record Delete Media Disconnect Play Call-out Files IM Archive Statistics			
10:59:13.17500 2005-10-25	0x4c2292c9a231c97	proxy	INVITE
Detail Diagram Call Record Delete Media Disconnect Play Call-out Files IM Archive			

SIP Messages

The **SIP Messages** link provides a log of all the messages for all sessions, sent to or from the OS-E. You can modify the output to display sessions based the last *X* messages to occur or from the last *X* amount of time.

Queries

Clicking on the **Queries** link displays all previously configured DOS queries. From this link you can execute a query and display the results. Configure DOS queries manually on the **Services** tab.

Accounting Calls Page

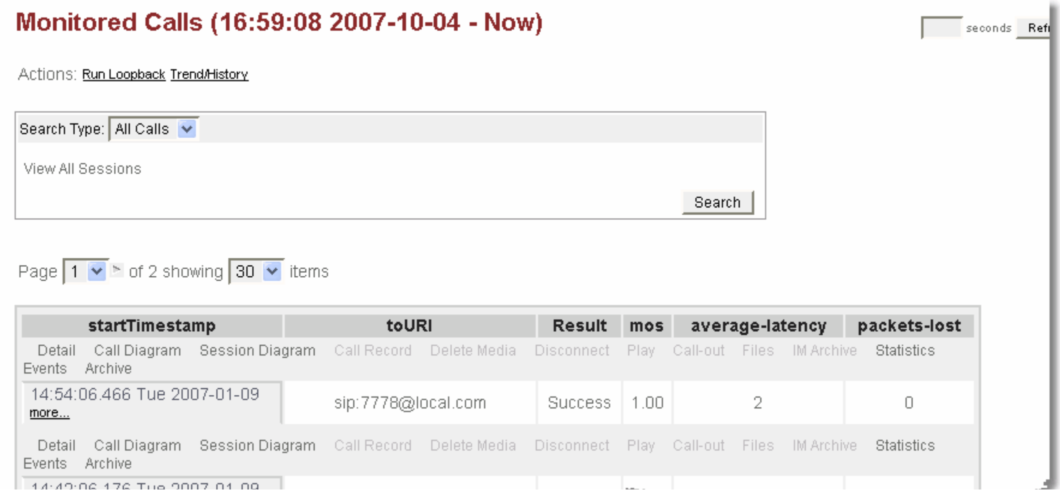
The OS-E accounting database is a subsystem that captures and stores SIP call detail records. To manage space for accounting, you can use accounting policy to selectively archive different types of traffic to be kept on the box or offloaded to a database on another system. Accounting policies direct SIP call detail records to specific accounting groups and servers. If configured, these records can be forwarded to remote SQL database servers such as Oracle and Postgres where the call detail records can be used with other accounting and billing applications.

If you do not configure one or more remote database groups and servers, the SIP call detail records are stored in the OS-E accounting local database only (if you have configured a local database target). The Accounting Calls tab allows you to view all calls stored in the local database. If accounting is not enabled, or your record target(s) do not include the local database, the OS-E Management System displays no records. Additionally, if you have **rtp-stats** enabled through a policy or default session configuration, the **Accounting Calls** page displays the MOS scores for each channel (0 and 1).

Once the OS-E Management System displays records, you can click on an entry and display call details for the record. See Viewing Call Records for a complete description of the call details records available through the **Accounting Calls** page. See the *Net-Net OS-E – Session Services Configuration Guide* for a description of how MOS is calculated.

Monitored URIs and Monitored Calls

The monitoring links display the list of calls that were placed when you executed the loopback action. (You can execute it from the **Actions** tab or by clicking the **Run Loopback** link from these pages.) The following image illustrates some sample output.



Monitored Calls (16:59:08 2007-10-04 - Now)

Actions: Run Loopback Trend/History

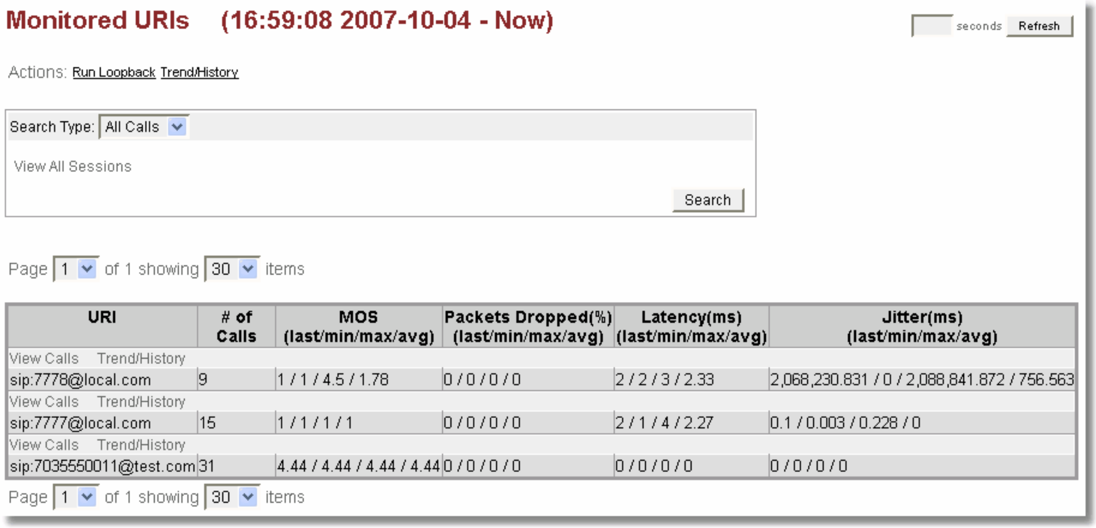
Search Type: All Calls

View All Sessions

Page 1 of 2 showing 30 items

startTimestamp	toURI	Result	mos	average-latency	packets-lost
Detail Events Call Diagram Archive Session Diagram Call Record Delete Media Disconnect Play Call-out Files IM Archive Statistics					
14:54:06.466 Tue 2007-01-09 more...	sip:7778@local.com	Success	1.00	2	0
Detail Events Call Diagram Archive Session Diagram Call Record Delete Media Disconnect Play Call-out Files IM Archive Statistics					

Loopback tests are used to test line quality for a call. The **Monitored Calls** link displays a list of all calls that were part of the loopback test and their line test results. For each call, the applicable session page links are available (diagrams, records, etc.). The **Monitored URIs** link summarizes the loopback call results for each URI, as illustrated in the following image.



Monitored URIs (16:59:08 2007-10-04 - Now)

Actions: Run Loopback Trend/History

Search Type: All Calls

View All Sessions

Page 1 of 1 showing 30 items

URI	# of Calls	MOS (last/min/max/avg)	Packets Dropped(%) (last/min/max/avg)	Latency(ms) (last/min/max/avg)	Jitter(ms) (last/min/max/avg)
View Calls Trend/History					
sip:7778@local.com	9	1 / 1 / 4.5 / 1.78	0 / 0 / 0 / 0	2 / 2 / 3 / 2.33	2,068,230.831 / 0 / 2,088,841.872 / 756.563
View Calls Trend/History					
sip:7777@local.com	15	1 / 1 / 1 / 1	0 / 0 / 0 / 0	2 / 1 / 4 / 2.27	0.1 / 0.003 / 0.228 / 0
View Calls Trend/History					
sip:7035550011@test.com	31	4.44 / 4.44 / 4.44 / 4.44	0 / 0 / 0 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0

Page 1 of 1 showing 30 items

The **Trend/History** link displays a chart illustrating the average latency, current jitter, packets dropped percentage, and MOS for a URI. This is the same information that is available in the Trends/**call-loopback** option in the **Status** tab.

Database Archives

The Database Archives tab displays a list of database snapshots that can be used to modify the list of calls displayed through the **Call Logs** tab and provides access to the functionality to create snapshots. A snapshot simply splits the database into smaller physical pieces. This results in fewer and faster disk accesses and improved performance. Use this tab to manually take a snapshot or to schedule periodic snapshots.

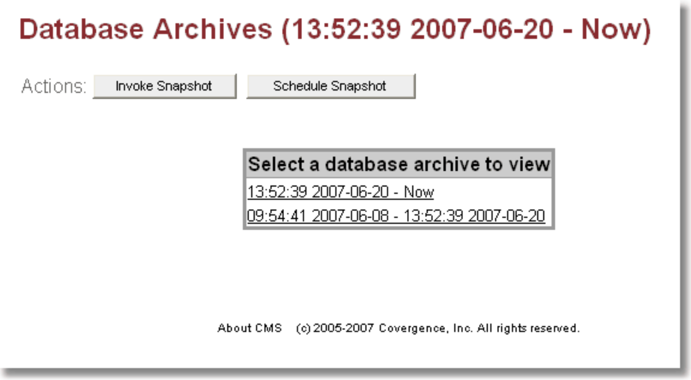
The following buttons are available:

- **Refresh**—updates the list of database archives. When you invoke a snapshot, you are creating a new entry. Refresh the list to display the entry. You can then highlight the entry in the list and select **View** to load it into the system display.
- **View**—retrieves the archive highlighted in the selection list and displays it via the **Call Logs** page.
- **Invoke Snapshot**—initiates a database snapshot. This button is the equivalent of invoking the database snapshot action. When you invoke a snapshot manually, the system creates a snapshot beginning with data collected from the start of the last archive period and ending at the current time
- **Schedule Snapshot**—schedules a database snapshot. (This button is the equivalent of configuring the services/tasks object.) From here, you can define the period of time covered by the snapshot.

Note on Calls Being Archived in Multiple Snapshots

If a call session has not completed when a snapshot archive is scheduled or invoked, messages belonging to this single session will be written to both the current and the most recently completed database archives. The current record is the archive currently in progress; when viewed it’s ending time says “Now.” The most recently completed archive is the record that ended just prior to the current.

When an archive start is invoked, the OS-E immediately begins writing messages to that archive. If a call is in progress, some of its messages have been written to the previous archive. In this case, the OS-E continues writing to the archive in which the call start is recorded, but it also writes to the current archive. When the call completes, the OS-E closes the previous archive. The result of this is that only the most recently completed archive has the complete call record. The current archive has only the records from when the archive began.


Database Archives (13:52:39 2007-06-20 - Now)

Select a database archive to view
13:52:39 2007-06-20 - Now
09:54:41 2007-06-08 - 13:52:39 2007-06-20

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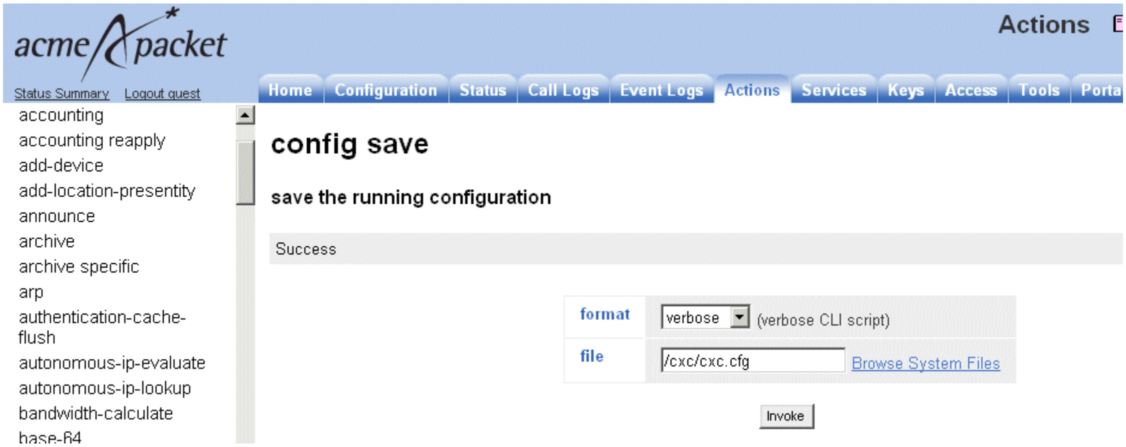
Displaying Event Logs

The **Event Logs** tab displays a list of entries for either the local database log for a specific box or a log file log. (These are the logs specified in the event-log services object.) You can sort the output by box, severity, process type, and log class. When you click on a link, the OS-E displays the event log messages that accompany that entry.

Executing Actions

The **Actions** tab provides a list of all available actions in the left pane. An action is a tool that immediately executes an OS-E function. For example, the **terminate-call** action causes the OS-E to immediately terminate the call identified in the action window by its session ID. It does not require an update or save to the configuration to take effect. Select an action in the left pane, and enter the necessary fields in the right pane. Then click **Invoke**.

Some actions provide a **Schedule** button, which opens a page allowing you to create a task for scheduling the action. The following image displays the **config save** action.


Actions
Status Summary
Logout guest
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Porta
accounting
accounting reapply
add-device
add-location-presentity
announce
archive
archive specific
arp
authentication-cache-flush
autonomous-ip-evaluate
autonomous-ip-lookup
bandwidth-calculate
base-64
Browse System Files
Invoke

config save

save the running configuration

Success

format: verbose (verbose CLI script)
file: /cxc/cxc.cfg

Enabling Services

The **Services** tab provides access to master services configuration, box-level services, and management system preferences. Master services control the resources that run only on the master device—directory services between the OS-E and gateway services, accounting services, and database maintenance services, for example. The box-level services configure services that run on every box in the cluster. For example, you can configure syslog, file message storage, and local database properties.

The **cms-preferences** object allows you to add user-defined enumeration strings to the selection of preconfigured strings that exist in the configuration file. When editing objects that use enumeration strings (policy predicates, for example), the OS-E presents both the preconfigured strings and those that you have added. For example, you can add SIP extensions to the configuration file. Often the extensions contain components that could be useful for defining policy rules. By adding the enumeration strings to the configuration file through this object, the system "remembers" the string so that you can easily use it as a building block in your definitions.

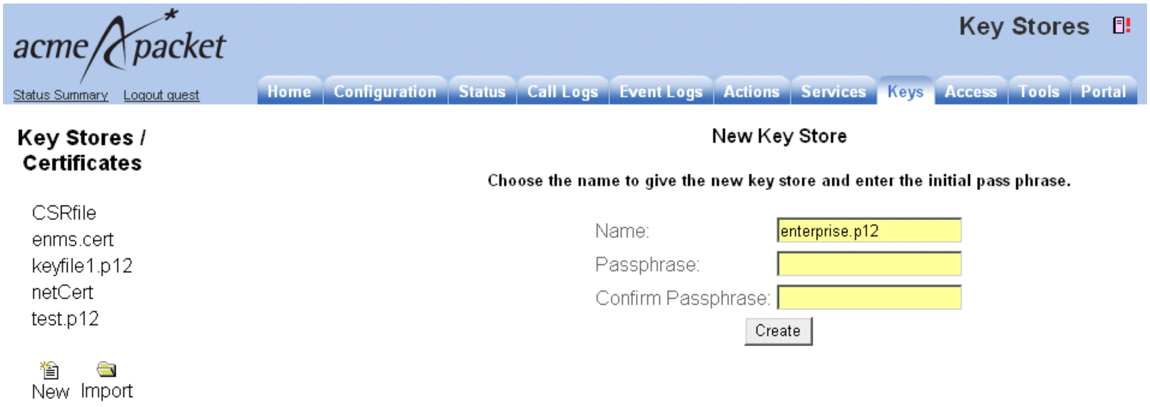
You can configure the status providers that display summaries using the **summary-preferences** configuration object on the **Services** tab by expanding **preferences** in the left pane, selecting **cms-preferences**, and clicking **Configure** in the **summary-preferences** row.

The preferences object also contains settings for the DOS query tool. Configure your query from this area, and execute it from the **Call Logs** tab. See Queries for more information.

Managing Cryptographic Keys

For networks running the Transport Layer Security protocol (TLS), you need to configure the certification file and the private key information required to pass SIP traffic.The **Keys** tab allows you to add and maintain the necessary key data. See the *Net-Net OS-E – System Installation and Commissioning Guide* for more information on certificate and key management.

A key store is the file that maintains the certificate and/or keys that can be used by the OS-E. From the **Keys** tab, you can manage and install the key stores. The following image displays the key store management page for adding a new key.


acme packet
Status Summary
Logout guest
Key Stores
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Key Stores / Certificates
CSRfile
enms.cert
keyfile1.p12
netCert
test.p12
New
Import
New Key Store
Create

Choose the name to give the new key store and enter the initial pass phrase.

Name: enterprise.p12
Passphrase:
Confirm Passphrase:

You can click on an existing key store to view the associated certificate properties, create a new key store, or import a key store on to the OS-E. The following table describes each button or link available in the key store management window.

Button	Action
New	Creates a new key store, a named container for key and certificate data, on the local device. Enter a key store name and assign a password.
Import (key store)	Imports a key store, a named container and its associated data, onto the local device. You can either supply a file path and, optionally, a destination name for the key store or you can browse for a key store saved on your network.
The following are available once you are in a key store	
Import (keys/certificates)	Uploads certificates and/or keys into the highlighted key store. Enter the file path or browse for the data you wish to import and, if desired, an alias. If a password is required to access the data, enter it here.
New	Creates a key pair (private and public key). The OS-E uses the public key to generate a self-signed certificate, but does not save it. You can later extract the public key from the certificate if needed.
Save	Saves the currently open key store. Until a key store is saved, it is not available for use.
Passphrase	Allows you to change the password for a key store. Because you had to enter the current password to have editing access to the key store, the dialog box only prompts for the new password and a confirmation.
Reload	Refreshes the contents of the highlighted key store to the state of that key store saved on the cluster. Use this to cancel any changes you have made and not yet saved. Password changes are not part of the refresh—the last password set stays in effect.
Delete	Deletes the selected key store off the box.
The following are available once you have opened a key store	
View	Displays the properties of the certificate in a secondary window.
Reques	Generates a signing request, including the data that needs to be sent to the certificate authority (CA).
Update	Uploads a new, signed certificate for the highlighted key onto the OS-E.

Button	Action
Delete	Deletes a selected element of the key store off the box (e.g., a key or certificate).

Configuring Access

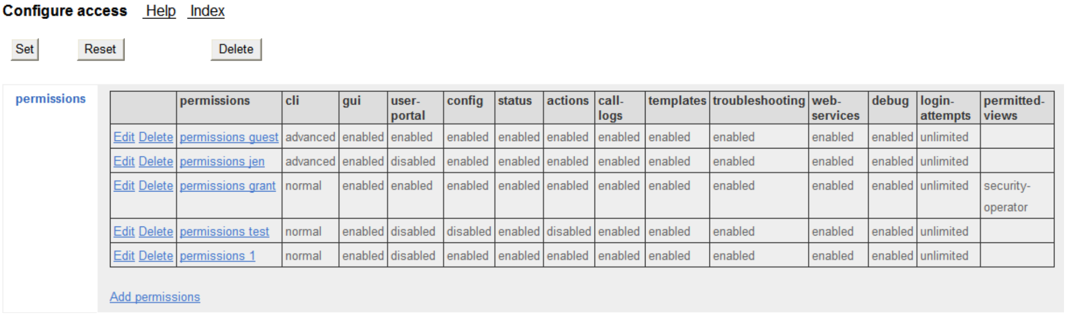
Under the Access tab you can configure user access. User access defines which users are allowed access to the OS-E Management System and CLI, and the specific privileges that they are granted.

Once permissions are configured and assigned, you can view the permissions you have under the Configuration tab's View menu. The following are the permitted views:

- Security-admin—Users with this permitted view are able to add, modify, and delete the following configuration objects that are security related:
  - **interface/op** (all objects)
  - **vsp/policies/dos-policy**
  - **vsp/tls**
  - **filter-intf** can be changed
- Security-operator—Users with this permitted view are able to add, modify, and delete objects under Access/Users. Users are blocked from viewing anything under the Configuration tab.
- Sip-admin—Users with this permitted view are able to add, modify, and delete configuration objects that are not security related. Users with this view are blocked from viewing the Access configuration.

To assign a permission set:

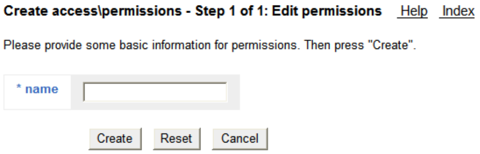
1. Create a new access permission under the Access tab by clicking **Add permissions**.



Configure access Help Index

	permissions	cli	gui	user-portal	config	status	actions	call-logs	templates	troubleshooting	web-services	debug	login-attempts	permitted-views
Edit Delete	permissions guest	advanced	enabled	enabled	enabled	enabled	enabled	enabled	enabled	enabled	enabled	enabled	unlimited	
Edit Delete	permissions jen	advanced	enabled	disabled	enabled	enabled	enabled	enabled	enabled	enabled	enabled	enabled	unlimited	
Edit Delete	permissions grant	normal	enabled	enabled	enabled	enabled	enabled	enabled	enabled	enabled	enabled	enabled	unlimited	security-operator
Edit Delete	permissions test	normal	enabled	disabled	disabled	enabled	disabled	enabled	enabled	enabled	enabled	enabled	unlimited	
Edit Delete	permissions 1	normal	enabled	disabled	enabled	enabled	enabled	enabled	enabled	enabled	enabled	enabled	unlimited	

2. Enter the name you want to use for this access permission and select **Create**.

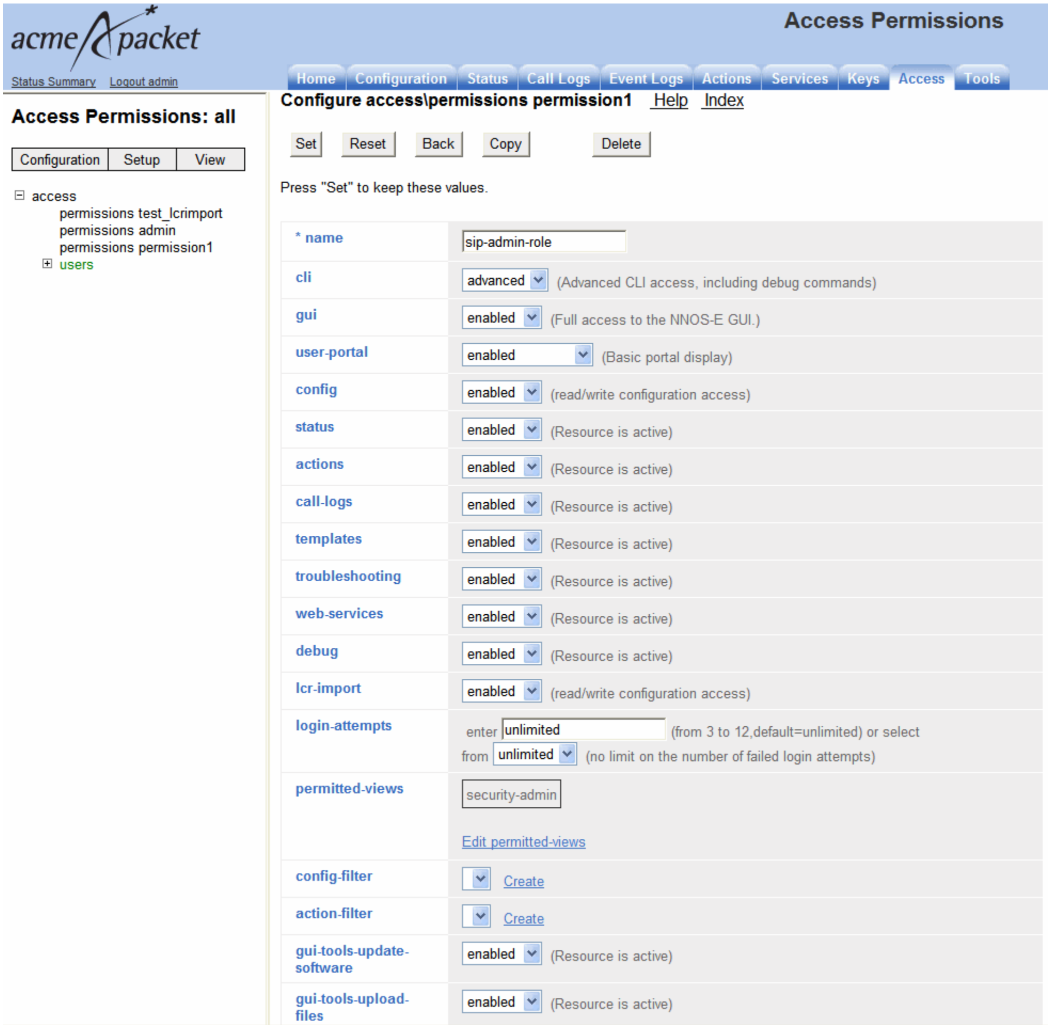


Create access\permissions - Step 1 of 1: Edit permissions Help Index

Please provide some basic information for permissions. Then press "Create".

The page listing all permissions appears.

3. The following image shows access permission **sip-admin-role** created with permitted view **sip-admin** assigned.

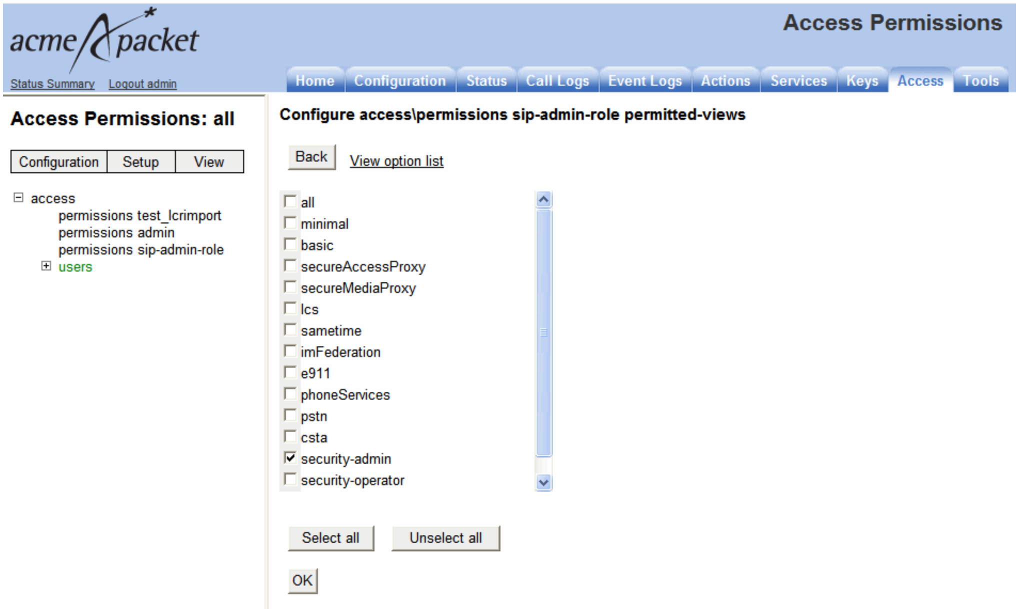

acme packet
Access Permissions
Status Summary
Logout admin
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Access Permissions: all
Configuration
Setup
View
access
permissions test_lcrimport
permissions admin
permissions permission1
users
Help
Index
Set
Reset
Back
Copy
Delete

Configure access\permissions permission1

Press "Set" to keep these values.

* name	sip-admin-role
cli	advanced (Advanced CLI access, including debug commands)
gui	enabled (Full access to the NNOS-E GUI.)
user-portal	enabled (Basic portal display)
config	enabled (read/write configuration access)
status	enabled (Resource is active)
actions	enabled (Resource is active)
call-logs	enabled (Resource is active)
templates	enabled (Resource is active)
troubleshooting	enabled (Resource is active)
web-services	enabled (Resource is active)
debug	enabled (Resource is active)
lcr-import	enabled (read/write configuration access)
login-attempts	enter unlimited (from 3 to 12,default=unlimited) or select from unlimited (no limit on the number of failed login attempts)
permitted-views	security-admin Edit permitted-views
config-filter	Create
action-filter	Create
gui-tools-update-software	enabled (Resource is active)
gui-tools-upload-files	enabled (Resource is active)

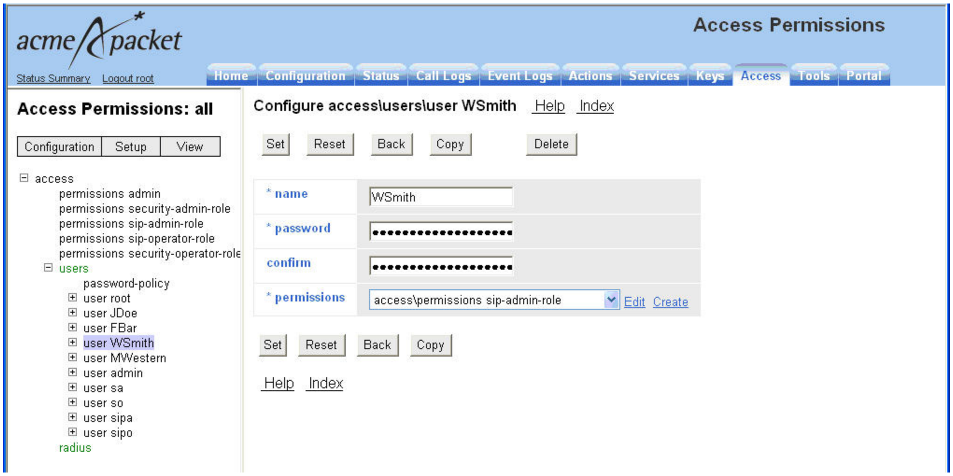
The following image shows available permitted views.


acme packet
Access Permissions
Status Summary
Logout admin
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Access Permissions: all
Configuration
Setup
View
access
permissions test_lcrimport
permissions admin
permissions sip-admin-role
users
Back
View option list
Select all
Unselect all
OK

Configure access\permissions sip-admin-role permitted-views

☐ all
☐ minimal
☐ basic
☐ secureAccessProxy
☐ secureMediaProxy
☐ lcs
☐ sametime
☐ imFederation
☐ e911
☐ phoneServices
☐ pstn
☐ csta
☑ security-admin
☐ security-operator

4. Create a new user and assign the access permissions to the user. The following image shows user **WSmith** created with access permission **sip-admin-role** assigned.


acme packet
Access Permissions
Status Summary
Logout root
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Access Permissions: all
Configuration
Setup
View
access
permissions admin
permissions security-admin-role
permissions sip-admin-role
permissions sip-operator-role
permissions security-operator-role
users
password-policy
user root
user JDoe
user FBar
user WSmith
user MWestern
user admin
user sa
user so
user sipa
user sipo
radius
Help
Index
Set
Reset
Back
Copy
Delete
Edit
Create

Configure access\users\user WSmith

* name	WSmith
* password	•••••••••••••••••••
confirm	•••••••••••••••••••
* permissions	access\permissions sip-admin-role

5. Save and activate your configuration.

The OS-E also supports filtering mechanisms which control which users have access to specific actions and configuration objects and properties. This functionality has been added to the existing **access** > **permissions** configuration.

The two permission filters are:

- **Action-filter**
- **Config-filter**

There are three steps to assigning users' action and configuration filters. First create the filters in the **access** > **permission-filters** object. Then assign filters to an access permissions set. Finally, assign each user with a permission set.

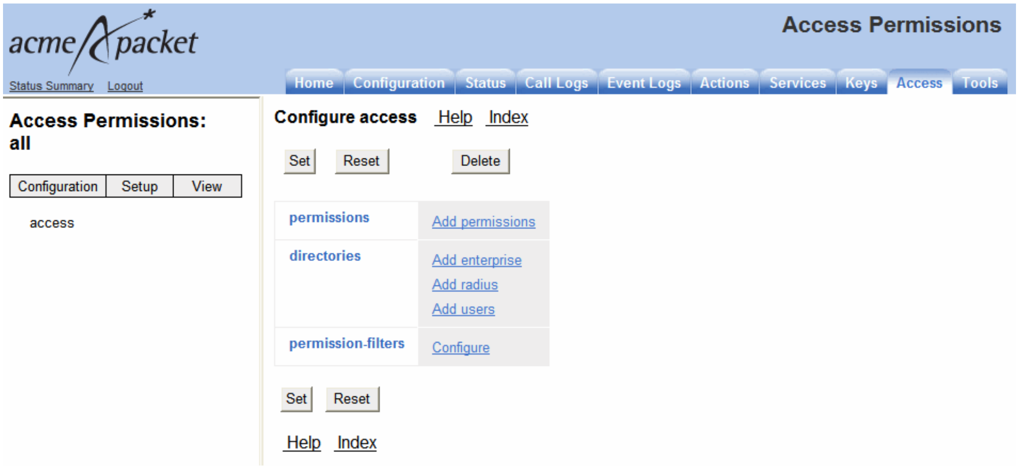
Via the **action-filter**, you can specify a list of disabled actions. When you attempt to execute a disabled action, you get the following error message:

```
Insufficient permissions for user
```

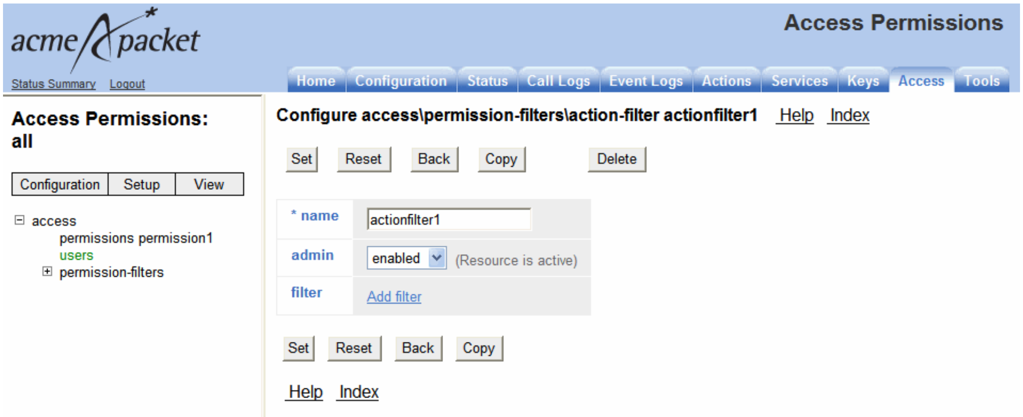
Actions are filtered by action name only, without any parameters or arguments. When anything more than an action name is specified, the OS-E ignores the filter.

To configure action filter functionality following these steps.

1. Click on the **Access** tab and select **Access**. Click **permission-filters**.


acme packet
Access Permissions
Status Summary
Logout
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Access Permissions: all
Configuration
Setup
View
access
Configure access
Help
Index
Set
Reset
Delete
permissions
Add permissions
directories
Add enterprise
Add radius
Add users
permission-filters
Configure
Set
Reset
Help
Index

2. Click **Add action-filter**. Enter a name for the filter and click **Create**. Ensure that the filter is **enabled** and click **Add filter**.


acme packet
Access Permissions
Status Summary
Logout
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Access Permissions: all
Configuration
Setup
View
access
permissions permission1
users
permission-filters
Help
Index
Set
Reset
Back
Copy
Delete
Add filter

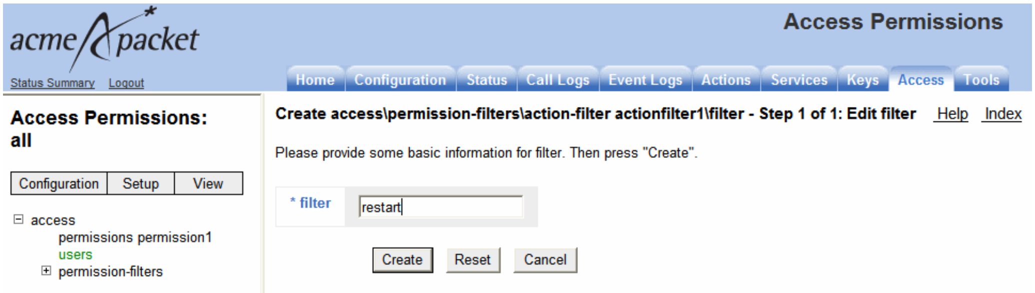
Configure access\permission-filters\action-filter actionfilter1

* name: actionfilter1

admin: enabled (Resource is active)

filter: Add filter

3. Specify the filter you are creating. To enter a filter, type the action name only. The following example shows the filter **restart**.


acme packet
Access Permissions
Status Summary
Logout
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Access Permissions: all
Configuration
Setup
View
access
permissions permission1
users
permission-filters
Help
Index
Create
Reset
Cancel

Create access\permission-filters\action-filter actionfilter1\filter - Step 1 of 1: Edit filter

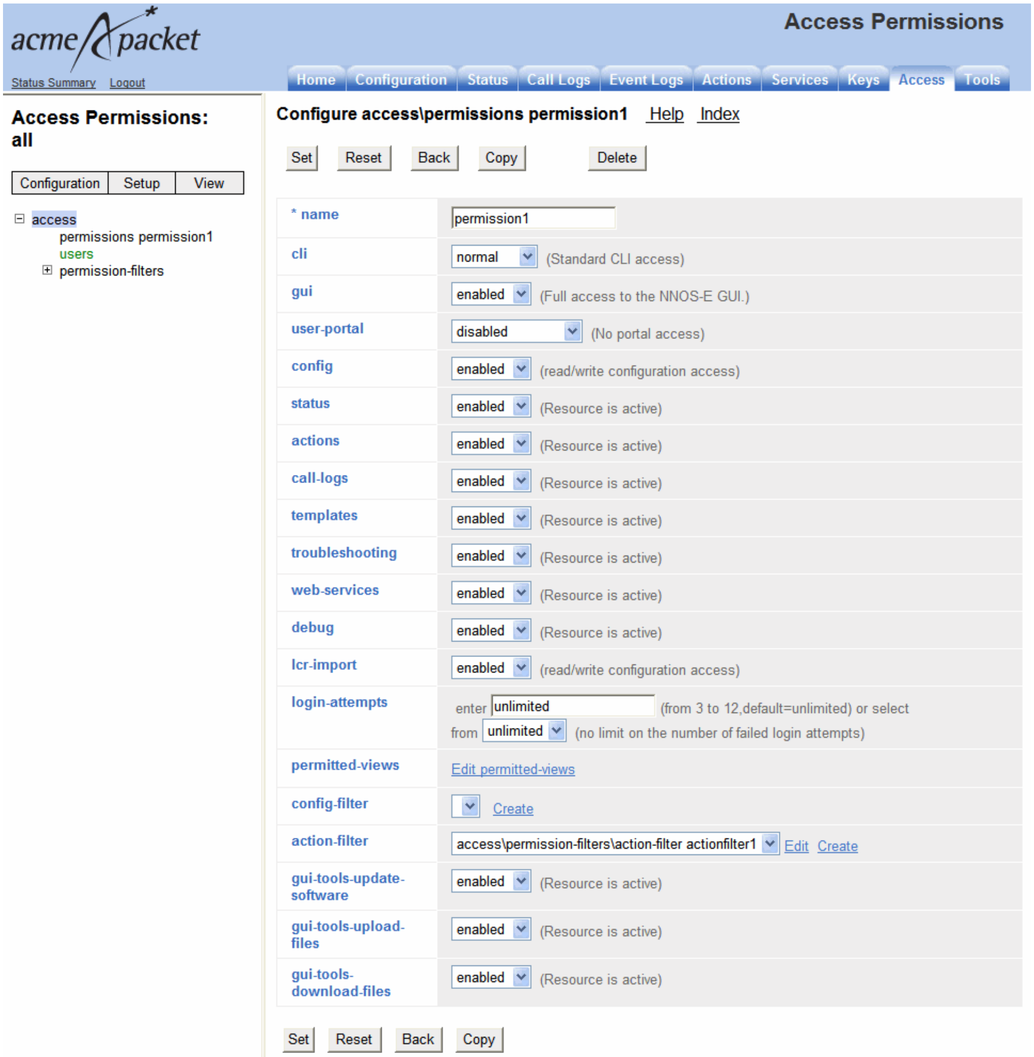
Please provide some basic information for filter. Then press "Create".

* filter: restart

4. Click **Create**. Update and save the configuration.

Once you have added all of the **action-filters**, assign an **action-filter** to your **access > permissions**.

5. Under the **Access** tab, click **access.** Either create a new set of permissions by clicking **Add permissions** or click **Edit** on an existing permission. Assign the **action-filter** you are adding to this permission set.


acme packet
Status Summary
Logout
Access Permissions
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Access Permissions: all
Configuration
Setup
View
access
permissions permission1
users
permission-filters
Help
Index
Set
Reset
Back
Copy
Delete

Configure access\permissions permission1

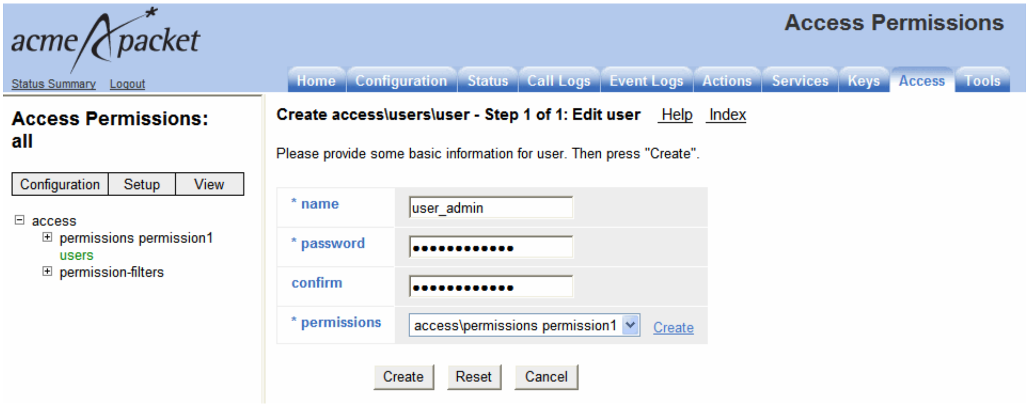
* name	permission1	
cli	normal	(Standard CLI access)
gui	enabled	(Full access to the NNOS-E GUI.)
user-portal	disabled	(No portal access)
config	enabled	(read/write configuration access)
status	enabled	(Resource is active)
actions	enabled	(Resource is active)
call-logs	enabled	(Resource is active)
templates	enabled	(Resource is active)
troubleshooting	enabled	(Resource is active)
web-services	enabled	(Resource is active)
debug	enabled	(Resource is active)
lcr-import	enabled	(read/write configuration access)
login-attempts	enter unlimited from unlimited	(from 3 to 12,default=unlimited) or select (no limit on the number of failed login attempts)
permitted-views	Edit permitted-views	
config-filter		Create
action-filter	access\permission-filters\action-filter actionfilter1	Edit Create
gui-tools-update-software	enabled	(Resource is active)
gui-tools-upload-files	enabled	(Resource is active)
gui-tools-download-files	enabled	(Resource is active)

Set
Reset
Back
Copy

6. Now create a user. Under the **Access** tab click **Add users**.

7. Enter the name you want to give the user, the user password, and select the permission set to assign this user.

8. Click **Create**.


acme packet
Access Permissions
Status Summary
Logout
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Access Permissions: all
Configuration
Setup
View
access
permissions permission1
users
permission-filters
Help
Index
Create
Create
Reset
Cancel

Create access\users\user - Step 1 of 1: Edit user

Please provide some basic information for user. Then press "Create".

* name	user_admin
* password	•••••••••••••
confirm	•••••••••••••
* permissions	access\permissions permission1

The filters are applied.

Config-filters have three permission levels.

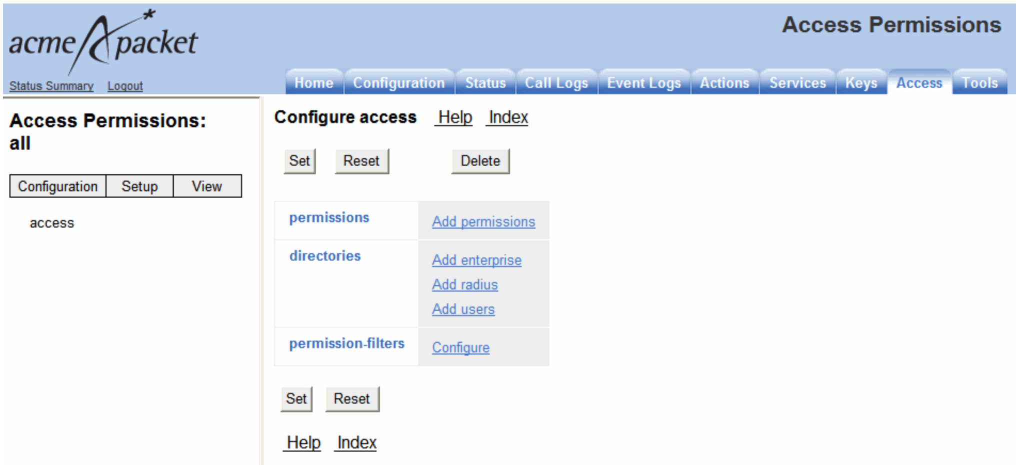
- read-write—Users can modify the configuration
- read-only—Users can view the configuration but cannot modify it
- none—Users cannot view or modify the configuration

By default, child objects and properties inherit permissions from their parent classes, however, a user may apply a lesser permission to a child object or property. The following table lists the inheritance of permissions for the configuration.

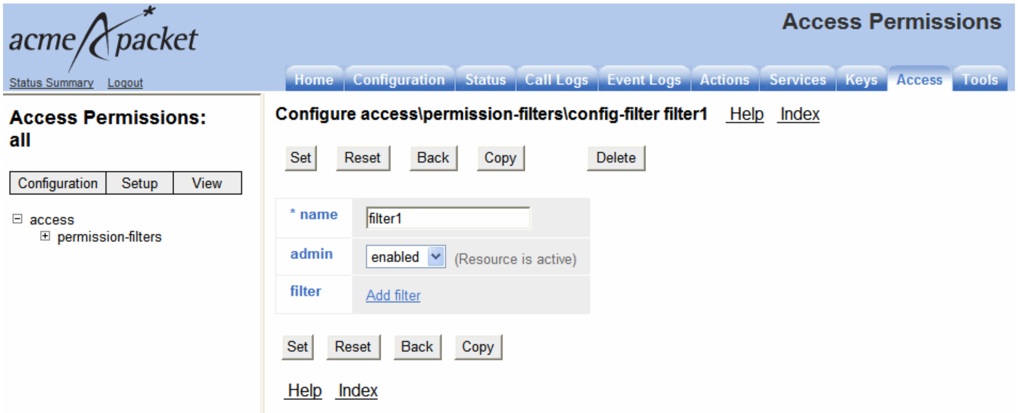
Inherited Permission	Child Object/Property Permission	Effective Permission of Child Object/ Property Permission
read-write	read-write	read-write
read-write	read-only	read-only
read-write	none	none
read-only	read-only	read-only
read-only	none	none
none	none	none

To configure configuration filter functionality following these steps.

1. Click on the **Access** tab and select **Access**. Click **permission-filters**.


acme packet
Status Summary
Logout
Access Permissions
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Access Permissions: all
Configuration
Setup
View
access
Configure access
Help
Index
Set
Reset
Delete
permissions
Add permissions
directories
Add enterprise
Add radius
Add users
permission-filters
Configure
Set
Reset
Help
Index

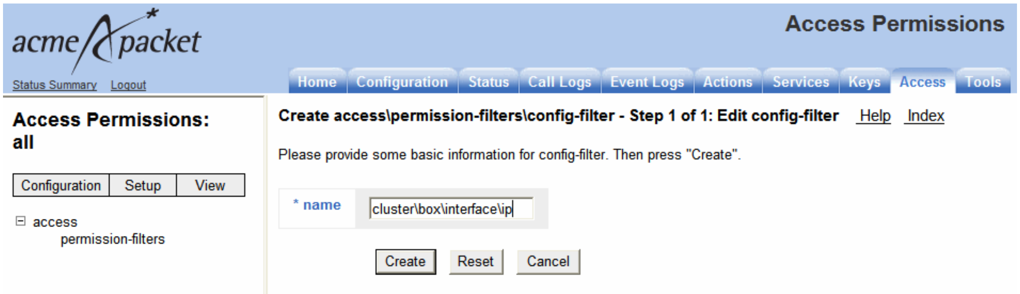
2. Click **Add config-filter**. Enter a name for the filter and click **Create**. Ensure that the filter is **enabled** and click **Add filter**.


acme packet
Status Summary
Logout
Access Permissions
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Access Permissions: all
Configuration
Setup
View
access
permission-filters
Configure access\permission-filters\config-filter filter1
Help
Index
Set
Reset
Back
Copy
Delete
filter
Add filter
Set
Reset
Back
Copy
Help
Index

* name: filter1

admin: enabled (Resource is active)

3. Specify a filter. To enter a filter, type the class, object, and property in free form, separating each with a back slash “\”. The following example shows the filter **cluster\box\interface\ip**. Click **Create**.


acme packet
Status Summary
Logout
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Configuration
Setup
View
access
permission-filters
Help
Index
Create
Reset
Cancel

Access Permissions

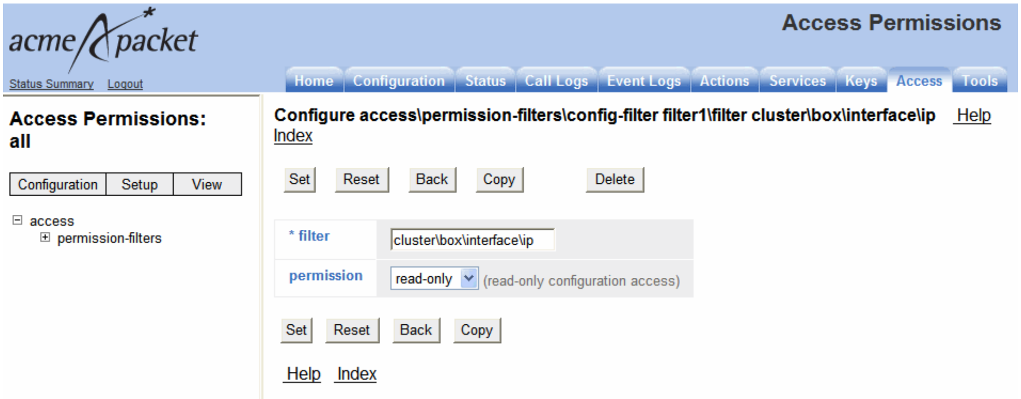
Access Permissions: all

Create access\permission-filters\config-filter - Step 1 of 1: Edit config-filter

Please provide some basic information for config-filter. Then press "Create".

* name: cluster\box\interface\ip

4. Apply a filter permission. This example assigns **read-only** permissions to the filter.


acme packet
Status Summary
Logout
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Configuration
Setup
View
access
permission-filters
Help
Index
Set
Reset
Back
Copy
Delete
Set
Reset
Back
Copy
Help
Index

Access Permissions

Access Permissions: all

Configure access\permission-filters\config-filter filter1\filter cluster\box\interface\ip

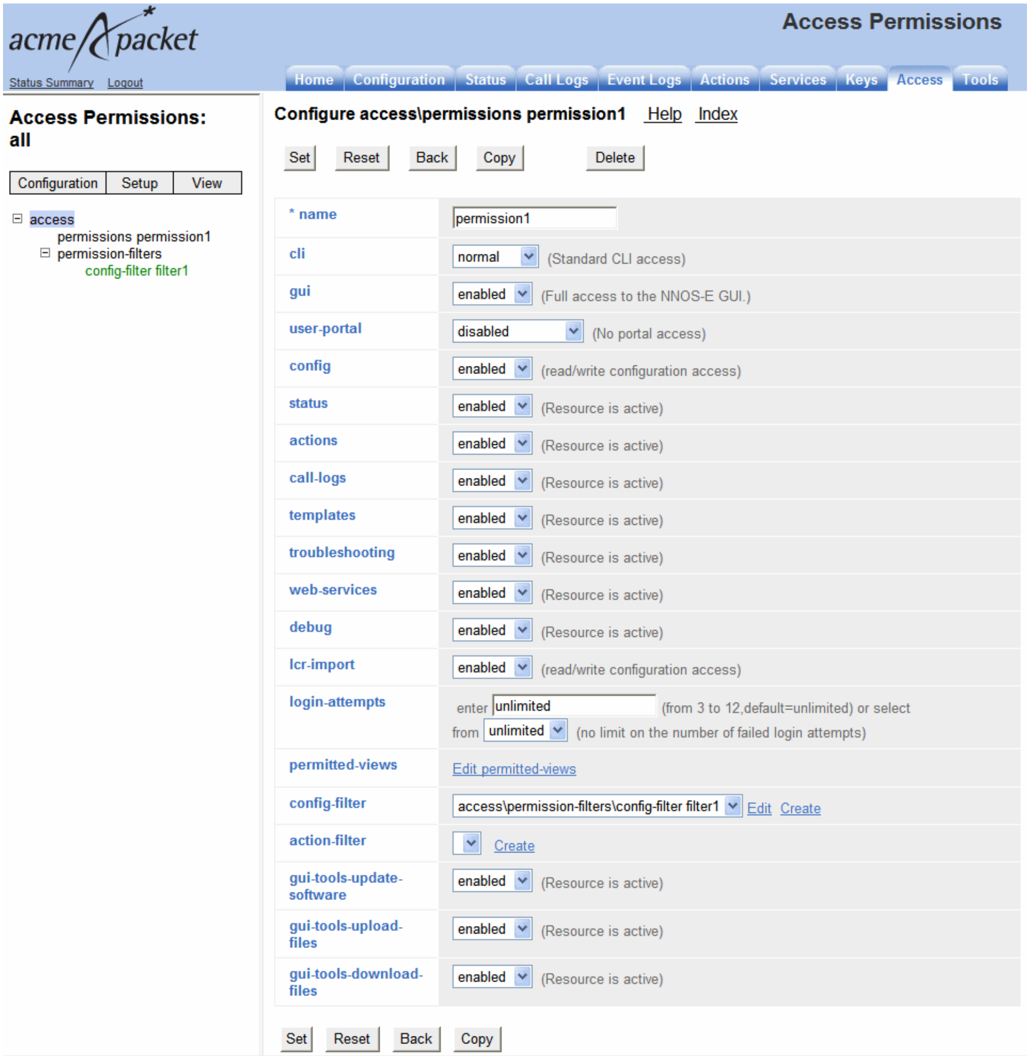
* filter: cluster\box\interface\ip

permission: read-only (read-only configuration access)

5. Update and save the configuration.

Once you have added all of the **config-filters** and assigned them permissions, assign a **config-filter** to your **access** > **permissions**.

6. Under the **Access** tab click **access.** Either create a new set of permissions by clicking **Add permissions** or click **Edit** on an existing permission. Assign the **config-filter** you want to add to this permission set.


acme packet
Status Summary
Logout
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Configuration
Setup
View
Set
Reset
Back
Copy
Delete
Help
Index

Access Permissions

Access Permissions: all

- access
  - permissions permission1
  - permission-filters
    - config-filter filter1

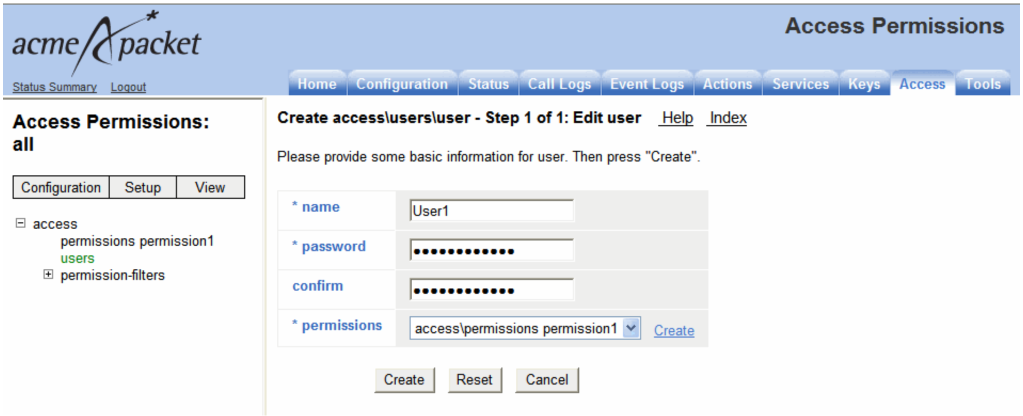
Configure access\permissions permission1

* name	permission1
cli	normal (Standard CLI access)
gui	enabled (Full access to the NNOS-E GUI.)
user-portal	disabled (No portal access)
config	enabled (read/write configuration access)
status	enabled (Resource is active)
actions	enabled (Resource is active)
call-logs	enabled (Resource is active)
templates	enabled (Resource is active)
troubleshooting	enabled (Resource is active)
web-services	enabled (Resource is active)
debug	enabled (Resource is active)
lcr-import	enabled (read/write configuration access)
login-attempts	enter unlimited (from 3 to 12,default=unlimited) or select from unlimited (no limit on the number of failed login attempts)
permitted-views	Edit permitted-views
config-filter	access\permission-filters\config-filter filter1 Edit Create
action-filter	Create
gui-tools-update-software	enabled (Resource is active)
gui-tools-upload-files	enabled (Resource is active)
gui-tools-download-files	enabled (Resource is active)

7. Now create a user. Under the **Access** tab click **Add users**.

8. Enter the name you want to give the user, the user password, and select the permission set to assign this user.

9. Click **Create**.


acme packet
Status Summary
Logout
Access Permissions
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Access Permissions: all
Configuration
Setup
View
access
permissions permission1
users
permission-filters
Help
Index
Create
Create
Reset
Cancel

Create access\users\user - Step 1 of 1: Edit user

Please provide some basic information for user. Then press "Create".

* name	User1
* password	●●●●●●●●●●●●●
confirm	●●●●●●●●●●●●●
* permissions	access\permissions permission1

The filters are applied.

Using Tools

The **Tools** tab provides access to a variety of functions that aid in system maintenance. The following table describes these functions.

Function	Description
Update Software	Copies OS-E software from the specified path on to the system or cluster. You can optionally install the update from this dialog box as well.
Retrieve License	Downloads your specific license file from the Acme Packet license server to your OS-E system. You must supply a key to access your file; copy and paste the key you received from your sales representative into the dialog box. Optionally, when you retrieve the file, you can save it locally for use with other devices that are part of that license agreement. (You would then use the **Upload License File** tool from the desired device to capture the license file.)
Upload License File	Uploads a specified license file onto the OS-E. For example, you could upload a virus scan license, allowing you to add that particular virus scan engine to your configuration. Or, you could download property-level licensing that allows access to an object but turns off individual properties within that object. Finally, the license could open range-limited features. Use this option if you have a local copy of a license file to apply to the OS-E system.

Function	**Description**
Upload File	Uploads any specified file from your computer to the OS-E. For example, you may want to upload a backup saved configuration file. In the File field, enter the file name and path, or browse to the location. In the Destination Path field, enter the path to the location to which to save the file. You can rename the file with the Destination Name field.
Download File	Downloads any specified file that exists on the OS-E to your PC. For example, you could copy an error log file to the /cxc/web/downloads directory and then download the file to your PC. In the Name field, enter the file name. In the path field, enter the path to the file's location on the system. The system returns with a browse feature to let you select a location to which to save the file. Verify that the "Save to type" option is set to your desired file type.
Download Saved Configuration File	Saves the startup configuration, in text format, to your local system. When you select this option, you receive the standard Microsoft File Download dialog box. Do not select **Open**. Instead, select **Save** and browse to the location in which you wish to write a copy of the file.
View Call Details	Displays the selected archive of call details. This is a file that you previously saved to XML from the **Call Details** page. See Working with Call Logs for more information.
View Status	Displays the selected XML file that was created using the **XML** save button on one of the **Status** tab pages. See Viewing Status Reports for more information.
View Archive	Displays files that the system logged to the archiver. See Viewing Archives for more information.
Phone Registrations	Retrieves all phone registrations (configured phones) stored in the OS-E. After retrieval, use the registrations to manage the configurations or replicants of phones already registered.
Reload shortcuts	Reloads shortcuts into the OS-E Management System. This may be necessary, for example, if you uploaded a new shortcuts file to the OS-E.
XML Schema	Displays the schema that defines the XML structure for OS-E metadata. You can then save this file to XML. You may do this, for example, to use an XML-based third-party management tool to manage the box.
MIB	Displays the selected MIB from the OS-E so that you can save it to the location you select on your target system. You may do this, for example, to install an OS-E MIB in your MIB browser.

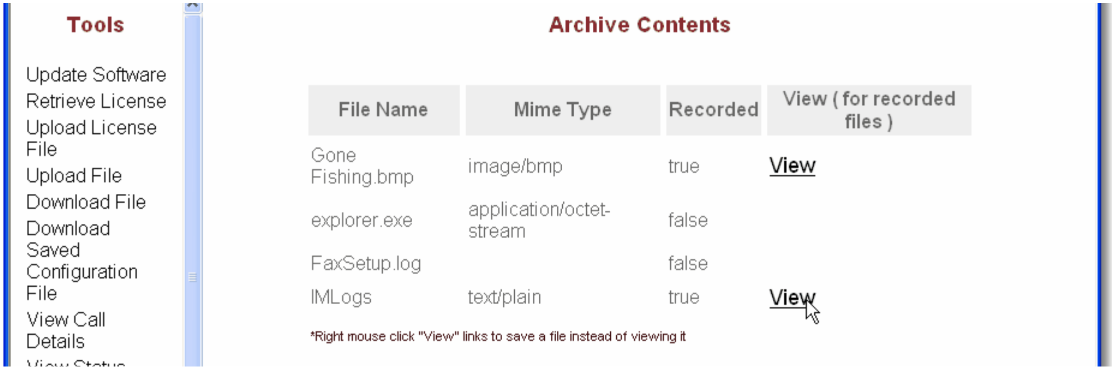
Function	Description
Web Services Definition (WSDL)	Displays the cxc.wsdl file, the definition of the WSDL API that is used for getting and setting configuration, retrieving status, and performing actions.

Viewing Archives

There are several operations that the OS-E logs and send to an archiver. The archiver stores these files as *.car files (OS-E archives). You can use the **View Archive** option in the **Tools** tab to view these files. Through **View Archive** you select a *.car file off the local file system and send it back to the server for decoding.

To view archives

1. Select the **View Archive** option in the **Tools** tab. The page loads and prompts you to browse to find an accessible archive file (*.car).
2. Click **View Archive**. The contents of the selected archive appears, as displayed in the following image. l



Archive Contents

File Name	Mime Type	Recorded	View (for recorded files)
Gone Fishing.bmp	image/bmp	true	View
explorer.exe	application/octet-stream	false	
FaxSetup.log		false	
IMLogs	text/plain	true	View

*Right mouse click "View" links to save a file instead of viewing it

3. As you navigate up and down the entries, you can either save or, if applicable, play the entries. If the file's recorded status is **True**, then it can be saved to the local file system. If the mime type is known and it is recorded, then you can play the file (by clicking the **Play** button). The type of viewer launched is based on the mime type of the file. For example, with the file audio/x-wav, the OS-E launches an audio player.

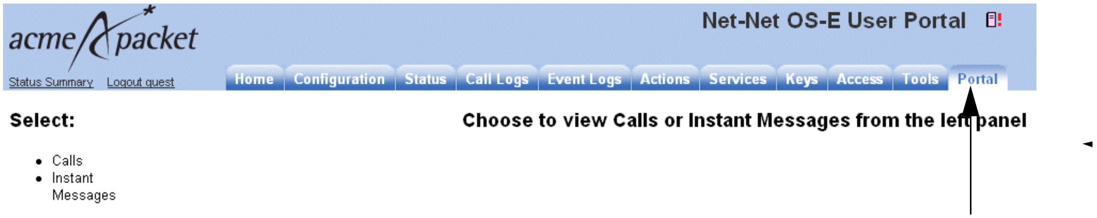
Providing Access To the User Portal

The OS-E Management System provides a portal feature, which allows a user (the person placing a VoIP call or sending an instant message) access to only his/her own call logs. In this way a user can easily view records of, for example, his/her instant messaging transactions. From there the user can track down a promised price or delivery date without having to wade through all transactions managed by the OS-E.

The portal page provides a scaled-down version of those features available from the **Call Logs** tab. However, portal access is view-only. Using the portal, users can retrieve information about accounting calls, sessions, and IM logs. You cannot delete media from the portal, however, as you can from the **Call Logs** tab. Typically a portal user would have portal but not configuration privileges. Similarly, an administrator would not have only portal access, as this would cause the call log to display only the activities of the administrator. Instead, the administrator would have portal access in addition to full configuration privileges.

A user must be specifically configured for portal access. This is done through the **permissions** subobject of the **access** object. A user that is configured through the **access** object must be associated with either a RADIUS or LDAP-based (Active Directory, Notes Directory, or LDAP) **directory**. See the *Net-Net OS-E – Objects and Properties Reference* for information on the permissions, access, and directory objects.

When the **user-portal** property of the **permissions** object is enabled and all other properties of this command are disabled, the user is taken directly to the portal when logging into the OS-E Management System. If other properties are enabled as well, the user is taken to the OS-E Management System home page, and the portal tab is available for selection.



Select:

- Calls
- Instant Messages

Choose to view Calls or Instant Messages from the left panel

Portal tab

Chapter 4. Using the Web Services SDK

About This Chapter

The OS-E software includes a software development kit (SDK) to provide Web Services Description Language (WSDL) accessibility to the OS-E system. The SDK uses an industry standard XML SOAP interface to manage, configure, and monitor OS-E systems.

This chapter provides information about the contents of the SDK and how it works with the OS-E system. It is intended for application programmers who have familiarity and experience with Java programming.

Useful Links

The following are links to related to the technologies covered in this chapter:

- XML - Extensible Markup Language (http://www.w3.org/TR/REC-xml/)
- WSDL - Web Service Description Language (http://www.w3.org/TR/wsdl)
- XML Schema (http://www.w3.org/TR/xmlschema-1/)
- BeanShell (http://www.beanshell.org/)
- JAX-WS - Java API for XML-Based Web Services (https://jax-ws.dev.java.net/)

WSDL Overview

WSDL is an XML-based language for describing Web services, and how to access them, in a platform-independent manner. Simple Object Access Protocol SOAP (SOAP) is a communication protocol for communication between applications, based on XML.

A WSDL document is a set of definitions that describe how to access a web service and what operations it will perform. The OS-E uses it in combination with SOAP and XML Schema to allow a client program connecting to a web service to determine available server functions. The actions and data types required are embedded in the WSDL file, which then may be enclosed in a SOAP envelope. The SOAP protocol supports the exchange of XML-based messages, with OS-E using HTTPS.

The OS-E can perform two roles in the WSDL exchange:

- As a web service server, where an external client can make web service requests on the OS-E system.
- As a web service client, where the OS-E can make web service “call outs” to get location and policy information from an external service endpoint, and to send event information to an external service endpoint.

See, “Configuring the OS-E as a Server or a Client,” for more information.

How to Use the WSDL

The SDK contains three WSDL documents, located in the **\web\WEB-INF\wsdl** directory:

- **cxc.wsdl**. Contains the WSDL representation for services provided by the OS-E system, including configuration, monitoring, and control, as well as some "call-out" methods for extending the OS-E.
- **callcontrol.wsdl**. Contains the WSDL representation for call control on the OS-E system.
- **template.wsdl**. Contains the WSDL representation for templating services provided by the OS-E system. Templating provides access to a bundled configuration process. This makes web services easier to use by automating aspects of the configuration. For example, you can create a template to automate provisioning of the OS-E.

Depending on how you choose to integrate with the OS-E system, you can use the SDK (Java, generated using JAX-WS) or you can simply take the WSDL and generate tools in your desired language.

Because web services are language independent, you can use virtually any modern language to generate the requests; the WSDL defines what those requests need to look like for the receiving component.

WSDL Operations

The WSDL files (and imported schemas, such as **cxc.xsd**) define every possible request and response provided for the service, including error responses.

The following tables describe the configuration, monitoring, and control operations defined by the WSDL files.

Note: For more information about implementing these operations, refer to the *.java* files (sample files), *.ws* files (script files, which show the command in a working example), and/or *.xml* files in which these operations appear.

These files are included in the Web services SDK.

cxc.wsdl operations

Operation/Description	See these files in the SDK
getConfig Retrieves some, or all, of the active configuration running on the OS-E system.	src/com/acmepacket/ws/client/CxcClient.java src/com/acmepacket/ws/client/SIPTrunkTemplateClient.java src/com/acmepacket/ws/common/CallOutUtils.java src/com/acmepacket/ws/server/CallOutsImpl.java src/com/acmepacket/ws/server/PolicyMgr.java src/com/acmepacket/ws/server/servlet/routing/RoutingTableImportServlet.java src/com/acmepacket/ws/server/servlet/trunking/SecureTrunkingServlet.java scripts/toggleStun.ws scripts/toggleStunUI.ws xml/messages/getConfig-Request.xml xml/messages/getConfig-Response.xml
setConfig Edits/updates the active configuration running on the OS-E system.	src/com/acmepacket/ws/client/CxcClient.java src/com/acmepacket/ws/client/CxcRouting.java src/com/acmepacket/ws/common/CallOutUtils.java src/com/acmepacket/ws/server/CallOutsImpl.java src/com/acmepacket/ws/server/PolicyMgr.java src/com/acmepacket/ws/server/servlet/callcontrol/CallClientServlet.java src/com/acmepacket/ws/server/servlet/routing/RoutingTableImportServlet.java src/com/acmepacket/ws/server/servlet/trunking/SecureTrunkingServlet.java scripts/toggleStun.ws scripts/toggleStunUI.ws xml/messages/setConfig-Request.xml xml/messages/setConfig-Response.xml

Operation/Description	See these files in the SDK
getStatus Retrieves one or more collections of current status from the OS-E system.	src/com/acmepacket/ws/client/CxcClient.java src/com/acmepacket/ws/server/CallOutsImpl.java src/com/acmepacket/ws/server/PolicyMgr.java scripts/getStatus.ws scripts/locationBindings.ws scripts/monitorCpu.ws scripts/monitorDatabase.ws scripts/monitorTemp.ws xml/messages/getStatus-Request.xml xml/messages/getStatus-Response.xml
queryStatus Queries one or more collections of current status from the OS-E system.	src/com/acmepacket/ws/client/CxcClient.java src/com/acmepacket/ws/server/CallOutsImpl.java src/com/acmepacket/ws/server/PolicyMgr.java scripts/queryAor.ws
doAction Invokes an action on the OS-E system. Actions are defined events that the OS-E can execute. For example: save configuration, reset directories, etc.	src/com/acmepacket/ws/client/CxcClient.java src/com/acmepacket/ws/client/DnisAniTranslator.java src/com/acmepacket/ws/server/CallOutsImpl.java src/com/acmepacket/ws/server/PolicyMgr.java src/com/acmepacket/ws/server/servlet/callcontrol/CallClientServlet.java scripts/install.ws scripts/monitorCpu.ws scripts/monitorTemp.ws scripts/toggleStun.ws scripts/toggleStunUI.ws xml/messages/doAction-Request.xml xml/messages/doAction-Response.xml

Operation/Description	See these files in the SDK
getLocationPolicy * Allows a third-party to provide physical location information.	src/com/acmepacket/ws/client/CallOutsClient.java src/com/acmepacket/ws/server/CallOutsImpl.java src/com/acmepacket/ws/server/PolicyMgr.java
getSessionPolicy * Allows a third-party to provide policy rules for handling of a session.	src/com/acmepacket/ws/client/CallOutsClient.java src/com/acmepacket/ws/server/CallOutsImpl.java src/com/acmepacket/ws/server/PolicyMgr.java
getAuthSessionPolicy * Allows a third-party to provide policy rules for handling of the session.	src/com/acmepacket/ws/server/CallOutsImpl.java src/com/acmepacket/ws/server/PolicyMgr.java
processEvent * Allows a third-party to process events generated by the OS-E.	src/com/acmepacket/ws/server/CallOutsImpl.java src/com/acmepacket/ws/server/PolicyMgr.java

Note: * These operations are implemented by third-parties. They are not implemented by the OS-E.

callcontrol.wsdl operations

Operation/Description	See these files in the SDK
makeCall Connects two phones via their SIP URIs.	src/com/acmepacket/ws/client/CallControlClient.java
getMediaFile Returns the media file for the specified call session ID on the OS-E system.	No examples currently available.
getCallAccountingInfo Returns the call accounting records for the specified session ID on the OS-E system.	No examples currently available.
putFile Copies a file on to the OS-E system. Use this operation for small files (less than 10Mb) only.	No examples currently available.

template.wsdl operations

Operation/Description	See these files
getTemplateNames Retrieves the names of all templates currently managed by the OS-E.	src/com/acmepacket/ws/client/InvokeTemplate.java
getTemplateGroups Retrieves the names of all template groups, and the templates within those groups, currently managed by the OS-E.	No examples currently available.

Operation/Description	See these files
getTemplateFiles Retrieves the names of template files currently managed by the OS-E.	No examples currently available.
invokeTemplate Invokes a named template and applies it to the current configuration running on the OS-E system.	src/com/acmepacket/ws/client/BroadsoftTemplateClient.java src/com/acmepacket/ws/client/InvokeTemplate.java src/com/acmepacket/ws/client/SIPTrunkTemplateClient.java src/com/acmepacket/ws/client/SylantroTemplateClient.java
removeTemplate Deletes a named template from the file system.	No examples currently available.
setTemplate Loads a named template (from disk) into the template manager.	No examples currently available.
getTemplate Retrieves the named template from the template manager.	src/com/acmepacket/ws/client/BroadsoftTemplateClient.java src/com/acmepacket/ws/client/InvokeTemplate.java src/com/acmepacket/ws/client/SIPTrunkTemplateClient.java src/com/acmepacket/ws/client/SylantroTemplateClient.java
getExternalConfig Retrieves the current OS-E configuration.	No examples currently available.
getTemplateMetaData Retrieves the meta information about the named template, including a description of the required input parameter types.	src/com/acmepacket/ws/client/InvokeTemplate.java

Downloading the Web Services SDK

Acme Packet provides the Web services SDK in a .ZIP file that you extract to your local desktop. The file is named **nnSE360-wstools.zip.**

Note: Before downloading **nnSE360-wstools.zip**, make certain that the version number specified matches the OS-E software version currently running on the device.

To download the **nnSE360-wstools.zip** file, perform the following steps on a Windows PC or Linux workstation:

1. Using your Web browser, go the Acme Packet Support Web site at **https://support.acmepacket.com/support** and log on using your User ID and Password. Click **Submit**.
2. Once you are logged in, download the **nnSE360-wstools.zip** file to a location on your PC or Linux workstation.
3. Right-click the .ZIP file and select **Extract All**.
4. Select the destination folder for the extracted files. Click **Browse** to direct the files to an existing directory location, or if desired, to a newly named destination folder.

SDK Component Files

The SDK contains several examples to allow you to test client and server activities, invoke actions, get and set the configuration, and display statistics. See Requirements for instructions on the necessary software and configuration to use these tools.

The SDK contains the Java code that is generated to build up requests and process responses based on what is defined in the WSDL. Specifically, the SDK contains the following directories:

- **docs**—The HTML Java documentation to generate Java source code and provide documentation for the interfaces presented in the source code.
- **lib**—Jar files, which are the supporting library files. A jar contains a set of compiled Java classes.
- **schemas**—The files that define the structure and rules a document must satisfy for an XML document type that the OS-E requires.
- **src**—Source code files for the examples.
- **scripts**—Sample Web service client scripts.
- **webapps**—The Web Application Resource (WAR) file, a deployable application for a J2EE container (such as tomcat, Weblogic, etc.).
- **xml**—The formats to specify, do actions, get configs, get status, and set config requests and responses.

- **web—**The WSDL files (cxc.wsdl, callcontrol.wsdl files, and template.wsdl) the web.xml file, and other web services sample files.

And the following files:

- **base.css**—The cascading style sheet.
- **build.xml**—The file that builds the Web services command line samples and executes CxcClient.java.
- **buildwebsample.xml**—The file that builds Web application samples.
- **common.properties**—The file used to configure settings for the build, it reads it as part of the instructions in build.xml.
- **sdk.html**—An overview and links to all components of the SDK.
- **version.txt**—Build (version and branch) information for the SDK.

To scan the SDK for contents, start with **\docs\api\index.html**. It contains links to the necessary web service packages and access to all classes, each of which provides the schema fragment and expected content for the class.

Process Overview

The process of generating a WSDL request is dependant on the language you choose to use. Basically, you must create an HTTP request that encapsulates an XML SOAP message. (You can see the XML samples in the SDK for examples.) The web service responds will respond with an appropriate XML SOAP message. The assembly, passing, and handling of responses to those messages is dependant on the tool you select.

Requirements

You must install specific software and configure the OS-E correctly to allow client calls into the system.

Installing required software

The following are required to build an application that will use the SDK:

- JDK 1.5 (as required by Java Web Services Developers Pack 2). You can download it free of charge at http://java.sun.com/j2se/1.5.0/download.jsp.
- Ant 1.6.x (only if you plan to build and run the examples that are included in the SDK). You can download it free of charge at http://ant.apache.org/bindownload.cgi.

Configuring the OS-E as a Server Or a Client

You can configure the OS-E to function as either a Web service server, or as a client (or both).

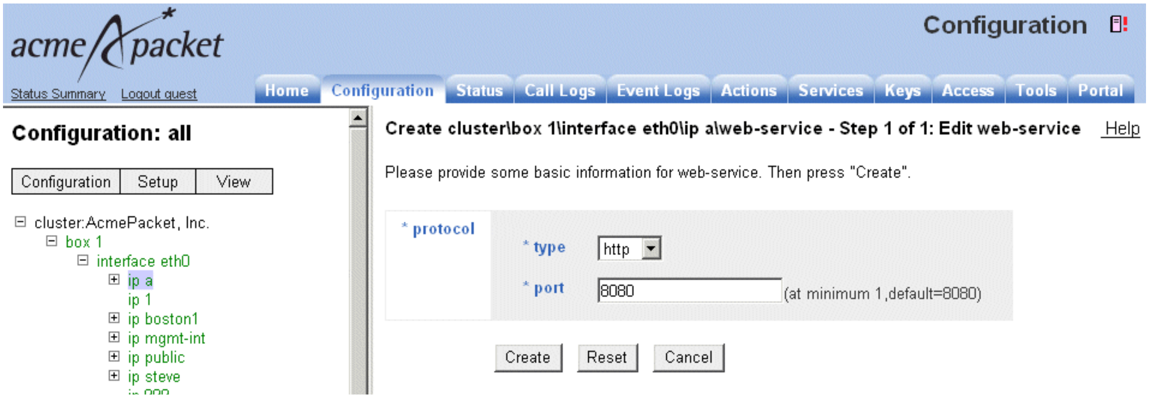
OS-E as Web Service Server

Configuring the OS-E system as a server allows clients to make Web service calls into the OS-E to control and manage the platform. To set up this configuration, enable the **web-services** object.

For example, use the CLI to enable the service and enable an HTTP listener on the port 8080 of the specified interface:

```
config> config box
config box> config interface eth0
config interface eth0> config ip Boston
Creating 'ip Boston'
config ip Boston> config web-service
config web-service> set admin enabled
config web-service> set protocol http 8080
config web-service>
```

To configure the **web-service** using the OS-E Management System, select the box, interface, and IP interface where you want to enable the service, then select **web-service** from the IP screen, and set the properties, illustrated in the following image.


acme packet
Status Summary
Logout guest
Configuration
Home
Configuration
Status
Call Logs
Event Logs
Actions
Services
Keys
Access
Tools
Portal
Configuration: all
Configuration
Setup
View
cluster:AcmePacket, Inc.
box 1
interface eth0
ip a
ip 1
ip boston1
ip mgmt-int
ip public
ip steve
Help
Create
Reset
Cancel

Create cluster\box 1\interface eth0\ip a\web-service - Step 1 of 1: Edit web-service

Please provide some basic information for web-service. Then press "Create".

* protocol

* type: http

* port: 8080 (at minimum 1,default=8080)

OS-E as Web Service Client

Configuring the OS-E system as a client allows the OS-E to make calls out to other web service endpoints that implement the call out interfaces. The call out interfaces can be used to provide policy, location, or event information.

It is a two-step process to configure a call out web service:

1. You must configure the web service endpoint in the external services, to identify the URL in a web server that implements the web service defined in the WSDL (that is, the place that invokes the web service). There are three different types of external endpoints to choose from (each serves a different purpose):
   - **policy-service**. Sets the URL of the external server that maintains policy configurations to apply to a session. When configured, the OS-E calls out to the specified server with session data, and the server returns the appropriate policy configuration – which the OS-E then applies to the session.
   - **location.** Configures a profile for a server providing location services for VoIP subscribers.
   - **event.** Configures a profile for a server used for tracking OS-E events.
2. Once the external endpoints are defined, you then reference the endpoints in the VSP configuration.

The following CLI sessions shows a sample configuration for each external endpoint.

CLI Policy-Service Example:

```
config> config external-services
config external-services> config policy-group "WSDL server"
Creating 'policy-group "WSDL server test"'
config policy-group “WSDL server test”> config policy-service 1
Creating ‘policy-service 1’
config policy-service 1> set service-url http://172.30.0.103:8080/
covws/callouts
config policy-service 1>return
config policy-group “WSDL server test”> return
config external-services>return
config> config vsp
config vsp> set external-policy-group
external-services\policy-group "WSDL server"
```

CLI Location Example:

```
config> config external-services
config external-services> config location-group "WSDL server"
Creating 'location-group "WSDL server"'
config location-group "WSDL server"> config
red-sky-location-service redsky
config red-sky-location-service redsky> set service-url http://
172.30.0.103:8080/covws/callouts
config red-sky-location-service redsky> return
config location-group "WSDL server"> return
config external-services> return
config> config vsp
config vsp> set external-location-group
external-services\location-group "WSDL server"
```

CLI Event Example:

```
config> config external-services
config external-services> config event-group "WSDL server"
Creating 'event-group "WSDL server"'
config event-group "WSDL server"> config event-service 1
Creating ‘event-service 1’
config event-service 1> set service-url http://172.30.0.103:8080/
covws/callouts
config event-service 1> return
config event-group "WSDL server"> return
config external-services> return
config> config vsp
config vsp> set external-event-group external-services\event-group
"WSDL server"
```

Setting Permissions

The SDK requires that user permissions be explicitly set for each user who will be sending WSDL messages to a specific OS-E platform. See the example CLI session below.

```
config> config access
config access> config permissions admin1
config permissions admin1> set actions enabled
config permissions admin1> set web-services enabled
config access> config users
config users> config user bob
config user bob> set password abc123
config user bob> set permissions “access permissions admin1”
```

Using the SDK

Once you have downloaded and installed the JDK and Ant software and have configured the web service, as described in the previous section, follow the information in this section to use the examples included with the SDK.

Standalone Server Example

To test the sample standalone server, use `ant run-server` from a command window to launch the sample endpoint. It creates a lightweight HTTP server for the implemented web service. The web service implements the call on the OS-E side of the interface for handling event notifications, session policy requests, and location policy requests.

The **CallOutsImpl.java** file in the **src\com\acmepacket\ws\server** directory contains the implementation for the standalone server. Change the local.server entry in the **common.properties** file used by Ant to specify an IP interface on your OS-E system over which the HTTP server can create a binding.

Contained Server Example

To test the sample contained server, configure your web container to include the endorsed libraries from the **lib\endorsed** directory. Then, deploy the **covws.war** file into the container. This file is located in the **webapps** directory.

For Tomcat 5.5.15, for example, perform the following steps:

1. Copy the contents of **lib\endorsed** to **<tomcat_home%gt;/common/endorsed**. There may be warnings about overwriting files. Answer **Yes** to All.
2. Copy the **webapps\covms.war** file to **<tomcat_home>/webapps**. Tomcat will auto-deploy the war file, resulting in a **<tomcat_home>/webapps/covws** directory.

You should then be able to browse to **http://localhost:8080/covws**. If the browser returns an error from Tomcat warning that there is no service for /covws, stop and restart Tomcat.

➡ **Note:** If you have a previous installation of the SDK, it is generally safer to stop Tomcat, delete the webapps/covws directory, copy the covws.war file over to webapps, then restart Tomcat.

See **CallOutsImpl.java** for an example of the server implementation for the call out. This example also uses a number of web service clients. One client implements a call control interface to establish and control calls using the web service actions. If you are using Tomcat to host the sample “click to call” example, you can run the example from this location.

Before running the sample, do these four steps:

1. The application can operate in one of two modes. Set the **expectEvents** application variable in the **web\WEB-INF\web.xml** file as described below:
   - — If the CSM is sending web service notifications, then set the **expectEvents** application variable to *true*.
   - — Otherwise, set **expectEvents** to *false***.** When this variable is set to false, the application does not track call events.

   For example:

   ```
   <env-entry>
      <description>
   ```

```
          Indicates whether this web service endpoint is expecting to
          receive call events.
        </description>
        <env-entry-name>expectEvents</env-entry-name>
        <env-entry-value>true</env-entry-value>
        <env-entry-type>java.lang.Boolean</env-entry-type>
    </env-entry>
```

2. In the **web\WEB-INF\web.xml,** use the **wsdl** application variable to set the endpoint URL.

   For example:

```
    <env-entry>
        <description>
          The URL of the WSDL for a web service endpoint providing
          the Acme Packet services
        </description>
        <env-entry-name>wsdl</env-entry-name>
        <env-entry-type>java.lang.String</env-entry-type>
    </env-entry>
```

3. To get your web service sample endpoint to accept the event notifications, you must configure your endpoint as an external-event-service under the **external-services** configuration. If you are using Tomcat, the endpoint URL should look like **http://mytomcathost:8080/covws/callouts**.

   You must also configure your web sample endpoint to reference an external-event group.

   A sample CLI session is shown below:

```
config> config external-services
config external-services> config event-group "WSDL server"
Creating 'event-group "WSDL server"'
config event-group "WSDL server"> config event-service 1
Creating ‘event-service 1’
config event-service 1> set service-url http://mytomcathost:8080/
covws/callouts
config event-service 1> return
config event-group "WSDL server"> return
config external-services> return
config> config vsp
config vsp> set external-event-group external-services\event-group
"WSDL server"
```

See **CallClientServlet.java** file in the **\src\com\acmepacket\ws\server\servlet\callcontrol** directory for an example of the server implementation for the client calls.

4. Under the **default-session** configuration, configure **third-party-call-control** to set **admin** to **enabled**, and set **status-events** to **both**. This allows both in-bound and out-bound status events to be reported to the external events server. A sample CLI session is shown below:

```
config vsp> config default-session-config
config default-session-config> config third-party-call-control
config third-party-call-control> set admin enabled
config third-party-call-control> set status-events both
config third-party-call-control> return
config default-session-config> return
config vsp> return
```

Client (Call In) Examples

To build the sample client, use Ant to build the build.xml files in the root directory of the SDK. It will compile and run the sample client. To customize the web service endpoint, simply modify the **common.properties** file.

The following table lists the client samples you can run, and the location of the source file.

Name	Description	Source file
run-cxc-client	Changes and updates the configuration on the OS-E system. For example: • retrieves configuration (getConfig). • adds box to configuration. • updates configuration (setConfig). • gets version and process status. • queries version status. • executes directory reset action.	\src\com\acmepacket\ws\client\CxcClient.java
run-cxc-routing	Reads a local XML file, and based on the date in that file, configures routing on the OS-E system. For example: • getConfig • setConfig using REPLACE_PARTIAL mode. You specify the location the data in the common.properties file.	\src\com\acmepacket\ws\client\CxcRouting.java
run-server	Runs the stand-alone server. Sets up Web services endpoints to receive callbacks for location, policy, and events.	\src\com\acmepacket\ws.server\standalone\Server
run-dnis-ani-translator	Runs the DNIS ANItranslator. Calls external-normalization action with the normalization.xml file.	\src\com\acmepacket\ws\client\DnisAniTranslator.java

Name	Description	Source file
run-create-dnis-ani-xml	Runs the DNIS ANI import tool. Pulls information from the Oracle database used to create the normalization.xml file (referenced above).	\src\com\acmepacket\ws\common\CreateDnisAniTxml.java
run-troubleshoot	Runs the troubleshooter. Outputs information about any SIP device – such as a phone – that you specify using the command line.	\src\com\acmepacket\ws\client\Troubleshoot.java

The following table shows other sample files:

Description	Source File
Creates a configuration allowing the OS-E to communicate with a BroadSoft server. The configuration is created by executing a template.	\src\com\acmepacket\ws\client\BroadsoftTemplateClient.java
Makes a call between phone numbers that are entered via the CLI.	\src\com\acmepacket\ws\client\CallControlClient.java
Test code that makes getLocationPolicy and getSessionPolicy callouts.	\src\com\acmepacket\ws\client\CallOutsClient.java
Allows user to select and execute available templates.	\src\com\acmepacket\ws\client\InvokeTemplate.java
Creates Enterprise server, dial plan, authentication plan, registration plan and calling group configuration for SIP trunks and user agents.	\src\com\acmepacket\ws\client\SIPTrunkTemplate.java
Creates a configuration allowing the OS-E to communicate with a Sylantro server. The configuration is created by executing a template.	\src\com\acmepacket\ws\client\SylantroTemplate.java

Description	Source File
Runs the troubleshooter. Outputs information about any SIP device – such as a phone – that you specify using the command line.	\src\com\acmepacket\ws\client\Troubleshoot.java
Creates a configuration allowing the OS-E to communicate with a BroadSoft server. The configuration is created by executing a template.	\src\com\acmepacket\ws\client\BroadsoftTemplateClient.java
Makes a call between phone numbers that are entered via the CLI.	\src\com\acmepacket\ws\client\CallControlClient.java

Templates Client

The SDK includes a client that queries and invokes templates through the template web service. You can run the program from a shell that is in the SDK root directory. From that directory, run

java -classpath lib\covws.jar com.acmepacket.ws.client.InvokeTemplate

Scripting Client

The SDK includes a BeanShell extended interpreter to process scripts that invoke web services. A number of sample scripts are included to demonstrate scripting clients. To run a script, use

java -jar covws.jar <*script_file*>

where the **covws.jar** exists in the **lib** directory of the SDK. To configure the examples, set the properties in the **scripts\common.properties** file to be appropriate for your CSM configuration.

Examples

- **install.ws**—Installs an update release of the CSM software.
- **locationBindings.ws**—Outputs information about the current location bindings on the CSM by retrieving the location binding status.

- **monitorCpu.ws**—Gathers CPU and uptime statistics from the CSM and reports on the current state.
- **toggleStun.ws**—Changes the state of a STUN server configured on an IP interface. It prompts the user for the interface on the console using the current configuration gathered from the CSM. It prompts to update the running configuration and apply the changes.
- **toggleStunUI.ws**—Same as toggleStun.ws except that the input is gathered using a graphical user interface.
- **getStatus.ws**—Retrieves a user-specified status class and displays its properties. It demonstrates a generic way to retrieve any status class using BeanShell.

SOAP Message Examples

This section provides some examples of WSDL/SOAP messages.

Returning Session Status

Send the following SOAP message to the OS-E system to receive a SOAP response containing the XML representation of the status.

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:cxc="http://www.acmepacket.com/ws/callouts"
  xsi:schemaLocation="http://schemas.xmlsoap.org/soap/envelope/
 cxc_webservice.xsd">
 <soap:Body>
  <cxc:getStatus>
   <status>
     <UserSessions/>
   </status>
  </cxc:getStatus>
 </soap:Body>
</soap:Envelope>
```

Configuring an Object

Send the following SOAP message to the OS-E system to merge the new configuration of an autonomous IP group into the existing saved configuration.

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
               xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
               xmlns:cxc="http://www.acmepacket.com/ws/callouts"
               xsi:schemaLocation="http://schemas.xmlsoap.org/soap/
 envelope/ ../btools/cxc_webservice.xsd">
 <soap:Body>
  <cxc:setConfig mode="merge">
   <config>
     <autonomousIP>
       <AutonomousIP>
         <group>
           <AutonomousIPGroup name="WSDLexample">
           <subnet>192.168.0.0/16</subnet>
         </AutonomousIPGroup>
       </group>
     </AutonomousIP>
   </autonomousIP>
   </config>
  </cxc:setConfig>
 </soap:Body>
</soap:Envelope>
```

Creating a Reference

Send the following SOAP message to the OS-E system to merge the new configuration of a referenced server into the existing saved configuration.

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
               xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
               xmlns:cxc="http://www.acmepacket.com/ws/callouts"
               xsi:schemaLocation="http://schemas.xmlsoap.org/soap/
 envelope/ ../btools/cxc_webservice.xsd">
 <soap:Body>
  <cxc:setConfig mode="merge">
   <config>
     <SCP>
       <enterprise>
         <Enterprise>
           <servers>
             <EnterpriseServers>
               <defaultServer>
                 <SipApplicationServer
 name="vsp\enterprise\servers\sip-gateway CXC@SanJose"/>
               </defaultServer>
             </EnterpriseServers>
           </servers>
         </Enterprise>
       </enterprise>
     </SCP>
   </config>
  </cxc:setConfig>
 </soap:Body>
```

```
</soap:Envelope>
```

Creating a Policy

Send the following SOAP message to the OS-E system to merge the new configuration of a session authentication policy into the existing saved configuration.

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
               xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
               xmlns:cxc="http://www.acmepacket.com/ws/callouts"
               xsi:schemaLocation="http://schemas.xmlsoap.org/soap/
 envelope/ ../btools/cxc_webservice.xsd">
 <soap:Body>
  <cxc:setConfig mode="merge">
   <config>
     <SCP>
       <SessionPolicies>
         <SessionPolicies>
           <policies>
             <PolicyEntry name="WebExample">
               <Rule>
                 <PolicyRule name="webPolicyRule">
                 <admin>enabled</admin>
                 <conditionList>
                   <RuleConditionList>
                     <operation>AND</operation>
                     <mode>evaluate</mode>
                     <sipMessageCondition>
                       <attribute>vsp</attribute>
                       <scpNamematch>match</scpNamematch>
                       <scpNamevalue>default</scpNamevalue>
                     </sipMessageCondition>
                     <fromURICondition>
                       <attribute>host</attribute>
                       <usermatch>match</usermatch>
                       <uservalue>.*phishing\.com</uservalue>
                     </toURICondition>
                   </RuleConditionList>
                 </conditionList>
                 <sessionConfig>
                 <SessionConfig>
                   <AuthenticationPolicy>
                     <AuthenticationPolicy>
                       <mode>
                         <actionType>RADIUS</actionType>
                         <inboundOnly>enabled</inboundOnly>
                         <RADIUSradiusGroup>
                           <RadiusGroup name="vsp\radius-group Boston"/>
                         </RADIUSradiusGroup>
                       </mode>
```

```
                        </AuthenticationPolicy>
                      </AuthenticationPolicy>
                    </SessionConfig>
                    </sessionConfig>
                    </PolicyRule>
                  </Rule>
                </PolicyEntry>
              </policies>
            </SessionPolicies>
          </SessionPolicies>
        </SCP>
      </config>
     </cxc:setConfig>
    </soap:Body>
   </soap:Envelope>
```

Saving a Configuration

Send the following SOAP message to the OS-E system to save a configuration in verbose format.

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
               xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
               xmlns:cxc="http://www.acmepacket.com/ws/callouts"
               xsi:schemaLocation="http://schemas.xmlsoap.org/soap/
 envelope/ ../btools/cxc_webservice.xsd">
    <soap:Body>
        <cxc:doAction>
            <action>
             <ConfigSave>
                    <format>verbose</format>
                    <file>/cxc/example.cfg</file>
                </ConfigSave>
            </action>
        </cxc:doAction>
    </soap:Body>
</soap:Envelope>
```

Java SIP Message Fields

The following table lists and describes the fields that the OS-E passes to a Web service. These fields are contained in the Java SIP message (JSM) that is transmitted in the SOAP message.

Field	Description
UserIndex	Internal field; not used in WSDL interface.
HostIndex	Internal field; not used in WSDL interface.
callingPartyNumber	String value of the To: URL of the SIP message; used in Red Sky application to determine registrant.
Box	Messaging IP address of the CSM that received this SIP message.
sessionID	Unique session ID assigned to this SIP session by the CSM.
sessionCookie	Internal field; not used in WSDL interface.
cstaMode	Internal field; not used in WSDL interface.
capServer	Internal field; not used in WSDL interface.
capServerPort	Internal field; not used in WSDL interface.
capUser	Internal field; not used in WSDL interface.
policyService	Reference to the configured external policy service used on this CSM.

Field	Description
locationService	Reference to the configured external location service used on the CSM, such as the RedSky location service.
toUID	Unique identifier assigned to the To: user by the CSM (if configured to do so).
fromUID	Unique identifier assigned to the From: user by the CSM (if configured to do so).
OpCode	Internal field; not used in WSDL interface.
LocalInAddr	Internal field; not used in WSDL interface.
RemoteInAddr	Internal field; not used in WSDL interface.
OrigUserAgent	Internal field; not used in WSDL interface.
xlateMode	Specifies any presence translation being performed on this SIP message (if applicable).
requestMethodType	Request method of this SIP message.
messageType	The type of SIP message (REQUEST or RESPONSE).
requestMethod	Full text of the REQUEST method for this SIP message.
requestURI	Full text of the REQUEST URI for this SIP message.
responseCode	Response code contained in this SIP message (if applicable).

Field	Description
responseString	Response string contained in this SIP message (if applicable).
toURI	String value of the To: URI for this SIP message.
fromURI	String value of the From: URI for this SIP message.
toTag	String value of the To: tag for this SIP message.
fromTag	String value of the From: tag for this SIP message.
CSeq	String value of the CSeq field for this SIP message.
CallID	String value of the call-id field for this SIP message.
ContentLength	Integer value of the content length field for this SIP message.
ContentType	String value of the content type field for this SIP message.
UserAgent	String value of the user agent field for this SIP message.
Expires	String value of the expires field for this SIP message.
Content	Full string value of the content field for this SIP message.
cookie	Internal field; not used in WSDL interface.
certificate	Internal field; not used in WSDL interface.

The following image shows the fields that are returned in the Web service response

Field	Description
status	Set this value to DisableDevice if the registrant has not completed its location update to Red Sky; set this value to LocationComplete if it is acceptable for the registrant to receive calls.
callingPartyNumber	String value of the To: URL of the original SIP message; used in Red Sky application to determine registrant.
civilLocation	Optional object value representing the civil address of the registrant.
dialRouteEntry	Optional reference to the CSM configuration to be applied to this session.
sourceRouteEntry	Optional reference to the CSM configuration to be applied to this session.
dialArbiterEntry	Optional reference to the CSM configuration to be applied to this session.
dialPlanEntry	Optional reference to the CSM configuration to be applied to this session.
dialPrefix	Optional reference to the CSM configuration to be applied to this session.
settings	Optional reference to the CSM configuration to be applied to this session.
registrationPlanEntry	Optional reference to the CSM configuration to be applied to this session.

Field	Description
registrationRouteEntry	Optional reference to the CSM configuration to be applied to this session.
registrationSourceRouteEntry	Optional reference to the CSM configuration to be applied to this session.

Using the Web Services Eventpush Application

The **ip\eventpush-service** allows you to configure and redirect OS-E logged events to external computer Web browsers over an HTTP or HTTPS web service port. The **eventpush-service** requires the **external-services\event-group** to declare the destination service URL of the external device

Perform the following steps to enable and configure the **eventpush-service**.

1. Configure the **ip\eventpush-service**.

```
NNOS-E> config box
config box> config interface eth3
config interface eth3> config ip eventpush
Creating ‘ip eventpush’
config ip eventpush> config eventpush-service
config eventpush-service> set admin enabled
config eventpush-service> set protocol http 8081
config eventpush-service> set page-domain companyABC.com
```

2. Edit the target Web application to include an IFrame. The IFrame is comprised of the name of the OS-E system running the eventpush-service application, the web services port, and the string **/cometapp/acmepacket.html**.

   For example, if the name of the OS-E system running the eventpush-service is *xyz.com* with the service running on port 8081, and if the system is running over HTTP, then the reference is **http://xyz.com:8081/cometapp/acmepacket.html**.

3. Configure the **external-services\event-group\ event-service service-url** property so that events are passed to the destination eventpush service. Enter the destination domain IP, the eventpush-service port, and the string **/cometapp/callouts**. For example, **http://127.0.0.0:8081/cometapp/callouts**.

```
NNOS-E> config external-services
config external-services> config event-group a
config event-group a> config event-service cometd
Creating ‘event-service cometd’
config event-service cometd> set service-url http://
127.0.0.0:8081/cometapp/callouts
```

REST Interface, Google Gadgets, and JavaScript API Modules

The REpresentational State Transfer (REST) web services interface provides a method for transmitting OS-E actions and status provider results over HTTP. The REST interface also supports Google™ Gadgets, a mechanism that allows you to specify and run specific OS-E functions, such as placing and recording a call, as well as display OS-E status directly from your Web pages.

The JavaScript modules included with the REST interface are intended for JavaScript developers who are building web service applications that interoperate and interact with OS-E over the Web.

To access the REST interface from your Web browser, enter the following URL:

http://*ipaddress*:8080/rest_urls.html

where *ipaddress* is the IP address & port of the web services interface.

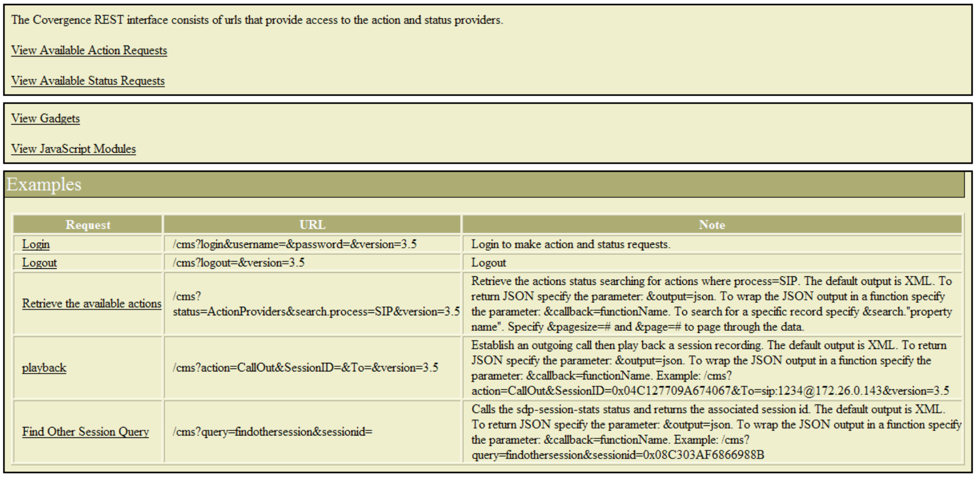
The following image illustrates the REST Interface main page with the following hyperlinks:

- **View Available Action Requests**—Displays developer documentation and a listing of base URLs associated with running OS-E actions.
- **View Available Status Requests**—Displays developer documentation and a listing of OS-E status providers.
- **View Gadgets**—Displays the current list of OS-E gadgets that you can add to your goggle.com or iGoogle page.
- **View JavaScript Modules**—Open the JavaScript Modules page with links to the following APIs:

— **CallControl**—Provides functions to create, disconnect, transfer, and record a SIP call. This version uses dynamic scripting to make requests to the OS-E.

— **CallControlAjax**—Provides functions to create, disconnect, transfer, and record a SIP call. This version uses ajax to make requests to the OS-E.

— **Presence**—Provides registration/unregistration and retrieval of contact info and presence state.



The Covergence REST interface consists of urls that provide access to the action and status providers.

View Available Action Requests

View Available Status Requests

View Gadgets

View JavaScript Modules

Examples

Request	URL	Note
Login	/cms?login&username=&password=&version=3.5	Login to make action and status requests.
Logout	/cms?logout=&version=3.5	Logout
Retrieve the available actions	/cms?status=ActionProviders&search.process=SIP&version=3.5	Retrieve the actions status searching for actions where process=SIP. The default output is XML. To return JSON specify the parameter: &output=json. To wrap the JSON output in a function specify the parameter: &callback=functionName. To search for a specific record specify &search."property name". Specify &pagesize=# and &page=# to page through the data.
playback	/cms?action=CallOut&SessionID=&To=&version=3.5	Establish an outgoing call then play back a session recording. The default output is XML. To return JSON specify the parameter: &output=json. To wrap the JSON output in a function specify the parameter: &callback=functionName. Example: /cms?action=CallOut&SessionID=0x04C127709A674067&To=sip:1234@172.26.0.143&version=3.5
Find Other Session Query	/cms?query=findothersession&sessionid=	Calls the sdp-session-stats status and returns the associated session id. The default output is XML. To return JSON specify the parameter: &output=json. To wrap the JSON output in a function specify the parameter: &callback=functionName. Example: /cms?query=findothersession&sessionid=0x08C303AF6866988B

Chapter 5. Using the Action Editor

About This Chapter

The OS-E Action Editor is a desktop application that uses web services to execute actions. You can use the Action Editor to translate actions into SOAP XML format. You can also use it to see how to execute actions using web services.

The Action Editor supports the current OS-E actions that are available from the OS-E Management System **Actions** tab.

Installing and Launching the Action Editor

The Action Editor is contained in a ZIP file and is available from Acme Packet upon request. The file is named **nnSE360-wstools.zip**.

Note: Before downloading **nnSE360-wstools.zip**, make certain that the version number specified matches the OS-E software version currently running on the device.

Downloading the ZIP File

To download the **nnSE360-wstools.zip** file, perform the following steps on a Windows PC or Linux workstation:

1. Using your Web browser, go the Acme Packet Support Web site at https://support.acmepacket.com and log on by entering your customer portal **User name** and **Password**. Click **Submit**.
2. Download the **nnSE<*release*>-wstools.zip** file to a location on your PC or Linux workstation.

3. Right-click the .ZIP file and select **Extract All**.
4. Select the destination folder for the extracted files. Click **Browse** to direct the files to an existing directory location, or if desired, to a new destination folder.
5. Complete the remaining prerequisite tasks covered in this section:
   - Enabling Web Services
   - Setting Permissions
   - Launching the Action Editor

Enabling Web Services

Be sure that the Web services administrative state is set to *enabled* on the interface over which the OS-E will accept WSDL connection requests. The Action Editor will not work unless the **web-service** object is enabled over HTTP or HTTPS.

CLI Session

```
NNOS-E> config box
config box> config interface eth3
config interface eth3> config ip private
config ip private> config web-service
config web-service> set admin enabled
config web-service> set protocol http 8080
```

Setting Permissions

The Action Editor requires that user permissions be explicitly set for each user who will be invoking actions at a specific OS-E system. See the example CLI session below.

CLI Session

```
NNOS-E> config access
config access> config permissions admin1
config permissions admin1> set actions enabled
config permissions admin1> set web-services enabled
config permissions admin1> return
config access> config users
config users> config user bob
config user bob> set password abc123
config user bob> set permissions “access permissions admin1”
```

Launching the Action Editor

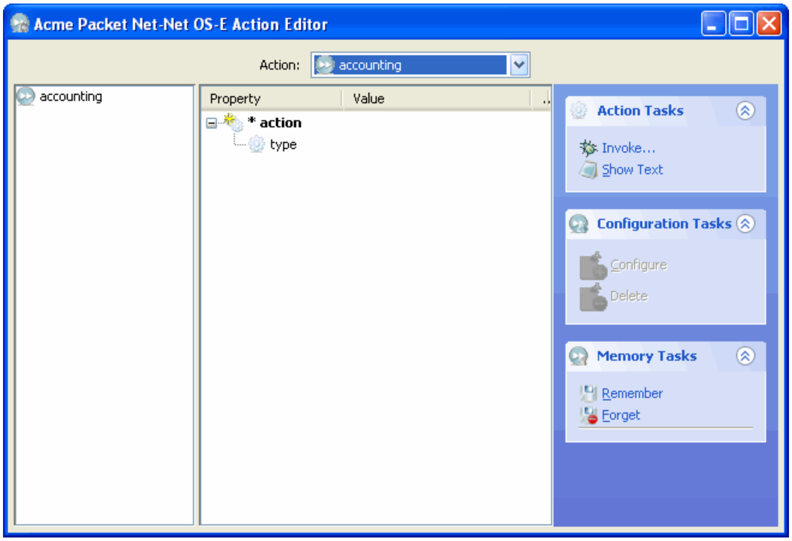
From a Windows PC

Open the folder that you just created, then double-click the **nnSE360-wstools.exe** file. This launches the Action Editor from a Windows PC.

From a Linux Workstation

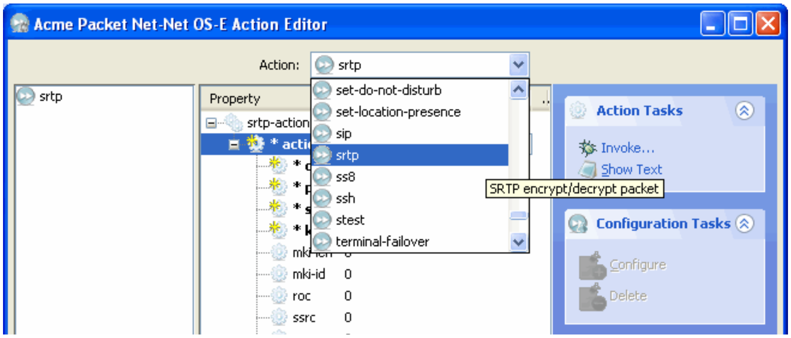
Open the **Lib** folder in the installation directory and select the executable file named **covactioned.jar**. This launches the Action Editor from a Linux workstation.

The following image illustrates a sample Action Editor main window.


Acme Packet Net-Net OS-E Action Editor
Action:
accounting
accounting
Property
Value
* action
type
Action Tasks
Invoke...
Show Text
Configuration Tasks
Configure
Delete
Memory Tasks
Remember
Forget

Specifying and Building an Action

The Action Editor has an easy-to-use graphical interface. You simply select the desired action from the **Action** pull-down menu at the top of the screen, and then double-click the named action from the left pane. Actions that required customized settings (those that require additional information) will expand in the center portion of the window so that you can specify values such as URIs and text strings. Some actions require that you specify units, such as units of time (seconds, milliseconds, etc.) where appropriate.


Acme Packet Net-Net OS-E Action Editor
Action:
srtp
srtp
Property
srtp-action
* acti
set-do-not-disturb
set-location-presence
sip
srtp
ss8
ssh
stest
terminal-failover
SRTP encrypt/decrypt packet
mki-id 0
roc 0
ssrc 0
Action Tasks
Invoke...
Show Text
Configuration Tasks
Configure
Delete

Operating on properties and values

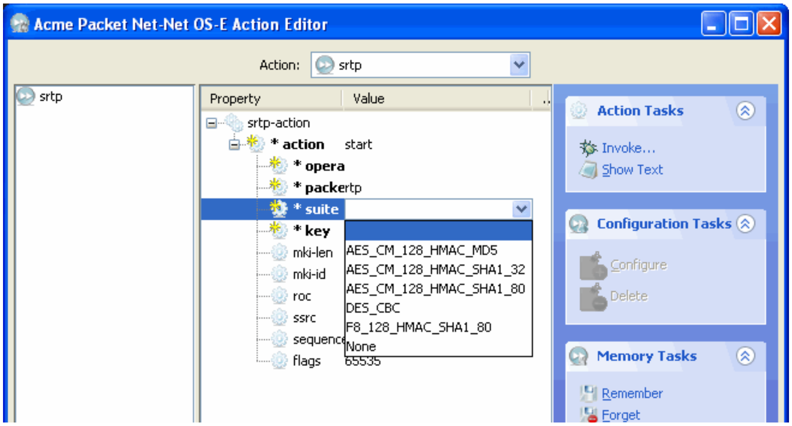
Once you have expanded an action, and if that action requires information from you, specify the values for a selected **Property** by clicking the **Value** field.

The **Value** field allows you to enter the text or information required for an action to successfully execute. Most actions have a pull-down menu of selections that automatically displays when you position the cursor on the **Value** field. Select the setting that you want to use from the pull-down.

There are four types of properties that can appear in the **Property** column:

- **Bold text**—A mandatory action setting that requires an entry in the Value field.
- *Italic text*—A property for which a configuration reference is required. A reference is a path that points to specific OS-E configuration to apply to an action.

- Plain text—An optional action setting that is not required for the action to successfully execute.
- **To**—A mandatory vector; see the section Operating on Vectors for information.

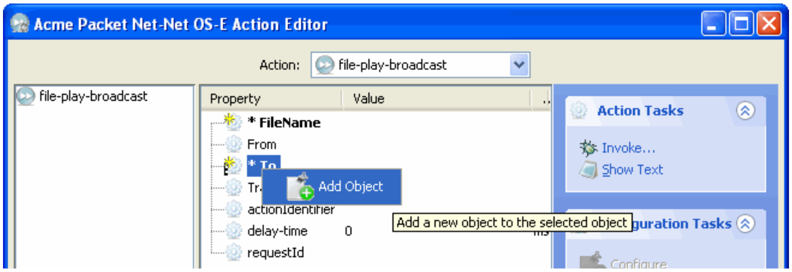

Acme Packet Net-Net OS-E Action Editor
Action: srtp
srtp
Property
Value
srtp-action
* action start
* opera
* packertp
* suite
* key
mki-len
mki-id
roc
ssrc
sequenc
flags
AES_CM_128_HMAC_MD5
AES_CM_128_HMAC_SHA1_32
AES_CM_128_HMAC_SHA1_80
DES_CBC
F8_128_HMAC_SHA1_80
None
65535
Action Tasks
Invoke...
Show Text
Configuration Tasks
Configure
Delete
Memory Tasks
Remember
Forget

Operating on Vectors

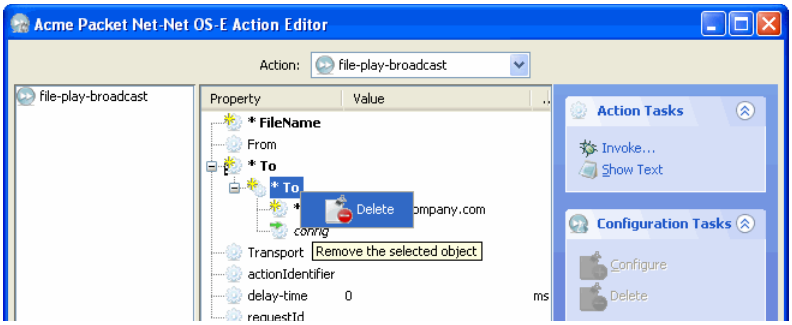
Vectors are destination endpoints or locations to which SIP calls or call recordings are sent. The **file-play-broadcast** action, for example, requires that you set these destination endpoints so that the recorded SIP call(s) can be played back at these locations. In the Action Editor, the **To** property is a vector setting.

Adding Vectors

To add vectors to an action, right-click the vector and select **Add Object**, as illustrated in the following image.


Acme Packet Net-Net OS-E Action Editor
Action: file-play-broadcast
file-play-broadcast
Property
Value
* FileName
From
* To
Tr
actionIdentifier
delay-time 0
requestId
Add Object
Add a new object to the selected object
Action Tasks
Invoke...
Show Text
Configuration Tasks
Configure

The following image illustrates the Action Editor after adding a destination. A reference to an entry in the session configuration pool is also included so that session traffic to the destination is governed by the settings in the entry named *broadcast* when the action is invoked.



Acme Packet Net-Net OS-E Action Editor
Action: file-play-broadcast
file-play-broadcast
Property
Value
* FileName
From
* To
* To
*
Delete
ompany.com
config
Transport
Remove the selected object
actionIdentifier
delay-time
0
ms
requestId
Action Tasks
Invoke...
Show Text
Configuration Tasks
Configure
Delete

Deleting Vectors

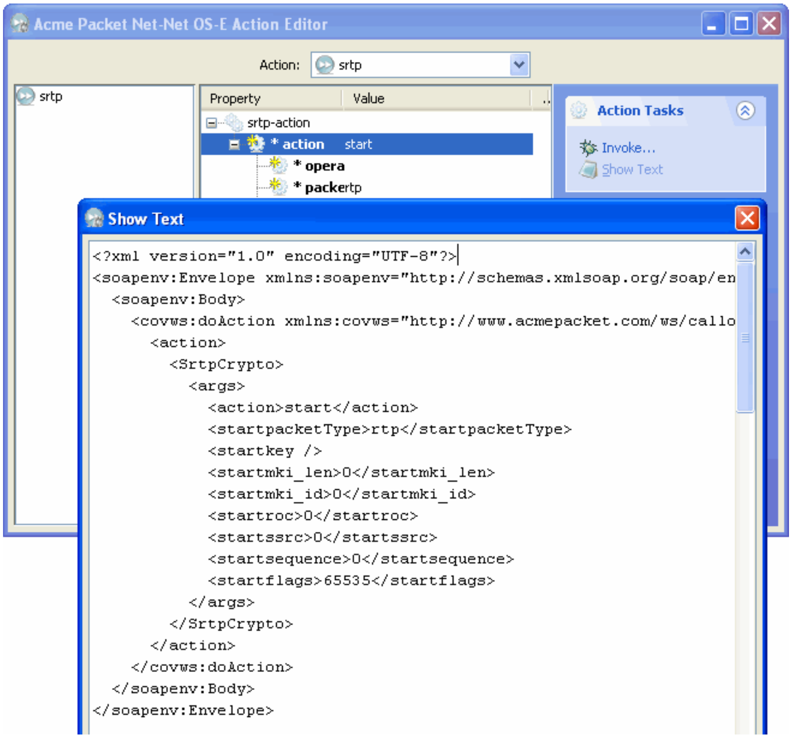
To remove a previously specified vector, right-click the vector and select **Delete**. The entry will be erased from the Action Editor.

Performing Action Editor Tasks

This section provides information on the **Action**, **Configuration**, and **Memory Task** sections on the right pane of the Action Editor. You run these tasks after you have specified the minimum requirements for an action.

Action Tasks

The **Show Text** function displays the current action as a SOAP message, as illustrated in the following image. Use the **Save** and **Invoke** buttons, as described in this section.


Acme Packet Net-Net OS-E Action Editor
Action: srtp
srtp
Property
Value
srtp-action
* action start
* opera
* packertp
Action Tasks
Invoke...
Show Text
Show Text

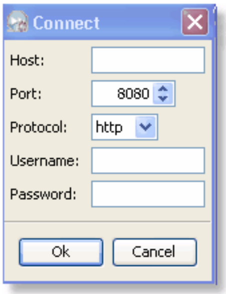
```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/en
  <soapenv:Body>
    <covws:doAction xmlns:covws="http://www.acmepacket.com/ws/callo
      <action>
        <SrtpCrypto>
          <args>
            <action>start</action>
            <startpacketType>rtp</startpacketType>
            <startkey />
            <startmki_len>0</startmki_len>
            <startmki_id>0</startmki_id>
            <startroc>0</startroc>
            <startssrc>0</startssrc>
            <startsequence>0</startsequence>
            <startflags>65535</startflags>
          </args>
        </SrtpCrypto>
      </action>
    </covws:doAction>
  </soapenv:Body>
</soapenv:Envelope>
```

Saving the SOAP Message Text

The **Save** button captures the WSDL SOAP message to a text file that you can open and view with most text editors. When the Save window appears, browse to a location on your desktop where you would like to save the file. Click **Save** to export the SOAP message to the destination text file.

Invoking the Action

When you click on **Invoke**, you are prompted to connect (establish a session) with the OS-E system to which you are sending the SOAP message. You must specify the following information:



Port: 8080
Protocol: http

- **Host**—Enter the IP address or DNS host name,
- **Port number**—Enter the OS-E port over which you are sending the action (such as 8080).
- **Protocol**—Select HTTP or HTTPS from the pull-down menu.
- **Username** and **Password—**Enter the username and password, as previously configured for you on the destination OS-E system.

When you have entered the information, click **Ok** to establish an HTTP or HTTPS connection to the specified OS-E system.

At the OS-E system, the action included in SOAP message executes and returns a “Success” response back the Action Editor.

A response message looks something like this:

```
<?xml version=”1.0” encoding=”UTF-8”?>
<soapenv:Envelope xmlns:soapenv-http://schemas.xmlsoap.org/soap/....
    <soapenv:Body>
      <doActionResponse xmlns=http:///www/acmepacket.com/ws/callout...
        <Code>success</Code>
        <TextSuccess<Text>
        <message>38837825458</message>
      </doActionResponse>
    </soapenv:Body>
</soapenv:Envelope>
```

Configuration Tasks

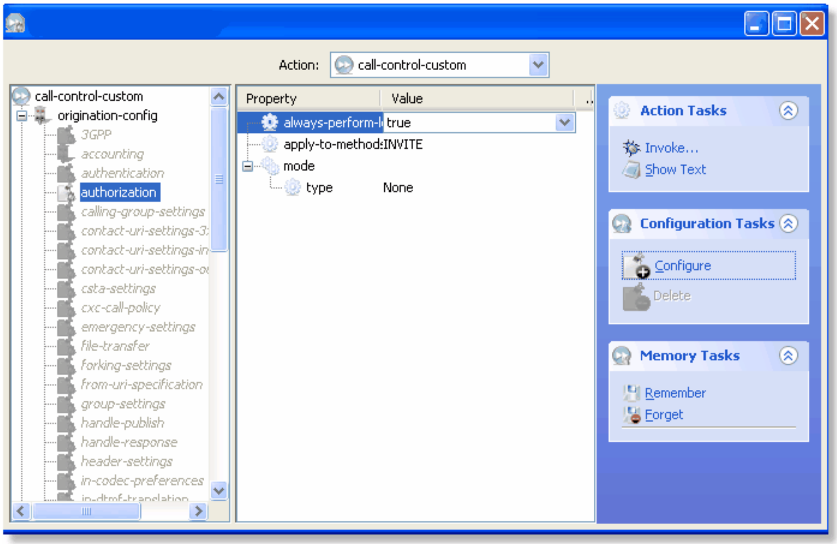
There are two **Configuration** tasks in the Action Editor:

Remove Object—Erases the action from current session and resets the property settings; select a new action from the Action Class pull-down.

Configure—Configures the **call-control-custom** action. When you select and expand **call-control-custom**, a sub-option called **config-override** appears. Expand the **config-override** selection to display the list of configuration options.

To use the **Configure** task, perform the following steps:

1. Under **config-override**, select and right-click the object to configure. Select **Configure**. The configuration properties will appear in the center pane.
2. Edit the properties in the Value column one at a time. Keep in mind that any properties in **bold text** are mandatory for the configuration option that you selected.



Action: call-control-custom

Property	Value
always-perform-l	true
apply-to-method:	INVITE
mode	
type	None

call-control-custom
origination-config
3GPP
accounting
authentication
authorization
calling-group-settings
contact-uri-settings-3
contact-uri-settings-in
contact-uri-settings-o
csta-settings
cxc-call-policy
emergency-settings
file-transfer
forking-settings
from-uri-specification
group-settings
handle-publish
handle-response
header-settings
in-codec-preferences
in-dtmf-translation
Action Tasks
Invoke...
Show Text
Configuration Tasks
Configure
Delete
Memory Tasks
Remember
Forget

Memory Tasks

There are two **Memory** tasks in the Action Editor:

Remember—Saves the current action to a named file within the Action Editor. The action is not saved to disk. Specify a name and click **Ok**. The named action remains available for future Action Editor sessions.

Forget—Removes any previously “remembered” actions. A pull-down menu displays a listing of previously saved actions from which you can choose. Click **Ok** to remove the saved action.

Chapter 6. Using the Troubleshooter

About This Chapter

The Acme Packet OS-E Troubleshooter is a remote network operations center (NOC) application that allows administrators to monitor and diagnose registered SIP devices and active call bindings. The Troubleshooter accesses these active call bindings by making Web service requests (calls) to the active OS-E call database.

Installing and Launching the Troubleshooter

The Troubleshooter is contained in a ZIP file available from Acme Packet upon request. The file is named **nnSE360-tshoot.zip**.

Downloading the ZIP File

To download the **nnSE360-tshoot.zip** file, perform the following steps on a Windows PC or Linux workstation:

1. Using your Web browser, go the Acme Packet Support Web site at https://support.acmepacket.com/ and log on by entering your customer portal **User name** and **Password**. Click **Submit**.
2. Once you are logged in, download the **nnSE<*release*>-tshoot.zip** file to a location on your PC or Linux workstation.
3. Right-click the .ZIP file and select **Extract All**.
4. Select the destination folder for the extracted files. Click **Browse** to direct the files to an existing directory location, or if desired, to a newly named destination folder.

5. Complete the remaining prerequisite tasks covered in this section:
    - Enabling Web Services
    - Setting Permissions
    - Editing the Troubleshooter Configuration
    - Launching the Troubleshooter and Logging In

Enabling Web Services

Be sure that the Web services administrative configuration is set to *enabled* on the interface over which the system will accept WSDL connection requests to the active call database. The Troubleshooter will not work unless the **web-service** object is enabled over HTTP or HTTPS.

CLI Session

```
NNOS-E> config box
config box> config interface eth3
config interface eth3> config ip private
config ip private> config web-service
config web-service> set admin enabled
config web-service> set protocol http 8080
```

Setting Permissions

The Troubleshooter requires that user permissions be explicitly set for each user who will be monitoring call bindings at a specific OS-E system. See the example CLI session below.

CLI Session

```
NNOS-E> config access
config access> config permissions admin1
Creating 'permissions admin1'
config permissions admin1> set web-services enabled
config permissions admin1> set troubleshooting enabled
config permissions admin1> return
config access> exit
Do you want to commit your changes before you exit (y or n)? y
Do you want to update the startup configuration (y or n)? y

NNOS-E> config access
```

```
config access> config users
config users> config user bob
Creating 'user bob'
config user bob> set password abc123
confirm: ******************
config user bob> set permissions "access permissions admin1"
```

Editing the Troubleshooter Configuration

The Troubleshooter configuration allows you to control the number of concurrent Web service troubleshooting requests to the active call database, as well as the time to wait for a troubleshooting request to become active before timing out. The default setting is a maximum of 2 concurrent requests with a time-out of 2 seconds (specified as 2000 milliseconds) should the Web request not connect. You can specify a maximum of 20 concurrent Web service troubleshooting requests.

See the example CLI session below.

CLI Session

```
NNOS-E> config services
config services> config troubleshooting
config troubleshooting> set concurrent-requests 15
config troubleshooting> set concurrent-timeout 5000
```

Launching the Troubleshooter and Logging In

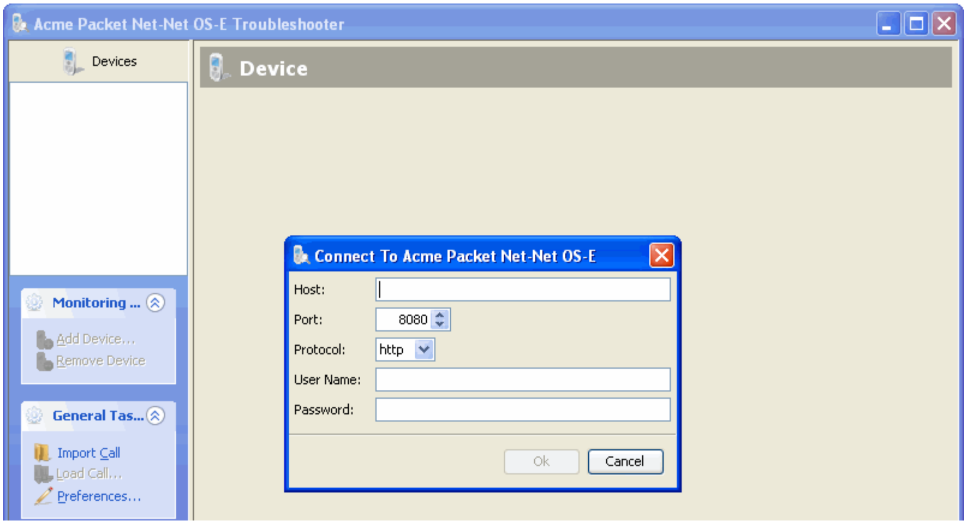
From a Windows PC

Open the folder that you just created, then double-click the **nnSE360-tshoot.exe** file. This will launch the Troubleshooter from a Windows PC.

From a Linux Workstation

Open the **Lib** folder in the installation directory and select the executable file named **covtshoot.jar**. This will launch the Troubleshooter from a Linux workstation.

The following imageillustrates the Connect to CSM window. Enter the appropriate credentials to log in and connect to the CSM over the Web service within the configured time-out configuration setting.


Acme Packet Net-Net OS-E Troubleshooter
Devices
Device
Monitoring ...
Add Device...
Remove Device
General Tas...
Import Call
Load Call...
Preferences...
Connect To Acme Packet Net-Net OS-E
Host:
Port:
8080
Protocol:
http
User Name:
Password:
Ok
Cancel

Monitoring SIP Devices

This section describes the functions on the Monitoring Tasks tab. The Monitoring Task tab allows you to add SIP devices to the Troubleshooter that have an address of record (AOR) in the OS-E's location cache. SIP devices and their associated bindings are identified by a SIP address (SIP: <uri>) or a SIP telephone number (TEL:<uri>). When you are finished, you can use the Remove Device task to close the Web request to the selected device.

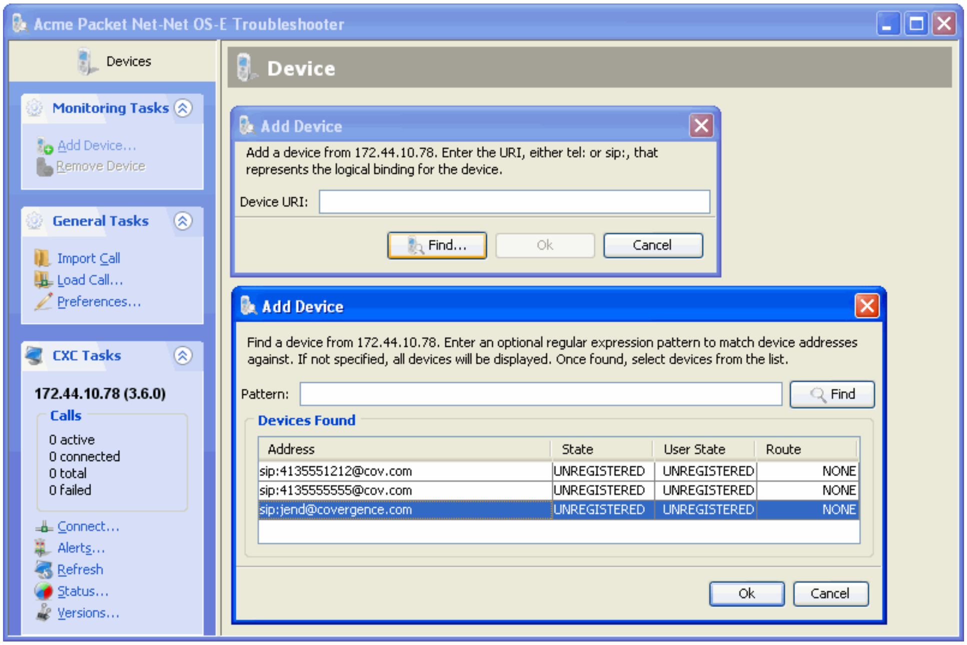
Adding Devices

To add a SIP device from the OS-E location cache, perform the following steps.

1. From the Monitoring Task tab, select **Add Device** to display the Add Device dialog box.
2. In the Device URI field, enter the known SIP: or TEL: AOR and press Enter at your keyboard. Otherwise, click **Find** to display the SIP AORs for which there is an active or recent location binding.

If the list is long, enter a known SIP: or TEL: regular expression on which to search and reduce the number of displayed devices. For example, entering SIP:.* will sort the list so that SIP URIs display; TEL URIs will not display. Click **Find** to search on the specified pattern.

3. Select one or more SIP devices from the list and click **OK**. (Select multiple devices using the CTRL or SHIFT keys with your computer mouse.)


Acme Packet Net-Net OS-E Troubleshooter
Devices
Monitoring Tasks
Add Device...
Remove Device
General Tasks
Import Call
Load Call...
Preferences...
CXC Tasks
172.44.10.78 (3.6.0)
Calls
Connect...
Alerts...
Refresh
Status...
Versions...
Device
Add Device
Find...
Ok
Cancel
Add Device
Find
Devices Found
Ok
Cancel

0 active
0 connected
0 total
0 failed

Add a device from 172.44.10.78. Enter the URI, either tel: or sip:, that represents the logical binding for the device.

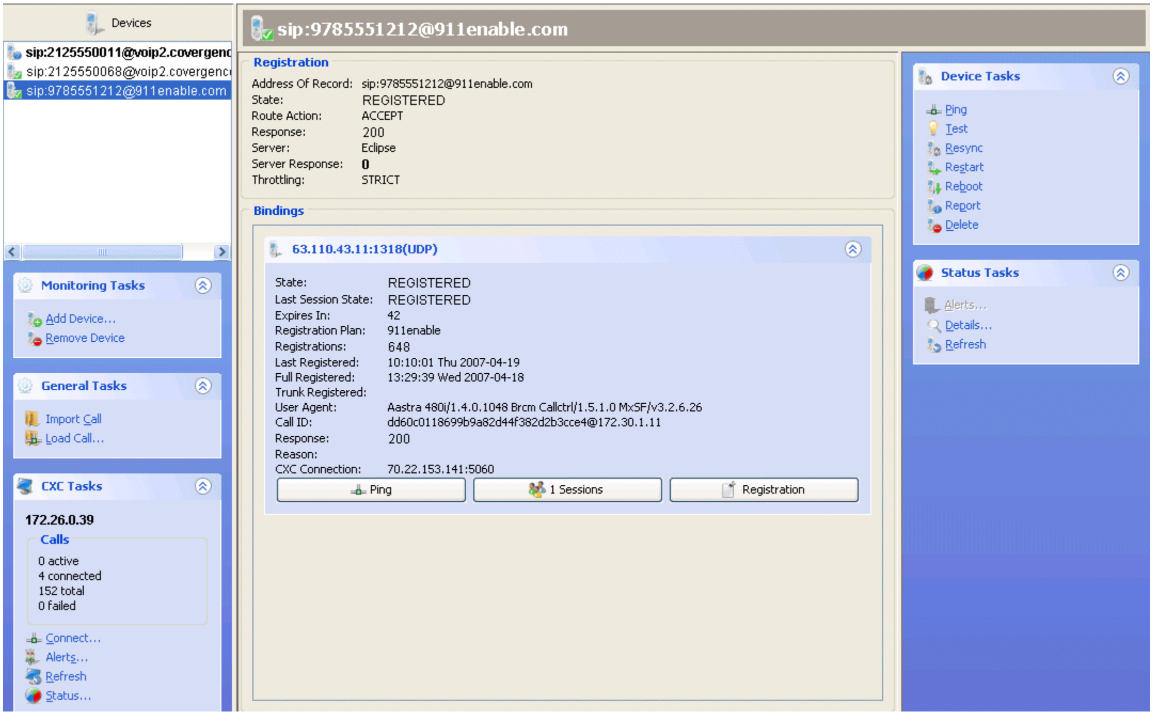
Device URI:

Find a device from 172.44.10.78. Enter an optional regular expression pattern to match device addresses against. If not specified, all devices will be displayed. Once found, select devices from the list.

Pattern:

Address	State	User State	Route
sip:4135551212@cov.com	UNREGISTERED	UNREGISTERED	NONE
sip:4135555555@cov.com	UNREGISTERED	UNREGISTERED	NONE
sip:jend@covergence.com	UNREGISTERED	UNREGISTERED	NONE

The following image illustrates a sample SIP device window showing that device’s registration and binding statistics.



Devices
sip:2125550011@voip2.covergenc
sip:2125550068@voip2.covergenc
sip:9785551212@911enable.com
Monitoring Tasks
Add Device...
Remove Device
General Tasks
Import Call
Load Call...
CXC Tasks
Connect...
Alerts...
Refresh
Status...
sip:9785551212@911enable.com
Registration
Bindings
63.110.43.11:1318(UDP)
Ping
1 Sessions
Registration
Device Tasks
Ping
Test
Resync
Restart
Reboot
Report
Delete
Status Tasks
Alerts...
Details...
Refresh

172.26.0.39
Calls
0 active
4 connected
152 total
0 failed

Address Of Record: sip:9785551212@911enable.com
State: REGISTERED
Route Action: ACCEPT
Response: 200
Server: Eclipse
Server Response: 0
Throttling: STRICT

State: REGISTERED
Last Session State: REGISTERED
Expires In: 42
Registration Plan: 911enable
Registrations: 648
Last Registered: 10:10:01 Thu 2007-04-19
Full Registered: 13:29:39 Wed 2007-04-18
Trunk Registered:
User Agent: Aastra 480i/1.4.0.1048 Brcm Callctrl/1.5.1.0 MxSF/v3.2.6.26
Call ID: dd60c0118699b9a82d44f382d2b3cce4@172.30.1.11
Response: 200
Reason:
CXC Connection: 70.22.153.141:5060

In the SIP device window, note the number of devices that appear in the left pane. Devices that are currently registered with active call bindings have a REGISTERED state and appear in normal text. Devices that appear in **bold** text will be in a state other than REGISTERED, such as IN SERVICE, AGED, etc.

Analyzing Registration and Binding Status

Registration and binding status information is derived from the **show location-cache -v** and the **show location-bindings -v** commands. The following table lists the registration and binding status fields along with a short description of each field..

Registration fields	Description
Address Of Record	The address-of-record for this SIP device, as stored in the OS-E location cache.
State	The current state of the registration: REGISTERED, IN-SERVICE, UNREGISTERED, etc.

Registration fields	Description
Route Action	The type action for the OS-E to take when a SIP REGISTER is received from this SIP device: DELEGATE (to server); PROXY, NONE
Response	The HTTP Response to the REGISTER request from this SIP device: 200 OK, all other valid HTTP responses
Server	The destination server name to which the REGISTER request is delegated.
Server Response	The destination server HTTP Response to the REGISTER request from this SIP device: 200 OK, all other valid HTTP responses
Throttling	The configured OS-E throttling method applied to REGISTER sessions at this device; TIGHT, STRICT, etc.
Bindings fields	**Description**
State	The current state of the session binding: REGISTERED, RESPONDED, AGED, REQUESTED
Last Session State	The last session state of this SIP binding; REGISTERED; RESPONDED, AGED, REQUESTED
Expires In	The number of remaining seconds before this binding expires.
Registration Plan	The configured registration-plan on the system governing this registrations matching this SIP device.
Registrations	The number of SIP REGISTERS associated with this SIP binding.
Last Registered	The date and time when this SIP device registered with the OS-E.
Full Registered	The date and time when this SIP device first registered with the OS-E.
Trunk Registered	The date and time when this SIP device registered with the destination SIP server (delegate).
User Agent	The type of SIP device, usually a physical SIP telephone or a SIP soft phone.
Call ID	The unique call identifier string assigned to this SIP binding.
Response	The HTTP response to the REGISTER request received from the destination SIP server.

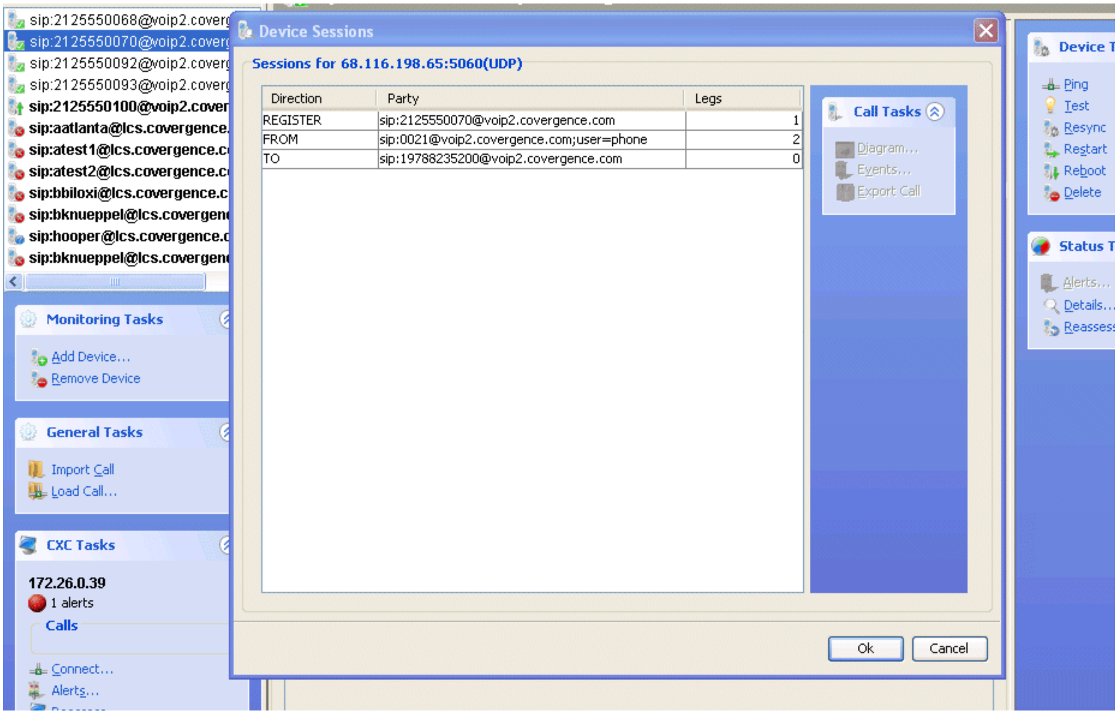
Registration fields	Description
Reason	The SIP response text message display (if applicable) in the event of a failure.
OS-E Connection	The IP interface and port over which this SIP device is connected over an inbound session.

Using the Device Tabs

There are three main functions that you can perform from the SIP device window:

- **Ping**—Sends a ping request to the SIP device over the Web service and displays the current state (time and contact) information for the SIP device.
- **Session**—Displays the direction, SIP call parties, and the number of call legs associated with this SIP binding, as well as a call diagram for each session.
- **Registration**—Display the call diagram associated with this SIP call binding, including REGISTER request legs and the HTTP responses to the SIP requests.

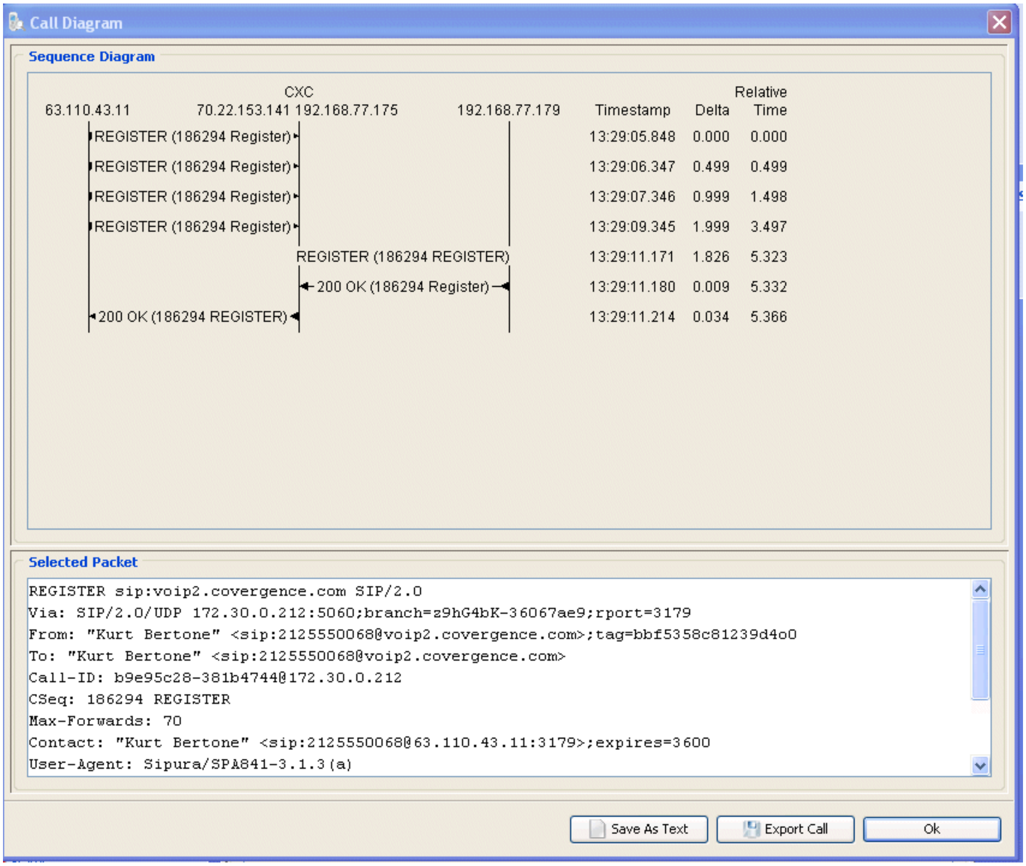
The following image illustrates a sample device session window showing all sessions associated with the call binding. Select a session to display the associated call diagram for that session.


sip:2125550068@voip2.coverg
sip:2125550070@voip2.coverg
sip:2125550092@voip2.coverg
sip:2125550093@voip2.coverg
sip:2125550100@voip2.cover
sip:aatlanta@lcs.covergence.
sip:atest1@lcs.covergence.c
sip:atest2@lcs.covergence.c
sip:bbiloxi@lcs.covergence.c
sip:bknueppel@lcs.covergen
sip:hooper@lcs.covergence.c
sip:bknueppel@lcs.covergen
Monitoring Tasks
Add Device...
Remove Device
General Tasks
Import Call
Load Call...
CXC Tasks
172.26.0.39
1 alerts
Calls
Connect...
Alerts...
Device Sessions
Call Tasks
Diagram...
Events...
Export Call
Ok
Cancel
Device T
Ping
Test
Resync
Restart
Reboot
Delete
Status T
Alerts...
Details...
Reasses

Sessions for 68.116.198.65:5060(UDP)

Direction	Party	Legs
REGISTER	sip:2125550070@voip2.covergence.com	1
FROM	sip:0021@voip2.covergence.com;user=phone	2
TO	sip:19788235200@voip2.covergence.com	0

The following image shows the SIP header information in the Select Packet area of the window. Select the desired request or response from the Sequence Diagram to display the detailed SIP header information. This is also the window that displays when you select Registration tab and select a specific session from the diagram.


Call Diagram
Sequence Diagram
CXC
63.110.43.11
70.22.153.141 192.168.77.175
192.168.77.179
Selected Packet
Save As Text
Export Call
Ok

	Timestamp	Delta	Relative Time
REGISTER (186294 Register)	13:29:05.848	0.000	0.000
REGISTER (186294 Register)	13:29:06.347	0.499	0.499
REGISTER (186294 Register)	13:29:07.346	0.999	1.498
REGISTER (186294 Register)	13:29:09.345	1.999	3.497
REGISTER (186294 REGISTER)	13:29:11.171	1.826	5.323
200 OK (186294 Register)	13:29:11.180	0.009	5.332
200 OK (186294 REGISTER)	13:29:11.214	0.034	5.366

```
REGISTER sip:voip2.covergence.com SIP/2.0
Via: SIP/2.0/UDP 172.30.0.212:5060;branch=z9hG4bK-36067ae9;rport=3179
From: "Kurt Bertone" <sip:2125550068@voip2.covergence.com>;tag=bbf5358c81239d4o0
To: "Kurt Bertone" <sip:2125550068@voip2.covergence.com>
Call-ID: b9e95c28-381b4744@172.30.0.212
CSeq: 186294 REGISTER
Max-Forwards: 70
Contact: "Kurt Bertone" <sip:2125550068@63.110.43.11:3179>;expires=3600
User-Agent: Sipura/SPA841-3.1.3(a)
```

Exporting Calls to XML

The **Export Calls** button on the Call Diagram window allows you capture the call binding in an XML file for debugging purposes. When the Save window appears, browse to a location on your desktop where you would like to save the file. Click **Save** to export the call binding to the destination XML file.

Saving Calls to Text

The Save as Text button on the Call Diagram window captures the call binding to a text file (.txt) that you can view with most text editors. When the Save window appears, browse to a location on your desktop where you would like to save the file. Click **Save** to export the call binding to the destination text file.

Removing Monitored SIP Device Requests

To remove a SIP device request from the list of devices that you are monitoring, select the device from the left pane and click **Remove Device**. When the dialog box appears, click **Yes** to the remove the device. The list will refresh and display any remaining devices, if present.

Performing Miscellaneous Device Tasks

Use the **Device Tasks** tab on the right pane to perform additional tasks that operate on the active SIP device binding that you are monitoring. See the following table.

Task	Description
Ping	Sends a ping request to the active SIP device.
Test	Sends a test request to the active SIP device. A message box will appear to report a successful or failed test.
Resync	Resynchronizes the SIP device’s configuration with the remote service. A valid username and password to the SIP device is required for resynchronization.
Restart	Performs a warm restart of the SIP device. A valid username and password to the SIP device is required for a restart.
Reboot	Performs a cold restart of the SIP device. This is the same as turning the device off, and then on. A valid username and password to the SIP device is required for a restart.
Report	Issues a request that the device (phone) report its configuration to the service provider’s provisioning server. This allows the service provider to verify the current phone configuration.

Task	Description
Delete	Deletes the SIP device from the OS-E's location cache. The device will require register at the next SIP REGISTER request.

Performing Device Status Tasks

The **Status Tasks/Details** function on the right pane allows you to display the location-cache and location bindings in "as-defined" or alphabetical sequence for the device you are currently monitoring. A **Refresh** button allows you refresh and update the statistics associated with the active registration and call binding session as the session progresses.

Performing General Tasks

There are two functions available from the General Tasks tab:

- Import Call
- Load Call

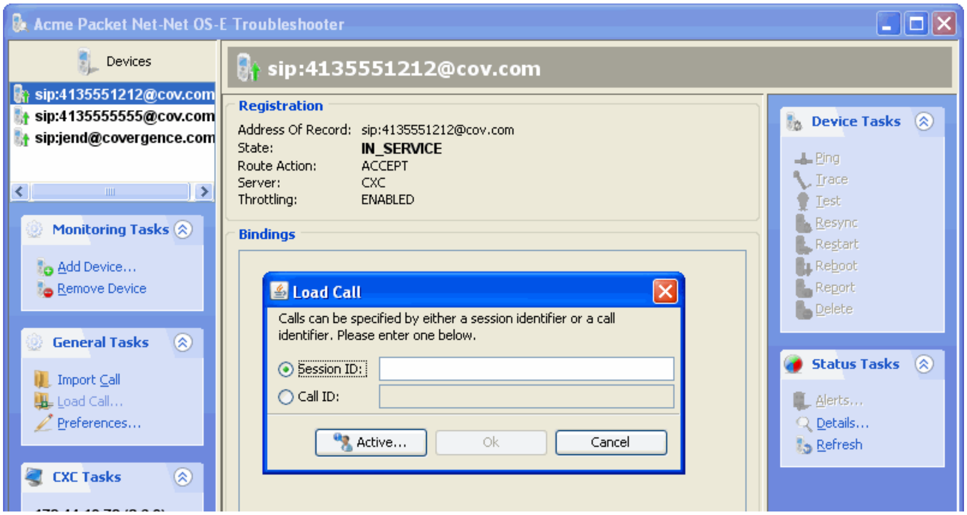
These functions are intended for debugging purposes and for SIP devices that may or may not be in the local system's location cache. For calls that you import or load into the Troubleshooter, you can view the call sequence diagram and the SIP header messages associated with that call or session identifier.

Importing Calls

The **Import Call** function allows you to import calls that you previously saved to an XML file. When the Open window appears, browse to a location on your desktop where the XML file resides. Click **Open** to import the call binding into the Troubleshooter.

Loading Calls

The **Load Call** function allows you to import a call using the Session ID or Call ID from a session or call log. If you are currently monitoring a SIP device using the Troubleshooter, simply click **Active**, then select the call to display the call sequence diagram. The following image illustrates a sample Load Call window.


Acme Packet Net-Net OS-E Troubleshooter
Devices
sip:4135551212@cov.com
sip:4135555555@cov.com
sip:jend@covergence.com
Monitoring Tasks
Add Device...
Remove Device
General Tasks
Import Call
Load Call...
Preferences...
CXC Tasks
sip:4135551212@cov.com
Registration
Bindings
Device Tasks
Ping
Trace
Test
Resync
Restart
Reboot
Report
Delete
Status Tasks
Alerts...
Details...
Refresh
Load Call
Session ID:
Call ID:
Active...
Ok
Cancel

Address Of Record: sip:4135551212@cov.com
State: IN_SERVICE
Route Action: ACCEPT
Server: CXC
Throttling: ENABLED

Calls can be specified by either a session identifier or a call identifier. Please enter one below.

● Session ID:
○ Call ID:

If you are running the OS-E Management System, simply copy the session or call ID and paste it into the appropriate field in the Load Call window.

Performing Net-Net OS-E Tasks

The **Tasks** tab allows you to perform OS-E functions, as opposed to functions that operate on SIP devices. Beneath the tab, the Troubleshooter displays the IP address of the OS-E system to which you are sending Web requests, and whether there are any alerts messages present. The following table lists the OS-E tasks.

Task	Description
Connect	Allows to log on to an OS-E appliance. Specify the IP address, port, protocol, username, and password credential.
Alerts	Displays active alert messages in a new Alerts window.

Task	Description
Refresh	Performs a health check poll to the active OS-E system and displays updated and refreshed statistics for the devices being monitored.
Status	Displays the current state of the OS-E system, including selectable statistics: clock, cpu-usage, sip-stack, call-admission-control, sip-peers, and processes in “as-defined” or alphabetical sequence.

Using Keyboard Shortcuts

The following table lists the keyboard shortcuts that you can use with the Troubleshooter.

Key or key sequence	Description
F1	Displays version information and Java plug-ins, if used.
F5	Refreshes the currently selected device with up-to-date statistics; same as the **Refresh** function on the Status Tasks tab.
CTRL-A	Adds a new device to the Troubleshooter; same as the **Add Device** function from the Monitoring tab.
CTRL-R	Refreshes the current state with updated statistics; same as the **Refresh** function on the OS-E tasks tab.
CTRL-S	Displays system alerts; same as the **Alerts** function from the OS-E tasks tab.

Using the Java API Plug-In

The Troubleshooter includes a Java application programming interface (API) that allows programmers to customize functions in the Troubleshooter. In the directory where you installed the Troubleshooter, open the folder named **plugin** for the directories and files that are available for Java programmers.

To get started, open the *readme.txt* file for general information. A folder named **api-zip**, once extracted, contains the source information for building a Java plug-in.

Sample Plug-In

The **src** folder in the **plugin** directory contains an example Java plug-in called *ExampleHealthAccessor.java*. This plug-in does the following:

1. Displays an alert associated with CPU usage.
2. Displays an alert if the number of call bindings associated with an AOR exceeds one.

The *ExampleHealthAccessor.java file* is shown below. You can display the file using a simple text editor such as Notepad.

```
import com.acmepacket.tshoot.model.Device;
import com.acmepacket.tshoot.model.health.Alert;
import com.acmepacket.tshoot.model.health.AssessmentException;
import com.acmepacket.tshoot.model.health.HealthAssessor;
import com.acmepacket.tshoot.model.health.IHealthAssessor;
import com.acmepacket.tshoot.model.health.Alert.LEVEL;
import com.acmepacket.ws.troubleshoot.BoxState;

/** This class is an example plugin to the troubleshooting health assessment
 *  functionality. It will assess the cpu utilization and log a note. The baseline
 *  cpu utilization warning is set in a system property as health.cpu.threshold.
 *  Any CPU utilization above the threshold generates a warning. Otherwise, an
 *  informational message is simply logged.
 */
public class ExampleHealthAssessor
    implements IHealthAssessor
{
    ////////////////////////////////////////////////////////////////////////////////
    //
    // Attributes

    private int m_nThreshold;

    ////////////////////////////////////////////////////////////////////////////////
    //
    // Methods

    public ExampleHealthAssessor ()
    {
        Integer n = Integer.getInteger ("health.cpu.threshold");
        m_nThreshold = (n == null ? 90 : n.intValue());
    }

    ////////////////////////////////////////////////////////////////////////////////
    //
    // IHealthAssessor Implementation

    public int getVersion ()
    {
        return (IHealthAssessor.VERSION);
    }

    public String getName ()
    {
        return ("Example Health Assessor");
    }

    public String getDescription ()
    {
        return ("Logs an alert about the cpu usage");
    }

    /** Here, we examine the current cpu usage and add an appropriate alert. */
    public void assess (HealthAssessor assessor)
        throws AssessmentException
    {
        BoxState state = assessor.getCurrentState();
        if (state != null && state.getCpuUsage() != null)
        {
            Long nUsage = state.getCpuUsage().getOneSecond();
            if (nUsage > 0)
            {
                LEVEL level = (nUsage == null || nUsage.intValue() > m_nThreshold ?
  LEVEL.WARNING : LEVEL.INFORMATION);
                assessor.addAlert (new Alert (level, "CPU usage is at " + nUsage));
            }
        }
    }

    /** Here, we examine the number of bindings on a location and alert if it's
     *  not equal to exactly one binding.
     */
    public void assess (Device device)
        throws AssessmentException
    {
        if (device != null &&
            device.getLocation() != null &&
            device.getLocation().getNumBindings() != null &&
            device.getLocation().getNumBindings().intValue() != 1)
        {
            device.addAlert (new Alert (LEVEL.WARNING, "The AOR " +
  device.getLocation().getAddressOfRecord() + " has more than one binding (" +
  device.getLocation().getNumBindings() + ")"));
        }
    }
}
```

Running the Sample Plug-In

From the **src** folder in your Troubleshooting directory, copy the *ExampleHealthAccessor.java* and paste the file into your home directory.

If you are running the Troubleshooter from a windows PC, your home directory might look like this:

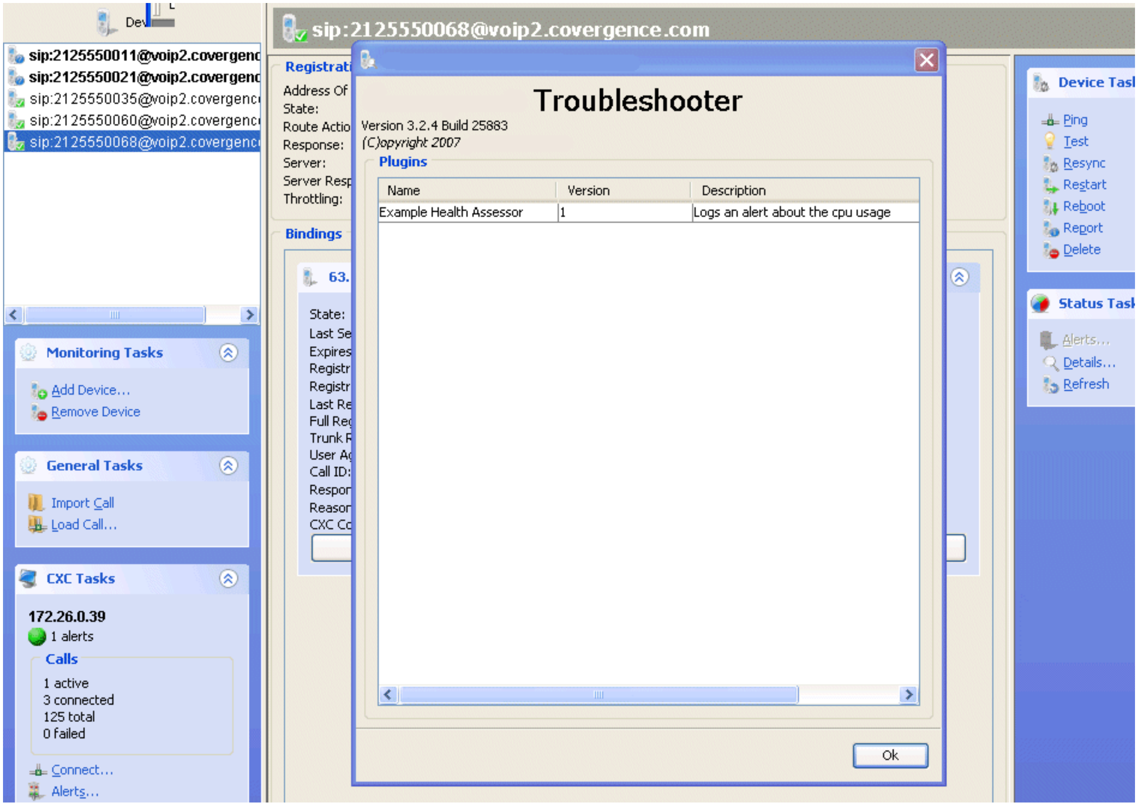
C:\Documents and Settings\username\tshoot

If you are running the Troubleshooter from a Linux workstation, place the file in your Linux home directory in a subdirectory named **tshoot**.

Perform the following steps:

1. If you are currently running the Troubleshooter, exit the program and restart. If not, start the Troubleshooter, as covered in the section, Installing and Launching the Troubleshooter.

2. Press **F1** to display the About Troubleshooter window. The window displays the name of the plug-in with version and description information. The following image illustrates a sample window.



Troubleshooter

Version 3.2.4 Build 25883
(C)opyright 2007

Plugins

Name	Version	Description
Example Health Assessor	1	Logs an alert about the cpu usage

sip:2125550068@voip2.covergence.com
sip:2125550011@voip2.covergenc
sip:2125550021@voip2.covergenc
sip:2125550035@voip2.covergenc
sip:2125550060@voip2.covergenc
sip:2125550068@voip2.covergenc
Monitoring Tasks
Add Device...
Remove Device
General Tasks
Import Call
Load Call...
CXC Tasks
172.26.0.39
1 alerts
Calls
1 active
3 connected
125 total
0 failed
Connect...
Alerts...
Registrati
Address Of
State:
Route Actio
Response:
Server:
Server Resp
Throttling:
Bindings
63.
Device Tasl
Ping
Test
Resync
Restart
Reboot
Report
Delete
Status Tasl
Alerts...
Details...
Refresh
Ok

3. When finished, click **OK**.

4. As a test, click **Refresh** several times to force an OS-E alert. If you have SIP phone devices that are able to trigger alerts, device alerts will appear with the flashing icons.

Appendix A. SNMP traps

SNMP Traps

The latest MIB file included with the product software contains the most recent trap definitions and descriptions.

AccessRequest

```
accessRequest NOTIFICATION-TYPE
    OBJECTS     { accessRequestUsername, accessRequestType,
   accessRequestResult }
    STATUS      current
    DESCRIPTION "system: report the results of an access request"
    ::= { cxcTraps 1 }

accessRequestUsername OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "request user name"
    ::= { accessRequest 1 }

accessRequestType OBJECT-TYPE
    SYNTAX      UserSessionMode
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "requested service"
    ::= { accessRequest 2 }

accessRequestResult OBJECT-TYPE
    SYNTAX      AccessRequestResult
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "request result"
    ::= { accessRequest 3 }
```

CallConnected

```
callConnected NOTIFICATION-TYPE
    OBJECTS     { callConnectedRequestId, callConnectedHandle,
   callConnectedSessionId, callConnectedCallId, callConnectedTo,
   callConnectedFrom, callConnectedContent }
    STATUS      current
    DESCRIPTION "csta: A CSTA call leg has been connected"
    ::= { cxcTraps 2 }

callConnectedRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { callConnected 1 }

callConnectedHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { callConnected 2 }

callConnectedSessionId OBJECT-TYPE
    SYNTAX      Counter64
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The session identifier for the call"
    ::= { callConnected 3 }

callConnectedCallId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The call identifier for the call"
    ::= { callConnected 4 }

callConnectedTo OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The to: URI for the call"
    ::= { callConnected 5 }

callConnectedFrom OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The from: URI for the call"
    ::= { callConnected 6 }
```

```
callConnectedContent
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The remote side capabilities (SDP)"
    ::= { callConnected 7 }
```

CallConnectedEventCustom

```
callConnectedEventCustom NOTIFICATION-TYPE
    OBJECTS     { callConnectedEventCustomRequestId,
   callConnectedEventCustomHandle, callConnectedEventCustomSessionId,
   callCconnectedEventCustomCallId, callConnectedEventCustomCookie,
   callConnectedEventCustomTo, callConnectedEventCustomFrom,
   callConnectedEventCustomCustomField,
   callConnectedEventCustomContent }
    STATUS      current
    DESCRIPTION ""
    ::= { cxcTraps 67 }

callConnectedEventCustomRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { callConnectedEventCustom 1 }

callConnectedEventCustomHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { callConnectedEventCustom 2 }

callConnectedEventCustomSessionId OBJECT-TYPE
    SYNTAX      Counter64
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The session identifier for the call"
    ::= { callConnectedEventCustom 3 }

callConnectedEventCustomCallId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The call identifier for the call"
    ::= { callConnectedEventCustom 4 }

callConnectedEventCustomCookie OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie for the session"
    ::= { callConnectedEventCustom 5 }

callConnectedEventCustomTo OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The to: URI for the call"
    ::= { callConnectedEventCustom 6 }

callConnectedEventCustomFrom OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The from: URI for the call"
    ::= { callConnectedEventCustom 7 }

callConnectedEventCustomCustomField OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Custom Field for the event"
    ::= { callConnectedEventCustom 8 }

callConnectedEventCustomContent OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The remote side capabilities (SDP)"
    ::= { callConnectedEventCustom 9 }
```

CallCreated

```
callCreated NOTIFICATION-TYPE
    OBJECTS     { callCreatedRequestId, callCreatedHandle,
   callCreatedCookie, callCreatedSessionId, callCreatedCallId,
   callCreatedTo, callCreatedFrom, callCreatedSessConfig,
   callCreatedDtmfCapability }
    STATUS      current
    DESCRIPTION "csta: A CSTA call leg has been created"
    ::= { cxcTraps 3 }

callCreatedRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { callCreated 1 }

callCreatedHandle OBJECT-TYPE
```

```
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { callCreated 2 }

callCreatedCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie for the session"
    ::= { callCreated 3 }

callCreatedSessionId OBJECT-TYPE
    SYNTAX      Counter64
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The session identifier for the call"
    ::= { callCreated 4 }

callCreatedCallId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The call identifier for the call"
    ::= { callCreated 5 }

callCreatedTo OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The to: URI for the call"
    ::= { callCreated 6 }

callCreatedFrom OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The from: URI for the call"
    ::= { callCreated 7 }

callCreatedSessConfig OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "session config for the call-leg created"
    ::= { callCreated 8 }

callCreatedDtmfCapability
    SYNTAX      DtmfType
    ACCESS      read-only
```

```
        STATUS      mandatory
        DESCRIPTION "dtmf methods supported if session-config/
       dtmf-preferences is Admin enabled"
        ::= { callCreated 9 }
```

CallCreatedEventCustom

```
    callCreatedEventCustom NOTIFICATION-TYPE
        OBJECTS     { callCreatedEventCustomRequestId,
       callCreatedEventCustomHandle, callCreatedEventCustomSessionId,
       callCreatedEventCustomCallId, callCreatedEventCustomCookie,
       callCreatedEventCustomTo, callCreatedEventCustomFrom,
       callCreatedEventCustomCustomField }
        STATUS      current
        DESCRIPTION ""
        ::= { cxcTraps 68 }

    callCreatedEventCustomRequestId OBJECT-TYPE
        SYNTAX      OCTET STRING
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "The requestId provided when the call was initiated"
        ::= { callCreatedEventCustom 1 }

    callCreatedEventCustomHandle OBJECT-TYPE
        SYNTAX      INTEGER(0..4294967295)
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "The handle to the call"
        ::= { callCreatedEventCustom 2 }

    callCreatedEventCustomSessionId OBJECT-TYPE
        SYNTAX      Counter64
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "The session identifier for the call"
        ::= { callCreatedEventCustom 3 }

    callCreatedEventCustomCallId OBJECT-TYPE
        SYNTAX      OCTET STRING
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "The call identifier for the call"
        ::= { callCreatedEventCustom 4 }

    callCreatedEventCustomCookie OBJECT-TYPE
        SYNTAX      INTEGER (0...4294967295)
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "The cookie for the session"
        ::= { callCreatedEventCustom 5 }
```

```
callCreatedEventCustomTo OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The to: URI for the call"
    ::= { callCreatedEventCustom 6 }

callCreatedEventCustomFrom OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The from: URI for the call"
    ::= { callCreatedEventCustom 7 }

callCreatedEventCustomCustomField OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Custom field for the event"
    ::= { callCreatedEventCustom 8 }
```

CallEventsCustomBase

```
callEventCustomBase NOTIFICATION-TYPE
    OBJECTS     { callEventsCustomBaseRequestId,
   callEventsCustomBaseHandle, callEventsCustomBaseSessionId,
   callEventsCustomBaseCallId, callEventsCustomBaseCookie,
   callEventsCustomBaseTo, callEventsCustomBaseFrom,
   callEventsCustomBaseCustomField }
    STATUS      current
    DESCRIPTION "csta:"
    ::= { cxcTraps 69 }

callEventsCustomBaseRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { callEventsCustomBase 1 }

callEventCustomBaseHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { callEventsCustomBase 2 }

callEventsCustomBaseSessionId OBJECT-TYPE
    SYNTAX      Counter64
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The session identifier for the call"
    ::= { callEventsCustomBase 3 }

callEventsCustomBaseCallId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The call identifier for the call"
    ::= { callEventsCustomBase 4 }

callEventsCustomBaseCookie OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie for the session"
    ::= { callEventsCustomBase 5 }

callEventsCustomBaseTo OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The to: URI for the call"
    ::= { callEventsCustomBase 6 }

callEventsCustomBaseFrom OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The from: URI for the call"
    ::= { callEventsCustomBase 7 }

callEventsCustomBaseCustomField OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Custom field for the event"
    ::= { callEventsCustomBase 8 }
```

CallHeld

```
callHeld NOTIFICATION-TYPE
    OBJECTS     { callHeldRequestId, callHeldHandle,
   callHeldHeldByRemote }
    STATUS      current
    DESCRIPTION "csta: A CSTA call leg has been held"
    ::= { cxcTraps 4 }

callHeldRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { callHeld 1 }
callHeldHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { callHeld 2 }

callHeldHeldByRemote OBJECT-TYPE
    SYNTAX      Boolean
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Indicates if the holding party is the remote party"
    ::= { callHeld 3 }
```

CallRetrieved

```
callRetrieved NOTIFICATION-TYPE
    OBJECTS     { callRetrievedRequestId, callRetrievedHandle }
    STATUS      current
    DESCRIPTION "csta: A CSTA call leg has been retrieved from hold"
    ::= { cxcTraps 5 }

callRetrievedRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { callRetrieved 1 }

callRetrievedHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { callRetrieved 2 }
```

CallTerminated

```
callTerminated NOTIFICATION-TYPE
    OBJECTS     { callTerminatedRequestId, callTerminatedHandle,
   callTerminatedCallDuration, callTerminatedReason,
   callTerminatedSessionId }
    STATUS      current
    DESCRIPTION "csta: A CSTA call leg has been terminated"
    ::= { cxcTraps 6 }

callTerminatedRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
```

```
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "The requestId provided when the call was initiated"
        ::= { callTerminated 1 }

    callTerminatedHandle OBJECT-TYPE
        SYNTAX      INTEGER(0..4294967295)
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "The handle to the call"
        ::= { callTerminated 2 }

    callTerminatedCallDuration OBJECT-TYPE
        SYNTAX      TimeTicks
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "call duration"
        ::= { callTerminated 3 }

    callTerminatedReason OBJECT-TYPE
        SYNTAX      INTEGER(0..4294967295)
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "Termination reason"
        ::= { callTerminated 4 }

    callTerminatedSessionId OBJECT-TYPE
        SYNTAX      Counter64
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "The session identifier for the call"
        ::= { callTerminated 5 }
```

CallTerminatedEventCustom

```
    callTerminatedEventCustom NOTIFICATION-TYPE
        OBJECTS     { callTerminatedEventCustomRequestId,
       callTerminatedEventCustomHandle,
       callTerminatedEventCustomSessionId,
       callTerminatedEventCustomCallId, callTerminatedEventCustomCookie,
       callTerminatedEventcustomTo, callTerminatedEventCustomFrom,
       callTerminatedEventCustomCustomField,
       callterminatedEventCustomCallDuration,
       callTerminatedEventCustomReason }
        STATUS      current
        DESCRIPTION ""
        ::= { cxcTraps 70 }

    callTerminatedEventCustomRequestId OBJECT-TYPE
        SYNTAX      OCTET STRING
        ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { callTerminatedEventCustom 1 }

callTerminatedEventCustomHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { callTerminatedEventCustom 2 }

callTerminatedEventCustomSessionId OBJECT-TYPE
    SYNTAX      Counter64
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The session identifier for the call"
    ::= { callTerminatedEventCustom 3 }

callTerminatedEventCustomCallId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The call identifier for the call"
    ::= { callTerminatedEventCustom 4 }

callTerminatedEventCustomCookie OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie for the session"
    ::= { callTerminatedEventCustom 5 }


callTerminatedEventCustomTo OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The to: URI for the call"
    ::= { callTerminatedEventCustom 6 }

callTerminatedEventCustomFrom OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The from: URI for the call"
    ::= { callTerminatedEventCustom 7 }

callTerminatedEventCustomCustomField OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Custom Field for the event"
    ::= { callTerminatedEventCustom 8 }

callTerminatedEventCustomCallDuration OBJECT-TYPE
    SYNTAX      TimeTicks
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "call duration"
    ::= { callTerminatedEventCustom 9 }

callTerminatedEventCustomReason OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "termination reason"
    ::= { callTerminatedEventCustom 10 }
```

CAMissing

```
cAMissing NOTIFICATION-TYPE
    OBJECTS     { cAMissingEntryName, cAMissingFileName }
    STATUS      current
    DESCRIPTION "tls: Indicates that a CA file specified in a TLS
   certificate configuration entry cannot be found"
    ::= { cxcTraps 7 }

cAMissingEntryName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The TLS certificate configuration entry name"
    ::= { cAMissing 1 }

cAMissingFileName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the CA file which cannot be found, as
   specified in the TLS certificate entry's 'specific-ca-file'
   property"
    ::= { cAMissing 2 }
```

CertDecryptError

```
certDecryptError NOTIFICATION-TYPE
   OBJECTS     { certDecryptErrorEntryName, certDecryptErrorFileName }
    STATUS      current
   DESCRIPTION "tls: Indicates that a certificate file specified in a
   certificate configuration could not be decrypted, probably due to
   an incorrect or missing passphrase"
    ::= { cxcTraps 8 }
```

```
certDecryptErrorEntryName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The TLS certificate configuration entry name"
    ::= { certDecryptError 1 }

certDecryptErrorFileName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the certificate file which could not be
   decrypted"
    ::= { certDecryptError 2 }
```

CertExpired

```
certExpired NOTIFICATION-TYPE
    OBJECTS     { certExpiredEntryName, certExpiredFileName,
   certExpiredExpiredTime }
    STATUS      current
    DESCRIPTION "tls: Indicates that a certificate file specified in a
   certificate configuration is no longer valid, as specified in the
   certificate's 'notAfter' extension"
    ::= { cxcTraps 9 }

certExpiredEntryName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The TLS certificate configuration entry name"
    ::= { certExpired 1 }

certExpiredFileName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the certificate file which has expired"
    ::= { certExpired 2 }

certExpiredExpiredTime OBJECT-TYPE
    SYNTAX      INTEGER
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The time and date at which the certificate file
   expired"
    ::= { certExpired 3 }
```

CertExpiring

```
certExpiring NOTIFICATION-TYPE
    OBJECTS     { certExpiringEntryName, certExpiringFileName,
   certExpiringExpireTime, certExpiringExpiresIn }
    STATUS      current
    DESCRIPTION "tls: Indicates that a certificate file specified in a
   certificate configuration will expire shortly (within the next 7
   days), as specified in the certificate's 'notAfter' extension"
    ::= { cxcTraps 10 }

certExpiringEntryName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The TLS certificate configuration entry name"
    ::= { certExpiring 1 }

certExpiringFileName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the certificate file which will expire
   shortly"
    ::= { certExpiring 2 }

certExpiringExpireTime OBJECT-TYPE
    SYNTAX      INTEGER
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The time and date at which the certificate file will
   expire"
    ::= { certExpiring 3 }

certExpiringExpiresIn OBJECT-TYPE
    SYNTAX      TimeTicks
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The number of seconds that remain before the
   certificate file will expire"
    ::= { certExpiring 4 }
```

CertFormat

```
certFormat NOTIFICATION-TYPE
    OBJECTS     { certFormatEntryName, certFormatFileName }
    STATUS      current
    DESCRIPTION "tls: Indicates that a certificate file specified in a
   TLS certificate configuration entry is not of a supported format
   (PEM or PKCS#12)"
    ::= { cxcTraps 11 }
```

```
certFormatEntryName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The TLS certificate configuration entry name"
    ::= { certFormat 1 }

certFormatFileName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the certificate file which is in an
   unsupported format"
    ::= { certFormat 2 }
```

CertMissing

```
certMissing NOTIFICATION-TYPE
    OBJECTS     { certMissingEntryName, certMissingFileName }
    STATUS      current
    DESCRIPTION "tls: Indicates that a certificate file specified in a
   TLS certificate configuration entry cannot be found or opened"
    ::= { cxcTraps 12 }

certMissingEntryName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The TLS certificate configuration entry name"
    ::= { certMissing 1 }

certMissingFileName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the certificate file which cannot be
   found, as specified in the TLS certificate entry's
   'certificate-file' property"
    ::= { certMissing 2 }
```

CertNoPrivateKey

```
certNoPrivateKey NOTIFICATION-TYPE
    OBJECTS    { certNoPrivateKeyEntryName, certNoPrivateKeyFileName }
    STATUS      current
    DESCRIPTION "tls: Indicates that a certificate file specified in a
   TLS certificate configuration entry does not have a valid private
   key; this could be due to an incorrect passphrase"
    ::= { cxcTraps 13 }
```

```
certNoPrivateKeyEntryName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The TLS certificate configuration entry name"
    ::= { certNoPrivateKey 1 }

certNoPrivateKeyFileName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
   DESCRIPTION "The name of the certificate file which does not have a
   valid private key"
    ::= { certNoPrivateKey 2 }
```

CertNotYetValid

```
certNotYetValid NOTIFICATION-TYPE
    OBJECTS     { certNotYetValidEntryName, certNotYetValidFileName,
   certNotYetValidStartTime }
    STATUS      current
    DESCRIPTION "tls: Indicates that a certificate file specified in a
   certificate configuration is not yet valid, as specified in the
   certificate's 'notBefore' extension"
    ::= { cxcTraps 14 }

certNotYetValidEntryName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The TLS certificate configuration entry name"
    ::= { certNotYetValid 1 }

certNotYetValidFileName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the certificate file which is not yet
   valid"
    ::= { certNotYetValid 2 }

certNotYetValidStartTime OBJECT-TYPE
    SYNTAX      INTEGER
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The time and date at which the certificate file will
   become valid"
    ::= { certNotYetValid 3 }
```

CRLMissing

```
cRLMissing NOTIFICATION-TYPE
    OBJECTS     { cRLMissingEntryName, cRLMissingFileName }
    STATUS      current
    DESCRIPTION "tls: Indicates that a CRL file specified in a TLS
   certificate configuration entry cannot be found"
    ::= { cxcTraps 15 }

cRLMissingEntryName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The TLS certificate configuration entry name"
    ::= { cRLMissing 1 }

cRLMissingFileName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the CRL file which cannot be found, as
   specified in the TLS certificate entry's 'specific-crl-file'
   property"
    ::= { cRLMissing 2 }
```

DirectoryFailed

```
directoryFailed NOTIFICATION-TYPE
    OBJECTS     { directoryFailedDirectory, directoryFailedReason }
    STATUS      current
    DESCRIPTION "system: "
    ::= { cxcTraps 16 }

directoryFailedDirectory OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the directory that failed"
    ::= { directoryFailed 1 }

directoryFailedReason OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The reason that the directory failed"
    ::= { directoryFailed 2 }
```

DosSIPPolicyTrap

```
SIPPolicyTrap NOTIFICATION-TYPE
    OBJECTS     { SIPPolicyDosPolicyName, SIPPolicyMissive }
```

```
     STATUS      current
     DESCRIPTION "dos: Indicates that a dynamic policy rule is
    instituted in response to a SIP Policy threshold being crossed"
     ::= { cxcTraps 17 }

sipPolicyDosPolicyName OBJECT-TYPE
     SYNTAX      OCTET STRING
     ACCESS      read-only
     STATUS      mandatory
     DESCRIPTION "The name of the specific policy"
     ::= { dosSIPPolicyTrap 1}

sipPolicyMissive OBJECT-TYPE
     SYNTAX      OCTET STRING
     ACCESS      read-only
     STATUS      mandatory
    DESCRIPTION "The missive contains the information on what the rule
    matches in the originating policy"
     ::= { dosSIPPolicyTrap 2}
```

DosTransportPolicyTrap

```
TransportPolicy NOTIFICATION-TYPE
    OBJECTS     { transportPolicyDosPolicyName, TransportPolicyMissive
    }
     STATUS      current
     DESCRIPTION "dos: Indicates that a dynamic policy rule is
    instituted in response to a Transport Policy threshold being
    crossed"
     ::= { cxcTraps 18 }

transportPolicyDosPolicyName OBJECT-TYPE
     SYNTAX      OCTET STRING
     ACCESS      read-only
     STATUS      mandatory
     DESCRIPTION "The name of the specific policy"
     ::= { dosTransportPolicyTrap 1}

TransportPolicyMissive OBJECT-TYPE
     SYNTAX      OCTET STRING
     ACCESS      read-only
     STATUS      mandatory
    DESCRIPTION "The missive contains the information on what the rule
    matches in the originating policy"
     ::= { dosTransportPolicyTrap 2}
```

DosUrlPolicyTrap

```
urlPolicyTrap NOTIFICATION-TYPE
     OBJECTS     { urlPolicyDosPolicyName, urlPolicyMissive }
     STATUS      current
```

```
    DESCRIPTION "dos: Indicates that a dynamic policy rule is
   instituted in response to a URL Policy threshold being crossed"
    ::= { cxcTraps 19 }

urlPolicyDosPolicyName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the specific policy"
    ::= { dosUrlPolicyTrap 1}

urlPolicyMissive OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The missive contains the information on what the rule
   matches in the originating policy"
    ::= { dosUrlPolicyTrap 2}
```

EventLogTrap

```
eventLogTrap NOTIFICATION-TYPE
    OBJECTS     { eventLogTrapTimestamp, eventLogTrapSeverity,
   eventLogTrapBox, eventLogTrapProcess, eventLogTrapLogClass,
   eventLogTrapMessage }
    STATUS      current
    DESCRIPTION "system:"
    ::= { cxcTraps 71 }

eventLogTrapTimestamp OBJECT-TYPE
    SYNTAX      INTEGER
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { eventLogTrapTimestamp 1 }

eventLogTrapSeverity OBJECT-TYPE
    SYNTAX      Severity
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { eventLogTrapTimestamp 2 }

eventLogTrapBox OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { eventLogTrapTimestamp 3 }

eventLogTrapProcess OBJECT-TYPE
```

```
    SYNTAX      sysProcess
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { eventLogTrapTimestamp 4 }

eventLogTrapLogClass OBJECT-TYPE
    SYNTAX      EventLogClass
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { eventLogTrapTimestamp 5 }

eventLogTrapMessage OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { eventLogTrapTimestamp 6 }
```

FileTransferAntiVirusFail

```
fileTransferAntiVirusFail NOTIFICATION-TYPE
    OBJECTS     { fileTransferAntiVirusFailSessionID,
   fileTransferAntiVirusFailSender, fileTransferAntiVirusFailFilename
   }
    STATUS      current
    DESCRIPTION "sip: Indicates a file transfer sent via a Microsoft
   Messenger IM session contains a virus"
    ::= { cxcTraps 20 }

fileTransferAntiVirusFailSessionID OBJECT-TYPE
    SYNTAX      Counter64
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION " SessionID associated with the failed virus scan"
    ::= { fileTransferAntiVirusFail 1 }

fileTransferAntiVirusFailSender OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION " The IM username who sent the file"
    ::= { fileTransferAntiVirusFail 2 }

fileTransferAntiVirusFailFilename OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION " The name of the file"
    ::= { fileTransferAntiVirusFail 3 }
```

H323CallAlerting

```
h323CallAlerting NOTIFICATION-TYPE
    OBJECTS     { h323CallAlertingRequestId, h323CallAlertingHandle,
   h323CallAlertingCookie, h323CallAlertingDisplay,
   h323CallAlertingPAssertedIdentity, h323CallAlertingContentType,
   h323CallAlertingContent }
    STATUS      current
    DESCRIPTION "h323: An H.323 call leg is alerting"
    ::= { cxcTraps 41 }

h323CallAlertingRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { h323CallAlerting 1 }

h323CallAlertingHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323CallAlerting 2 }

h323CallAlertingCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallAlerting 3 }

h323CallAlertingDisplay OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The display name for the endpoint that is answering
   the call"
    ::= { h323CallAlerting 4 }

h323CallAlertingPAssertedIdentity OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The P-Asserted-Identity display name for the endpoint
   that is answering the call"
    ::= { h323CallAlerting 5 }

h323CallAlertingContentType OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
```

```
     DESCRIPTION "type of media"
     ::= { h323CallAlerting 4 }

h323CallAlertingContent OBJECT-TYPE
     SYNTAX      OCTET STRING
     ACCESS      read-only
     STATUS      mandatory
     DESCRIPTION "for now this is how capabilities will be expressed"
     ::= { h323CallAlerting 5 }
```

H323CallConnected

```
h323CallConnected NOTIFICATION-TYPE
     OBJECTS     { h323CallConnectedRequestId, h323CallConnectedCookie,
    h323CallConnectedHandle, h323CallConnectedDisplay,
    h323CallConnectedPAssertedIdentity }
     STATUS      current
     DESCRIPTION "h323: An H.323 call leg has been connected"
     ::= { cxcTraps 42 }

h323CallConnectedRequestId OBJECT-TYPE
     SYNTAX      INTEGER(0..4294967295)
     ACCESS      read-only
     STATUS      mandatory
     DESCRIPTION "The requestId provided when the call was initiated"
     ::= { h323CallConnected 1 }

h323CallConnectedCookie OBJECT-TYPE
     SYNTAX      INTEGER(0..4294967295)
     ACCESS      read-only
     STATUS      mandatory
     DESCRIPTION "The cookie provided when the call was initiated"
     ::= { h323CallConnected 2 }

h323CallConnectedHandle OBJECT-TYPE
     SYNTAX      INTEGER(0..4294967295)
     ACCESS      read-only
     STATUS      mandatory
     DESCRIPTION "The handle to the call"
     ::= { h323CallConnected 3 }

h323CallConnectedDisplay OBJECT-TYPE
     SYNTAX      OCTET STRING
     ACCESS      read-only
     STATUS      mandatory
    DESCRIPTION "The display name for the endoint that is answering the
    call"
     ::= { h323CallConnected 4 }

h323CallConnectedPAssertedIdentity OBJECT-TYPE
     SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The P-Asserted-Identity display name for the endpoint
   that is answering the calls"
    ::= { h323CallConnected 5 }
```

H323CallCreated

```
h323CallCreated NOTIFICATION-TYPE
    OBJECTS     { h323CallCreatedRequestId, h323CallCreatedCookie,
   h323CallCreatedHandle, h323CallCreatedTo, h323CallCreatedFrom,
   h323CallCreatedDisplay, h323CallCreatedPAssertedIdentity,
   h323CallCreatedRemoteIpAddress, h323CallCreatedRemoteIpPort }
    STATUS      current
    DESCRIPTION "h323: An H.323 call leg has been created"
    ::= { cxcTraps 43 }

h323CallCreatedRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { h323CallCreated 1 }

h323CallCreatedCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallCreated 2 }

h323CallCreatedHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323CallCreated 3 }

h323CallCreatedTo OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The to: URI for the call"
    ::= { h323CallCreated 4 }

h323CallCreatedFrom OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The from: URI for the call"
    ::= { h323CallCreated 5 }
```

```
h323CallCreatedDisplay OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The display name for the endpoint that is originating
   the call"
    ::= { h323CallCreated 6 }

h323CallCreatedPAssertedIdentity OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The P-Asserted-Identity display name for the endpoint
   that is originating the call"
    ::= { h323CallCreated 7 }

h323CallCreatedRemoteIpAddress OBJECT-TYPE
    SYNTAX      IpAddress
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The h.323 destination endpoint"
    ::= { h323CallCreated 8 }

h323CallCreatedRemoteIpPort OBJECT-TYPE
    SYNTAX      INTEGER(1..65535)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The h.323 destination endpoint"
    ::= { h323CallCreated 9 }
```

H323CallDisconnected

```
h323CallDisconnected NOTIFICATION-TYPE
    OBJECTS     { h323CallDisconnectedRequestId,
   h323CallDisconnectedCookie, h323CallDisconnectedHandle,
   h323CallDisconnectedReason }
    STATUS      current
    DESCRIPTION "h323: A H.323 call leg has been disconnected"
    ::= { cxcTraps 44 }

h323CallDisconnectedRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { h323CallDisconnected 1 }

h323CallDisconnectedCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallDisconnected 2 }

h323CallDisconnectedHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323CallDisconnected 3 }

h323CallDisconnectedReason OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "the reason why this call is disconnected"
    ::= { h323CallDisconnected 4 }
```

H323CallMediaChannelsInfo

```
h323CallMediaChannelsInfo NOTIFICATION-TYPE
    OBJECTS     { h323CallMediaChannelsInfoRequestId,
   h323CallMediaChannelsInfoCookie, h323CallMediaChannelsInfoHandle,
   h323CallMediaChannelsInfoRemoteH323IpPortAddress,
   h323CallMediaChannelsInfoRemoteH323IpPortPort,
   h323CallMediaChannelsInfoCodecs }
    STATUS      current
    DESCRIPTION "h323: reporting remote TermCapInfo or ChannelsUp"
    ::= { cxcTraps 45 }

h323CallMediaChannelsInfoRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { h323CallMediaChannelsInfo 1 }

h323CallMediaChannelsInfoCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallMediaChannelsInfo 2 }

h323CallMediaChannelsInfoHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323CallMediaChannelsInfo 3 }
```

```
h323CallMediaChannelsInfoRemoteH323IpPortAddress OBJECT-TYPE
    SYNTAX      IpAddress
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Media address info for SIP to H323 media channel"
    ::= { h323CallMediaChannelsInfo 4 }

h323CallMediaChannelsInfoRemoteH323IpPortPort OBJECT-TYPE
    SYNTAX      INTEGER(1..65535)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Media address info for SIP to H323 media channel"
    ::= { h323CallMediaChannelsInfo 5 }

h323CallMediaChannelsInfoCodecs OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "list of remote H323 capabilities"
    ::= { h323CallMediaChannelsInfo 6 }
```

H323CallMediaChannelsUp

```
h323CallMediaChannelsUp NOTIFICATION-TYPE
    OBJECTS     { h323CallMediaChannelsUpRequestId,
   h323CallMediaChannelsUpCookie, h323CallMediaChannelsUpHandle,
   h323CallMediaChannelsUpContentType,
   h323CallMediaChannelsUpContent,
   h323CallMediaChannelsUpTransportValid,
   h323CallMediaChannelIsUpDtmfCapability }
    STATUS      current
    DESCRIPTION "h323: An H.323 call leg media channels are up"
    ::= { cxcTraps 46 }

h323CallMediaChannelsUpRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { h323CallMediaChannelsUp 1 }

h323CallMediaChannelsUpCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallMediaChannelsUp 2 }

h323CallMediaChannelsUpHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323CallMediaChannelsUp 3 }

h323CallMediaChannelsUpContentType OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "type of media"
    ::= { h323CallMediaChannelsUp 4 }

h323CallMediaChannelsUpContent OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "for now this is how capabilities will be expressed"
    ::= { h323CallMediaChannelsUp 5 }

h323CallMediaChannelsUpTransportValid OBJECT-TYPE
    SYNTAX      Boolean
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "if set, the content contains valid transport
   information"
    ::= { h323CallMediaChannelsUp 6 }

h323CallMediaChannelsUpDtmfCapability OBJECT-TYPE
    SYNTAX      DtmfType
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "dtmf methods supported if session-config/
   dtmf-preferences is Admin enabled"
    ::= { h323CallMediaChannelsUp 7 }
```

H323CallPeerUpdate

```
h323CallPeerUpdate NOTIFICATION-TYPE
    OBJECTS     { h323CallPeerUpdateRequestId,
   h323CallPeerUpdateCookie, h323CallPeerUpdateHandle,
   h323CallPeerUpdateUpdateType, h323CallPeerUpdateData }
    STATUS      current
    DESCRIPTION "h323: An H.323 call leg has update for peer"
    ::= { cxcTraps 47 }

h323CallPeerUpdateRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { h323CallPeerUpdate 1 }
```

```
h323CallPeerUpdateCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallPeerUpdate 2 }

h323CallPeerUpdateHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323CallPeerUpdate 3 }

h323CallPeerUpdateUpdateType OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "update for peer H323 call"
    ::= { h323CallPeerUpdate 4 }

h323CallPeerUpdateData OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "data for peer H323 call"
    ::= { h323CallPeerUpdate 5 }
```

H323CallPhaseBStalled

```
h323CallPhaseBStalled NOTIFICATION-TYPE
    OBJECTS     { h323CallPhaseBStalledRequestId,
   h323CallPhaseBStalledCookie, h323CallPhaseBStalledHandle,
   h323CallPhaseBStalledContentType, h323CallPhaseBStalledContent }
    STATUS      current
    DESCRIPTION "h323: An H.323 call leg media channels are up"
    ::= { cxcTraps 48 }

h323CallPhaseBStalledRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { h323CallPhaseBStalled 1 }

h323CallPhaseBStalledCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallPhaseBStalled 2 }
```

```
h323CallPhaseBStalledHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323CallPhaseBStalled 3 }

h323CallPhaseBStalledContentType OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "type of media"
    ::= { h323CallPhaseBStalled 4 }

h323CallPhaseBStalledContent OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "for now this is how capabilities will be expressed"
    ::= { h323CallPhaseBStalled 5 }
```

H323CallProceeding

```
h323CallProceeding NOTIFICATION-TYPE
    OBJECTS     { h323CallProceedingRequestId,
   h323CallProceedingHandle, h323CallProceedingCookie,
   h323CallProceedingContentType, h323CallProceedingContent }
    STATUS      current
    DESCRIPTION "h323: An H.323 call leg is proceeding and has some
   media info"
    ::= { cxcTraps 49 }

h323CallProceedingRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { h323CallProceeding 1 }

h323CallProceedingHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323CallProceeding 2 }

h323CallProceedingCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallProceeding 3 }

h323CallProceedingDisplay OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The display name for the endpoint that is answering
   the call"
    ::= { h323CallProceeding 4 }

h323CallProceedingPAssertedIdentity OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The P-Asserted-Identity display name for the endpoint
   that is answering the call"
    ::= { h323CallProceeding 5 }

h323CallProceedingContentType OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "type of media"
    ::= { h323CallProceeding 6 }

h323CallProceedingContent OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "for now this is how capabilities will be expressed"
    ::= { h323CallProceeding 7 }

h323CallProceedingDtmfCapability OBJECT-TYPE
    SYNTAX      DtmfType
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "dtmf methods supported if session-config/
   dtmf-preferences is Admin enabled"
    ::= { h323CallProceeding 8 }
```

H323CallProgress

```
h323CallProgress NOTIFICATION-TYPE
    OBJECTS     { h323CallProgressRequestId, h323CallProgressCookie,
   h323CallProgressHandle, h323CallProgressUuie,
   h323CallProgressContent, h323CallProgressEarlyMedia}
    STATUS      current
    DESCRIPTION "h323: An H.323 call leg has reported progress"
    ::= { cxcTraps 50}
```

```
h323CallProgressRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { h323CallProgress 1 }

h323CallProgressCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallProgress 2 }

h323CallProgressHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323CallProgress 3 }

h323CallProgressUuie OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The progress uuie"
    ::= { h323CallProgress 4 }

h323CallProgressContent OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "received sdp (if any)"
    ::= { h323CallProgress 5 }

h323CallProgressEarlyMedia OBJECT-TYPE
    SYNTAX      Boolean
    ACCESS      read-only
    STATUS      obsolete
    DESCRIPTION "received sdp (if any)"
    ::= { h323CallProgress 6 }
```

H323CallTerminated

```
h323CallTerminated NOTIFICATION-TYPE
    OBJECTS     { h323CallTerminatedRequestId,
   h323CallTerminatedCookie, h323CallTerminatedHandle,
   h323CallTerminatedCallDuration, h323CallTerminatedReason }
    STATUS      current
    DESCRIPTION "h323: A H.323 call leg has been terminated"
    ::= { cxcTraps 51}
```

```
h323CallTerminatedRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { h323CallTerminated 1 }

h323CallTerminatedCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallTerminated 2 }

h323CallTerminatedHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323CallTerminated 3 }

h323CallTerminatedCallDuration OBJECT-TYPE
    SYNTAX      TimeTicks
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "call duration"
    ::= { h323CallTerminated 4 }

h323CallTerminatedReason OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "the reason why this call is terminated"
    ::= { h323CallTerminated 5 }
```

H323CallPortRelease

```
h323CallPortRelease NOTIFICATION-TYPE
    OBJECTS     { h323CallPortReleasePoolHandle,
   h323CallPortReleasePortNumber }
    STATUS      current
    DESCRIPTION "h323: A H.323 port has been released"
    ::= { cxcTraps 59 }

h323CallPortReleasePoolHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "port pool handle"
    ::= { h323CallPortRelease 1 }
```

```
h323CallPortReleasePortNumber OBJECT-TYPE
    SYNTAX      INTEGER(0..65535)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "port number"
    ::= { h323CallPortRelease 2 }
```

H323CallPortRequest

```
h323CallPortRequest NOTIFICATION-TYPE
    OBJECTS     { h323CallPortRequestRequestId,
   h323CallPortRequestCookie, h323CallPortRequestHandle,
   h323CallPortRequestIfIndex, h323CallPortRequestIfIpAddr }
    STATUS      current
    DESCRIPTION "h323: A H.323 port has been released"
    ::= { cxcTraps 59 }

h323CallPortRequestRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requstId provided when the call was initiated”
    ::= { h323CallPortRelease 1 }

h323CallPortRequestCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallPortRelease 2 }

h323CallPortRequestHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call”
    ::= { h323CallPortRelease 3 }

h323CallPortRequestIfIndex OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Local interface for H.225 connection"
    ::= { h323CallPortRelease 4 }

h323CallPortRequestIfIpAddr OBJECT-TYPE
    SYNTAX      IpAddress
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The specific gateway server to be used"
```

```
        ::= { h323CallPortRelease 5 }
```

H323CallPortResponse

```
h323CallPortResponse NOTIFICATION-TYPE
    OBJECTS     { h323CallPortResponseRequestId,
   h323CallPortResponseCookie, h323CallPortRespondHandle,
   h323CallPortResponseH225PortPort,
   h323CallPortResponseH225PortHandle,
   h323CallPortResponseH245PortPort,
   h323CallPortResponseH245PortHandle }
    STATUS      current
    DESCRIPTION "h323: A H.323 port being returned"
    ::= { cxcTraps 63 }

h323CallPortResponseRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated”
    ::= { h323CallPortResponse 1 }

h323CallPortResponseCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallPortResponse 2 }

h323CallPortResponseHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call”
    ::= { h323CallPortResponse 3 }

h323CallPortResponseH225PortPort OBJECT-TYPE
    SYNTAX      INTEGER(0..65535)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "port-pool allocated port"
    ::= { h323CallPortResponse 4 }

h323CallPortResponseH225PortHandle OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The specific gateway server to be used"
    ::= { h323CallPortResponse 5 }

h323CallPortResponseH245PortPort OBJECT-TYPE
```

```
    SYNTAX      INTEGER(0..65535)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "port-pool allocated port"
    ::= { h323CallPortResponse 6 }

h323CallPortResponseH245PortHandle OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The specific gateway server to be used"
    ::= { h323CallPortResponse 7 }
```

H323CallRejected

```
h323CallRejected NOTIFICATION-TYPE
    OBJECTS     { h323CallRejectedRequestId, h323CallRejectedCookie,
   h323CallRejectedReason }
    STATUS      current
    DESCRIPTION "h323: A H.323 leg has been rejected"
    ::= { cxcTraps 64 }

h323CallRejectedRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated”
    ::= { h323CallRejected 1 }

h323CallRejectedCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallRejected 2 }

h323CallRejectedReason OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The reason why this call is terminated”
    ::= { h323CallRejected 3 }
```

H323CallQ931TunneledMsg

```
h323CallQ931TunneledMsg NOTIFICATION-TYPE
```

```
     OBJECTS     { h323CallQ931TunneledMsgRequestId,
    h323CallQ931TunneledMsgCookie, h323CallQ931TunneledMsgHandle,
    h323CallQ931TunneledMsgMsgType, h323CallQ931TunneledMsgQ931Msg,
    h323CallQ931TunneledMsgContent, h323CallQ931TunneledMsgEarlyMedia,
    h323CallQ931TunneledMsgH245PortPort,
    h323CallQ931TunneledMsgH245PortHandle }
     STATUS      current
     DESCRIPTION "h323: An H.323 call leg has Q931 message"
     ::= { cxcTraps 57 }

h323CallQ931TunneledMsgRequestId OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { h323CallQ931TunneledMsg 1 }

h323CallQ931TunneledMsgCookie OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The cookie provided when the call was initiated"
    ::= { h323CallQ931TunneledMsg 2 }

h323CallQ931TunneledMsgHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323CallQ931TunneledMsg 3 }

h323CallQ931TunneledMsgMsgType OBJECT-TYPE
    SYNTAX      Q931MsgType
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The Q931 message type"
    ::= { h323CallQ931TunneledMsg 4 }

h323CallQ931TunneledMsgQ931Msg OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The q931 message"
    ::= { h323CallQ931TunneledMsg 5 }

h323CallQ931TunneledMsgContent OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "received sdp (if any)"
    ::= { h323CallQ931TunneledMsg 6 }
```

```
h323CallQ931TunneledMsgEarlyMedia OBJECT-TYPE
    SYNTAX      Boolean
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "if set, this flag will cause a 183 to be generated on
   the SIP side"
    ::= { h323CallQ931TunneledMsg 7 }

h323CallQ931TunneledMsgH245PortPort OBJECT-TYPE
    SYNTAX      INTEGER(0..65535)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "port-pool allocated port"
    ::= { h323CallQ931TunneledMsg 8 }

h323CallQ931TunneledMsgH245PortHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "port handle"
    ::= { h323CallQ931TunneledMsg 9 }
```

H323SessCfgResponse

```
h323SessCfgResponse NOTIFICATION-TYPE
    OBJECTS     { h323SessCfgResponseRequestId,
   h323SessCfgResponseHandle, h323SessCfgResponseSessConfig,
   h323SessCfgResponseH225PortPort,
   h323SessCfgResponseH225PortHandle,
   h323SessCfgResponseH245PortPort,
   h323SessCfgResponseH245PortHandle,
   h323SessCfgResponseDtmfCapability }
    STATUS      current
    DESCRIPTION "h323: session config supplied"
    ::= { cxcTraps 72 }

h323SessCfgResponseRequestId OBJECT-TYPE
    SYNTAX      INTEGER (0...7294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The RequestId provided when the call was initiated"
    ::= { h323SessCfgResponse 1 }

h323SessCfgResponseHandle OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { h323SessCfgResponse 2 }
```

```
h323SessCfgResponseSessConfig OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Session config for the call-leg"
    ::= { h323SessCfgResponse 3 }

h323SessCfgResponseH225PortPort OBJECT-TYPE
    SYNTAX      INTEGER (0...65535)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "port-pool allocated port"
    ::= { h323SessCfgResponse 4 }

h323SessCfgResponseH225PortHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..65535)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "port handle"
    ::= { h323SessCfgResponse 5 }

h323SessCfbResponseH245PortPort OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "port-pool allocated port"
    ::= { h323SessCfgResponse 6 }

h323SessCfgResponseH245PortHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "port handle"
    ::= { h323SessCfgResponse 7 }

h323SessCfbResponseDtmfCapability OBJECT-TYPE
    SYNTAX      DtmfType
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "dtmf methods supported if session-config/
   dtmf-preferences is Admin enabled"
    ::= { h323SessCfgResponse 8 }
```

HeadEndSubscribed

```
headEndSubscribed NOTIFICATION-TYPE
    OBJECTS     { headEndSubscribedHeadEndAddress,
   headEndSubscribedConfiguredInterfaceCount,
   headEndSubscribedActiveInterfaceCount }
    STATUS      current
    DESCRIPTION "lb: A head-end interface has become properly
   subscribed, and therefore SIP messages are no longer being dropped"
    ::= { cxcTraps 21 }

headEndSubscribedHeadEndAddress OBJECT-TYPE
    SYNTAX      IpAddress
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The IP address of the head-end interface"
    ::= { headEndSubscribed 1 }

headEndSubscribedConfiguredInterfaceCount OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The configured number of backing interfaces"
    ::= { headEndSubscribed 2 }

headEndSubscribedActiveInterfaceCount OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The number of active backing interfaces"
    ::= { headEndSubscribed 3 }
```

HeadEndUndersubscribed

```
headEndUndersubscribed NOTIFICATION-TYPE
    OBJECTS     { headEndUndersubscribedHeadEndAddress,
   headEndUndersubscribedConfiguredInterfaceCount,
   headEndUndersubscribedActiveInterfaceCount }
    STATUS      current
    DESCRIPTION "lb: A head-end interface has become undersubscribed,
   and therefore SIP messages are being dropped"
    ::= { cxcTraps 22 }

headEndUndersubscribedHeadEndAddress OBJECT-TYPE
    SYNTAX      IpAddress
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The IP address of the head-end interface"
    ::= { headEndUndersubscribed 1 }

headEndUndersubscribedConfiguredInterfaceCount OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The configured target number of backing interfaces"
    ::= { headEndUndersubscribed 2 }

headEndUndersubscribedActiveInterfaceCount OBJECT-TYPE
```

```
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The number of active backing interfaces"
    ::= { headEndUndersubscribed 3 }
```

IMContentScanTrap

```
iMContentScanTrap NOTIFICATION-TYPE
    OBJECTS     { IMContentScanTrapFrom, IMContentScanTrapTo,
   IMContentScanTrapMatchedWordList, IMContentScanTrapAction }
    STATUS      current
    DESCRIPTION "sip: Indicates that the IM content scan found an
   expression that should be flagged"
    ::= { cxcTraps 23 }

iMContentScanTrapFrom OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The IM contact name of the sender"
    ::= { iMContentScanTrap 1 }

iMContentScanTrapTo OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The IM contact name of the receiver"
    ::= { iMContentScanTrap 2 }

iMContentScanTrapMatchedWordList OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the configured word list where the match
   was found"
    ::= { iMContentScanTrap 3 }

iMContentScanTrapAction OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The action taken"
    ::= { iMContentScanTrap 4 }
```

IncomingDtmfDigitStart

```
IncomingDtmfDigitStart NOTIFICATION-TYPE
```

```
    OBJECTS     { incomingDtmfDigitStartRequestId,
   incomingDtmfDigitStartHandle, incomingDtmfDigitStartMethod,
   incomingDtmfDigitStartDigit, incomingDtmfDigitStartVolume,
   incomingDtmfDigitStartDuration }
    STATUS      current
    DESCRIPTION "csta: an imcoming dtmf digit has been detected"
    ::= { cxcTraps 73 }

incomingDtmfDigitStartRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { incomingDtmfDigitStart 1 }

incomingDtmfDigitStartHandle OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { incomingDtmfDigitStart 2 }

incomingDtmfDigitStartMethod OBJECT-TYPE
    SYNTAX      DtmfEventType
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The method via which the DTMF digit was received"
    ::= { incomingDtmfDigitStart 3 }

incomingDtmfDigitStartDigit OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The DTMF digit received"
    ::= { incomingDtmfDigitStart 4 }

incomingDtmfDigitStartVolume OBJECT-TYPE
    SYNTAX      INTEGER (0...255)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Volume indicated for the received DTMF digit, if
   known"
    ::= { incomingDtmfDigitStart 5 }

incomingDtmfDigitStartDuration OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Estimated duration for the received DTMF digit, if
   known"
    ::= { incomingDtmfDigitStart 6 }
```

IncomingDtmfDigitUpdate

```
IncomingDtmfDigitUpdate NOTIFICATION-TYPE
    OBJECTS     { incomingDtmfDigitUpdateRequestId,
   incomingDtmfDigitUpdateHandle, incomingDtmfDigitUpdateMethod,
   incomingDtmfDigitUpdateDigit, incomingDtmfDigitUpdateVolume,
   incomingDtmfDigitUpdateDuration }
    STATUS      current
    DESCRIPTION "csta: an imcoming dtmf digit has been updated or
   completed"
    ::= { cxcTraps 74 }

incomingDtmfDigitUpdateRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { incomingDtmfDigitUpdate 1 }

incomingDtmfDigitUpdateHandle OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { incomingDtmfDigitUpdate 2 }

incomingDtmfDigitUpdateMethod OBJECT-TYPE
    SYNTAX      DtmfEventType
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The method via which the DTMF digit was received"
    ::= { incomingDtmfDigitUpdate 3 }

incomingDtmfDigitUpdateDigit OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The DTMF digit received"
    ::= { incomingDtmfDigitUpdate 4 }

incomingDtmfDigitUpdateVolume OBJECT-TYPE
    SYNTAX      INTEGER (0...255)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Volume indicated for the received DTMF digit, if
   known"
    ::= { incomingDtmfDigitUpdate 5 }

incomingDtmfDigitUpdateDuration OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Actual duration for the received DTMF digit, if known"
    ::= { incomingDtmfDigitUpdate 6 }
```

LBConfiguredAsBoth

```
lBConfiguredAsBoth NOTIFICATION-TYPE
    OBJECTS     { lBConfiguredAsBothInterfaceName,
    lBConfiguredAsBothInterfaceAddress }
    STATUS      current
    DESCRIPTION "lb: An interface has been configured as both a
    head-end and a backing, and therefore SIP load-balancing will not
    function"
    ::= { cxcTraps 24 }

lBConfiguredAsBothInterfaceName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the interface that is misconfigured"
    ::= { lBConfiguredAsBoth 1 }

lBConfiguredAsBothInterfaceAddress OBJECT-TYPE
    SYNTAX      IpAddress
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The address of the interface that is misconfigured"
    ::= { lBConfiguredAsBoth 2 }
```

LicenseExpiring

```
licenseExpiring NOTIFICATION-TYPE
    OBJECTS     { licenseExpiringName, licenseExpiringExpires }
    STATUS      current
    DESCRIPTION "system: report the imminent expiration of a license"
    ::= { cxcTraps 25 }

licenseExpiringName OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "license name"
    ::= { licenseExpiring 1 }

licenseExpiringExpires OBJECT-TYPE
    SYNTAX      TimeTicks
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "number of seconds until license expiration"
    ::= { licenseExpiring 2 }
```

MasterServiceChange

```
masterServiceChange NOTIFICATION-TYPE
    OBJECTS     { masterServiceChangeService, masterServiceChangeState}
    STATUS      current
    DESCRIPTION "system: report a master service state change"
    ::= { cxcTraps 53 }
masterServiceChangeService OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "name of the master service"
    ::= { masterServiceChange 1 }

masterServiceChangeState OBJECT-TYPE
    SYNTAX      OpState
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "new state of the master service"
    ::= { masterServiceChange 2 }
```

MasterServiceHostChange

```
masterServiceHostChange NOTIFICATION-TYPE
    OBJECTS     { masterServiceHostChangeService,
   masterServiceHostChangeHostBox, masterServiceHostChangeState }
    STATUS      current
    DESCRIPTION "system: report a master service host box state change"
    ::= { cxcTraps 54 }

masterServiceHostChangeService OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "name of the master service"
    ::= { masterServiceHostChange 1 }

masterServiceHostChangeHostBox OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "master service host box"
    ::= { masterServiceHostChange 2 }

masterServiceHostChangeState OBJECT-TYPE
    SYNTAX      OpState
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "new state of the master service host box"
    ::= { masterServiceHostChange 3 }
```

MediaSessionDroppedPackets

```
mediaSessionDroppedPackets NOTIFICATION-TYPE
    OBJECTS     { mediaSessionDroppedPacketsSessionId,
   mediaSessionDroppedPacketsDropVerify,
   mediaSessionDroppedPacketsDropRoute,
   mediaSessionDroppedPacketsDropCryptoMisc,
   mediaSessionDroppedPacketsDropCryptoAuth,
   mediaSessionDroppedPacketsDropCryptoReplay,
   mediaSessionDroppedPacketsDropInternal,
   mediaSessionDroppedPacketsThreshold }
    STATUS      current
   DESCRIPTION "sip: Indicates the dropped media packets for a session
   exceeded the threshold specified"
    ::= { cxcTraps 26 }

mediaSessionDroppedPacketsSessionId OBJECT-TYPE
    SYNTAX      Counter64
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION " Session ID for the session whose media packet drops
   exceeded the threshold"
    ::= { mediaSessionDroppedPackets 1 }

mediaSessionDroppedPacketsDropVerify OBJECT-TYPE
    SYNTAX      Counter64
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION " Number of packets dropped because of failed
   verification."
    ::= { mediaSessionDroppedPackets 2 }

mediaSessionDroppedPacketsDropRoute OBJECT-TYPE
    SYNTAX      Counter64
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION " Number of packets dropped because of bad route"
    ::= { mediaSessionDroppedPackets 3 }

mediaSessionDroppedPacketsDropCryptoMisc OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION " Number of packets dropped because of miscellaneous
   crypto errors"
    ::= { mediaSessionDroppedPackets 4 }

mediaSessionDroppedPacketsDropCryptoAuth OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
```

```
     DESCRIPTION " Number of packets dropped because of crypto
    authentication failures"
     ::= { mediaSessionDroppedPackets 5 }

mediaSessionDroppedPacketsDropCryptoReplay OBJECT-TYPE
     SYNTAX      INTEGER(0..4294967295)
     ACCESS      read-only
     STATUS      mandatory
     DESCRIPTION " Number of packets dropped because of crypto replay"
     ::= { mediaSessionDroppedPackets 6 }

mediaSessionDroppedPacketsDropInternal OBJECT-TYPE
     SYNTAX      Counter64
     ACCESS      read-only
     STATUS      mandatory
    DESCRIPTION " Number of packets dropped because of internal errors"
     ::= { mediaSessionDroppedPackets 7 }

mediaSessionDroppedPacketsThreshold OBJECT-TYPE
     SYNTAX      INTEGER(0..4294967295)
     ACCESS      read-only
     STATUS      mandatory
     DESCRIPTION " Threshold per session for dropped packets for the
    trap to be triggered"
     ::= { mediaSessionDroppedPackets 8 }
```

MediaVerificationFail

```
mediaVerificationFail NOTIFICATION-TYPE
     OBJECTS     { mediaVerificationFailSessionID,
    mediaVerificationFailSender, mediaVerificationFailFailure }
     STATUS      current
     DESCRIPTION "sip: Indicates a media stream within a call exceeds
    the expected parameters"
     ::= { cxcTraps 27 }

mediaVerificationFailSessionID OBJECT-TYPE
     SYNTAX      Counter64
     ACCESS      read-only
     STATUS      mandatory
     DESCRIPTION " SessionID associated with this media stream"
     ::= { mediaVerificationFail 1 }

mediaVerificationFailSender OBJECT-TYPE
     SYNTAX      OCTET STRING
     ACCESS      read-only
     STATUS      mandatory
     DESCRIPTION " The From: URI of the sender"
     ::= { mediaVerificationFail 2 }

mediaVerificationFailFailure OBJECT-TYPE
```

```
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION " The type of failure"
    ::= { mediaVerificationFail 3 }
```

MonitorAlert

```
monitorAlert NOTIFICATION-TYPE
    OBJECTS     { monitorAlertParameter, monitorAlertProcess,
   monitorAlertThreshold, monitorAlertValue }
    STATUS      current
    DESCRIPTION "system: report that a monitor parameter has crossed
   the configured threshold"
    ::= { cxcTraps 28 }

monitorAlertParameter OBJECT-TYPE
    SYNTAX      MonitorParameter
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "parameter being monitored"
    ::= { monitorAlert 1 }

monitorAlertProcess OBJECT-TYPE
    SYNTAX      SysProcess
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "CXC process"
    ::= { monitorAlert 2 }

monitorAlertThreshold OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "parameter threshold"
    ::= { monitorAlert 3 }
monitorAlertValue OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "parameter value"
    ::= { monitorAlert 4 }
```

OutgoingDtmfDigitStart

```
outgoingDtmfDigitStart NOTIFICATION-TYPE
    OBJECTS     { outgoingDtmfDigitStartRequestId,
   outgoingDtmfDigitStartHandle, outgiongDtmfDigitStartMethod,
   outgoingDtmfDigitStartDigit, outgoingDtmfDigitStartVolume,
   outgoingDtmfDigitStartDuration }
    STATUS      current
    DESCRIPTION "csta: a dtmf digit has begun being inserted into the
   call"
    ::= { cxcTraps 75 }

outgoingDtmfDigitStartRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { outgoingDtmfDigitStart 1 }

outgoingDtmfDigitStartHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { outgoingDtmfDigitStart 2 }

outgoingDtmfDigitStartMethod OBJECT-TYPE
    SYNTAX      DtmfEventType
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The method used to transmit the DTMF digit"
    ::= { outgoingDtmfDigitStart 3 }

outgoingDtmfDigitStartDigit OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The DTMF digit inserted"
    ::= { outgoingDtmfDigitStart 4 }

outgoingDtmfDigitStartVolume OBJECT-TYPE
    SYNTAX      INTEGER (0...255)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Volume for the transmitted DTMF digit, if known"
    ::= { outgoingDtmfDigitStart 5 }

outgoingDtmfDigitStartDuration OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Duration for the transmitted DTMF digit, if known"
    ::= { outgoingDtmfDigitStart 6 }
```

OutgoingDtmfDigitUpdate

```
outgoingDtmfDigitUpdate NOTIFICATION-TYPE
```

```
    OBJECTS     { outgoingDtmfDigitUpdateRequestId,
   outgoingDtmfDigitUpdateHandle, outgiongDtmfDigitUpdateMethod,
   outgoingDtmfDigitUpdateDigit, outgoingDtmfDigitUpdateVolume,
   outgoingDtmfDigitUpdateDuration }
    STATUS      current
    DESCRIPTION "csta: a dtmf digit has completed being inserted into
   the call"
    ::= { cxcTraps 76 }

outgoingDtmfDigitUpdateRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { outgoingDtmfDigitUpdate 1 }

outgoingDtmfDigitUpdateHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { outgoingDtmfDigitUpdate 2 }

outgoingDtmfDigitUpdateMethod OBJECT-TYPE
    SYNTAX      DtmfEventType
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The method used to transmit the DTMF digit"
    ::= { outgoingDtmfDigitUpdate 3 }

outgoingDtmfDigitUpdateDigit OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The DTMF digit inserted"
    ::= { outgoingDtmfDigitUpdate 4 }

outgoingDtmfDigitUpdateVolume OBJECT-TYPE
    SYNTAX      INTEGER (0...255)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Volume for the transmitted DTMF digit, if known"
    ::= { outgoingDtmfDigitUpdate 5 }

outgoingDtmfDigitUpdateDuration OBJECT-TYPE
    SYNTAX      INTEGER (0...4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "Duration for the transmitted DTMF digit, if known"
    ::= { outgoingDtmfDigitUpdate 6 }
```

PlayComplete

```
playComplete NOTIFICATION-TYPE
    OBJECTS     { playCompleteRequestId, playCompleteHandle,
   playCompleteFileTime, playCompletePlayedTime }
    STATUS      current
    DESCRIPTION "csta: Media played out onto a leg has completed"
    ::= { cxcTraps 29 }

playCompleteRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { playComplete 1 }

playCompleteHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { playComplete 2 }

playCompleteFileTime OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { playComplete 3 }

playCompletePlayedTime OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { playComplete 4 }
```

playFailed

```
playFailed NOTIFICATION-TYPE
    OBJECTS     { playFailedRequestId, playFailedHandle,
   playFailedReason, playFailedScanTime }
    STATUS      current
    DESCRIPTION "csta: Media has begun to be played out onto a leg"
    ::= { cxcTraps 60 }

playFailedRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { playFailed 1 }

playFailedHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { playFailed 2 }

playFailedReason OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { playFailed 3 }

playFailedScanTime OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { playFailed 4 }
```

playInitiated

```
playInitiated NOTIFICATION-TYPE
    OBJECTS     { playInitiatedRequestId, playInitiatedHandle,
   playInitiatedScanTime }
    STATUS      current
    DESCRIPTION "csta: Media has begun to be played out onto a leg"
    ::= { cxcTraps 61 }

playInitiatedRequestId OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The requestId provided when the call was initiated"
    ::= { playInitiated 1 }

playInitiatedHandle OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The handle to the call"
    ::= { playInitiated 2 }

playInitiatedScanTime OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { playInitiated 3 }
```

PresenceState

```
presenceState NOTIFICATION-TYPE
    OBJECTS     { presenceStateAddressOfRecord, presenceStateContact,
   presenceStatePresence }
    STATUS      current
    DESCRIPTION "system: Presence state notification"
    ::= { cxcTraps 58 }

presenceStateAddressOfRecord OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { presenceState 1 }

presenceStateContact OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { presenceState 2 }

presenceStatePresence OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { presenceState 3 }
```

ProcessCoreDump

```
processCoreDump NOTIFICATION-TYPE
    OBJECTS     { processCoreDumpProcess }
    STATUS      current
    DESCRIPTION "system: report that a process has begun to write a
   core dump file"
    ::= { cxcTraps 77}

processCoreDumpProcess OBJECT-TYPE
    SYNTAX      SysProcess
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "process name"
    ::= { processCoreDump 1 }
```

ProcessDead

```
processDead NOTIFICATION-TYPE
    OBJECTS     { processDeadProcess }
    STATUS      current
    DESCRIPTION "system: report that a process has been declared dead
   due to repeated faults"
    ::= { cxcTraps 78}

processDeadProcess OBJECT-TYPE
    SYNTAX      SysProcess
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "process name"
    ::= { processDead 1 }
```

ProcessDown

```
processDown NOTIFICATION-TYPE
    OBJECTS     { processDownProcess }
    STATUS      current
    DESCRIPTION "system: report that a process has gone down"
    ::= { cxcTraps 30}

processDownProcess OBJECT-TYPE
    SYNTAX      SysProcess
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "process name"
    ::= { processDown 1 }
```

ProcessFault

```
processFault NOTIFICATION-TYPE
    OBJECTS     { processFaultProcess }
    STATUS      current
    DESCRIPTION "system: report that a process has experienced a fault"
    ::= { cxcTraps 79 }

processFaultProcess OBJECT-TYPE
    SYNTAX      SysProcess
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "process name"
    ::= { processFault 1 }
```

RaidEventTrap

```
raidEvent NOTIFICATION-TYPE
    OBJECTS     { raidEventLog }
```

```
        STATUS      current
        DESCRIPTION "system: "
        ::= { cxcTraps 31}

    raidEventLog OBJECT-TYPE
        SYNTAX      OCTET STRING
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION ""
        ::= { raidEventTrap 1 }
```

RecordComplete

```
    recordComplete NOTIFICATION-TYPE
        OBJECTS     { recordCompleteRequestId, recordCompleteHandle,
       recordCompleteFileName }
        STATUS      current
        DESCRIPTION "csta: Media played out onto a leg has completed"
        ::= { cxcTraps 32}

    recordCompleteRequestId OBJECT-TYPE
        SYNTAX      OCTET STRING
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "The requestId provided when the call was initiated"
        ::= { recordComplete 1 }

    recordCompleteHandle OBJECT-TYPE
        SYNTAX      INTEGER(0..4294967295)
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "The handle to the call"
        ::= { recordComplete 2 }

    recordCompleteFileName OBJECT-TYPE
        SYNTAX      OCTET STRING
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION "The name of the recorded memo"
        ::= { recordComplete 3 }
```

SensorEvent

```
    sensorEvent NOTIFICATION-TYPE
        OBJECTS     { sensorEventSeverity, sensorEventSensor,
       sensorEventType, sensorEventDescription }
        STATUS      current
        DESCRIPTION "system: report that a sensor event has occurred"
        ::= { cxcTraps 33}

    sensorEventSeverity OBJECT-TYPE
    SYNTAX      Severity
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "event severity"
    ::= { sensorEvent 1 }

sensorEventSensor OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "sensor name"
    ::= { sensorEvent 2 }

sensorEventType OBJECT-TYPE
    SYNTAX      IPMISensorType
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "sensor type"
    ::= { sensorEvent 3 }

sensorEventDescription OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "event description"
    ::= { sensorEvent 4 }
```

SIPCallFail

```
SIPCallFail NOTIFICATION-TYPE
   OBJECTS    { SIPCallFailSessionID, SIPCallFailFrom, SIPCallFailTo,
   SIPCallFailReason, SIPCallFailAction }
    STATUS      current
    DESCRIPTION "sip: "
    ::= { cxcTraps 34}

SIPCallFailSessionID OBJECT-TYPE
    SYNTAX      Counter64
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sIPCallFail 1 }

SIPCallFailFrom OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sIPCallFail 2 }

SIPCallFailTo OBJECT-TYPE
```

```
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sIPCallFail 3 }

SIPCallFailReason OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sIPCallFail 4 }

SIPCallFailAction OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sIPCallFail 5 }
```

SipParseErrorsTrap

```
sipParseErrorsTrap NOTIFICATION-TYPE
    OBJECTS     { sipParseErrorsTrapLog }
    STATUS      current
    DESCRIPTION "system: The number of parse errors in received SIP
   messages has exceeded the configured threshold."
    ::= { cxcTraps 35 }

sipParseErrorsTrapLog OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sipParseErrorsTrap 1 }
```

SipServerEvent

```
serverEvent NOTIFICATION-TYPE
    OBJECTS     { serverEventPeer, serverEventServer, serverEventState
   }
    STATUS      current
    DESCRIPTION "sip: "
    ::= { cxcTraps 36 }

sipServerEventPeer OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sipServerEvent 1 }
```

```
sipServerEventServer OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sipServerEvent 2 }

sipServerEventState OBJECT-TYPE
    SYNTAX      ServerOpState
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sipServerEvent 3 }
```

SipServerStateChange

```
sipServerStateChange NOTIFICATION-TYPE
    OBJECTS     { sipServerStateChangeHost, sipServerStateChangePort,
   sipServerStateChangeTransport, sipServerStateChangeState }
    STATUS      current
    DESCRIPTION "sip: "
    ::= { cxcTraps 52}

sipServerStateChangeHost OBJECT-TYPE
    SYNTAX      IpAddress
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sipServerStateChange 1 }

sipServerStateChangePort OBJECT-TYPE
    SYNTAX      INTEGER(0..65535)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sipServerStateChange 2 }

sipServerStateChangeTransport OBJECT-TYPE
    SYNTAX      SIPTransport
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sipServerStateChange 3 }

sipServerStateChangeState OBJECT-TYPE
    SYNTAX      ServerOpState
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { sipServerStateChange 4 }
```

SkbUsageTrap

```
skbUsage NOTIFICATION-TYPE
    OBJECTS     { skbUsageLog }
    STATUS      current
    DESCRIPTION "system: An increase in the SKB usage indicates a
   possible depletion of system resources"
    ::= { cxcTraps 65 }

skbUsageLog OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
DESCRIPTION ""
    ::= { skbUsage 1 }
```

StorageDeviceFull

```
storageDeviceFull NOTIFICATION-TYPE
    OBJECTS     { storageDeviceFullDevice, storageDeviceFullSeverity,
   storageDeviceFullMountPoint, storageDeviceFullDiskSize,
   storageDeviceFullDiskFree }
    STATUS      current
   DESCRIPTION "system: The CXC attempted to record media but the free
   space is less than the configured threshold"
    ::= { cxcTraps 37 }

storageDeviceFullDevice OBJECT-TYPE
    SYNTAX      CXCPartitions
    ACCESS      read-only
    STATUS      mandatory
DESCRIPTION "The device type"
    ::= { storageDeviceFull 1 }

storageDeviceFullSeverity OBJECT-TYPE
    SYNTAX      Severity
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The severity of this condition"
    ::= { storageDeviceFull 2 }

storageDeviceFullMountPoint OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The path to where this device is mounted"
    ::= { storageDeviceFull 3 }

storageDeviceFullDiskSize OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The total capacity of the disk in MB"
    ::= { storageDeviceFull 4 }

storageDeviceFullDiskFree OBJECT-TYPE
    SYNTAX      INTEGER(0..4294967295)
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The remaining free space in MB"
    ::= { storageDeviceFull 5 }
```

SynCookiesTrap

```
synCookies NOTIFICATION-TYPE
    OBJECTS     { synCookiesLog }
    STATUS      current
    DESCRIPTION "system: "
    ::= { cxcTraps 38 }

synCookiesLog OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION ""
    ::= { synCookiesTrap 1 }
```

SystemHalt

```
systemHalt NOTIFICATION-TYPE
    STATUS      current
    DESCRIPTION "system: report that a system halt has been initiated"
    ::= { cxcTraps 39 }
```

TcpSkbCongestionDroppedPktsTrap

```
tcpSkbCongestionDroppedPkts NOTIFICATION-TYPE
    OBJECTS     { tcpSkbCongestionDroppedPktsLog }
    STATUS      current
    DESCRIPTION "system: TCP packets dropped due to SKB congestion
   indicates a possible depletion of system resources"
    ::= { cxcTraps 66 }

tcpSkbCongestionDroppedPktsLog OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
DESCRIPTION ""
    ::= { tcpSkbCongestionDroppedPkts 1 }
```

VxBind

```
vxBind NOTIFICATION-TYPE
    OBJECTS     { vxBindVx, vxBindHost }
    STATUS      current
    DESCRIPTION "system: report a VX interface state change"
    ::= { cxcTraps 55 }

vxBindVx OBJECT-TYPE
    SYNTAX      VXName
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "VX interface"
    ::= { vxBind 1 }

vxBindHost OBJECT-TYPE
    SYNTAX      InterfaceName
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "host interface"
    ::= { vxBind 2 }
```

VxUnbind

```
vxUnbind NOTIFICATION-TYPE
    OBJECTS     { vxUnbindVx }
    STATUS      current
    DESCRIPTION "system: report a VX interface state change"
    ::= { cxcTraps 56 }

vxUnbindVx OBJECT-TYPE
    SYNTAX      VXName
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "VX interface"
    ::= { vxUnbind 1 }
```

WebServiceAvailablityChange

```
webServiceAvailablityChange NOTIFICATION-TYPE
    OBJECTS     { webServiceAvailablityChangeServer,
   webServiceAvailablityChangeNewState,
   webServiceAvailablityChangeOldState }
    STATUS      current
    DESCRIPTION "system: A remote web service has changed availability"
    ::= { cxcTraps 40}

webServiceAvailablityChangeServer OBJECT-TYPE
    SYNTAX      OCTET STRING
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The name of the server whose availability has changed"
    ::= { webServiceAvailablityChange 1 }

webServiceAvailablityChangeNewState OBJECT-TYPE
    SYNTAX      ServiceAvailability
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The new state of the server"
    ::= { webServiceAvailablityChange 2 }

webServiceAvailablityChangeOldState OBJECT-TYPE
    SYNTAX      ServiceAvailability
    ACCESS      read-only
    STATUS      mandatory
    DESCRIPTION "The previous state of the server"
    ::= { webServiceAvailablityChange 3 }
```

Appendix B. Events

Event messages

This appendix lists the categories of messages that may appear in the device event log.

3GPP Events

Event Name	Severity	Displayed Text
rx_aaa_error	error	%s\\%s Rx AAA session %016llx:%u %u %s
rx_aaa_unknown	error	%s\\%s Rx AAA session %016llx:%u %u %s (unknown Session-ID)
rx_sta_error	error	%s\\%s Rx STA session %016llx:%u %u %s
rx_sta_unknown	error	%s\\%s Rx STA session %016llx:%u %u %s (unknown Session-ID)
rx_asr_unknown	error	%s\\%s Rx ASR session %016llx:%u %u %s (unknown Session-ID)
tx_asa_error	error	%s\\%s Tx ASA session %016llx:%u %s
rx_rar_unknown	error	%s\\%s Rx RAR session %016llx:%u %u %s (unknown Session-ID)
tx_raa_error	error	%s\\%s Tx RAA session %016llx:%u %u %s
apply_yes	info	session %016llx %s party '%s' gets 3GPP Rx policy applied: %s
apply_no	info	session %016llx %s party '%s' does not get 3GPP Rx policy applied: %s
tx_aar	notice	%s\\%s Tx AAR session %016llx:%u %s
rx_aaa_success	notice	%s\\%s Rx AAA session %016llx:%u %u %s
tx_str	notice	%s\\%s Tx STR session %016llx:%u %u %s
rx_sta_success	notice	%s\\%s Rx STA session %016llx:%u %u %s
rx_asr	notice	%s\\%s Rx ASR session %016llx:%u %s
tx_asa_success	notice	%s\\%s Tx ASA session %016llx:%u %s
rx_rar	notice	%s\\%s Rx RAR session %016llx:%u %u %s
tx_raa_success	notice	%s\\%s Tx RAA session %016llx:%u %u %s
rar_none	notice	session %016llx: received Re-Auth-Request with reason %d (%s); taking no action
rar_reauth	notice	session %016llx: received Re-Auth-Request with reason %d (%s); attempting to re-authenticate by sending a new AA-Request
rar_disconnect	notice	session %016llx: received Re-Auth-Request with reason %d (%s); disconnecting call

Access Events

Event Name	Severity	Displayed Text
secret_missing	error	The secret %s is missing:
attemptlimit	error	Access for '%s' has been locked after %d failed login attempts
directoryerror	error	Enterprise directory '%s' returns '%s'
allow	info	Access to %s allowed for '%s'
logout	info	%s exit for '%s'
deny	notice	Access to %s denied for '%s'
expiredpassword	warning	The password for '%s' expired at %s

Accounting Events

Event Name	Severity	Displayed Text
recorderrors	crit	Write errors have occurred on a total of %u records
archive_unable_to_save	crit	Target%s is unable to save %s containing records %llu to %llu as %s; reason: %s
target_blocked	crit	Target %s is blocked at %llu/%llu and cannot process any more CDRs because the maximum of %u archives that can be saved locally on failure is met or exceeded. Delete saved archives to enable further processing.
process_accounting_request	debug	Processing accounting request for %s: CDR file range %s/%s - %s/%s
accounting_response	debug	Sending accounting response ‘%s’ for ‘%s’: Last CDR: %s/%s
missing_driver	error	The database driver for %s is missing: %s
rollover_failed	error	Failed to rollover file %s: %s, record(s) %llu to %llu
failed_init	error	Failed to initialize: %s
config_failed	error	Failed to configure vsp %s: %s
badfield	error	Illegal field for report %s: %s
badmatch	error	Illegal match expression for report %s

Event Name	Severity	Displayed Text
secret_failure	error	Failed to get secret for server %s, %s Target ‘%s’ failed to send file %s to %s
file_send_failed	error	Target '%s' failed to send file %s to %s (try %d, records %llu to %llu), error is '%s', retrying in %u:%02u minutes
target_register_failed	error	Target '%s' failed to register with accounting server (%s)
target_unregister_failed	error	Target '%s' failed to unregister with accounting server (%s)
file_send_failed_final	error	Target '%s' failed to send file %s to %s (try %d, records %llu to %llu), error is '%s'
save_failed	error	Target '%s' failed to process CDR %s, error is '%s'
flush_failed	error	Flush action for target '%s' failed, error is %s.
reapply_failure	error	Target '%s' failed to process reapply action, reason: %s, CDR file range: %s/%s - %s/%s
unreachable	error	Target '%s' is not reachable
missing_records	error	Target '%s': Records %s to %s are missing, maybe due to a purge
duration_negative	error	Call duration calculated to be %d seconds
disconnect_time_invalid	error	Disconnect time %s prior to Connect Time %s
archive_create_failure	error	Target %s failed to create %s for record %llu/%llu, session: %016llx, reason: %s
archive_error	error	Target %s, record %llu/%llu, session %016llx, encountered error while performing operation %s, reason: %s
file_send_notify_failed	error	Failed to notify to target ‘%s’. Error is ‘%s’. Send result for record %llu was %s.
raw_media_not_deleted	error	Target’$s’, record %llu, not deleting raw media because media operations did not succeed.
mem_alloc_failure	error	Internal error (Failed to allocate memory (class: %s, type: %u))
start	info	Started the accounting service
stop	info	Stopped the accounting service

Event Name	Severity	Displayed Text
db_disabled	info	The database server %s in group %s is disabled
radius_disabled	info	The radius server %s in group %s is disabled
syslog_disabled	info	The syslog server %s in group %s is disabled
radius_group_disabled	info	The radius group %s is disabled
database_group_disabled	info	The database group %s is disabled
syslog_group_disabled	info	The syslog group %s is disabled
disabled	info	Accounting is disabled
not_configured	info	Accounting is not configured
directorydelete	info	Deleting accounting directory %s: %s
target_register_success	info	Target '%s' registered with accounting server
target_unregister_success	info	Target '%s' unregistered with accounting server
rollover_filesystem	info	Rolling over. Target '%s' wrote %llu record(s) in file %s (records %llu to %llu)
rollover_filesystem_zero	info	Rolling over. Target '%s' did not receive any records. File %s is not created
file_sending	info	Target '%s' sending file %s to %s (try %d, records %llu to %llu). File has %llu records
purge_archive	info	Target %s, saved archive %s with modified time %s is deleted because it is older than %s
purgestart_archive	info	Performing a purge for target’%s’ on %s, for archives prior to ‘%s’
purgecomplete_archive_none	info	Completed a purge for target ‘%s’ on %s, for archives prior to ‘%s’. %u archives deleted
archive_send_success	info	Target ‘%s’ successfully sent archive %s to %s (try %d, record %llu to %llu). File has %llu record(s)
directorychange	notice	Changing accounting directory %s
purgestart	notice	Performing a purge on %s, for records prior to '%s'
purgecomplete	notice	Completed a purge on %s, %u record(s) deleted
purgeerror	notice	Error during purge on %s: %s

Event Name	Severity	Displayed Text
file_send_success	notice	Target '%s' successfully sent file %s to %s (try %d, records %llu to %llu). File has %llu record(s)
purge_output_file	notice	Purged %s, last modified at %s
purgestart_filesystem	notice	Performing a purge for target '%s' on %s, for files prior to '%s'
purgecomplete_filesystem	notice	Completed a purge for target '%s' on %s, %llu file(s) deleted
purgeerror_filesystem	notice	Error during purge on %s: %s, target '%s'
flush_not_handled	notice	Target '%s' does not handle flush action
flush_handled	notice	Target '%s' is handling flush action
flush_externalfs_nothing_to do	notice	Target '%s' has nothing to do for flush. Target has nothing to rollover and is not waiting to resend
reapply_handled	notice	Target '%s' is handling reapply action
reapply_success	notice	Target '%s' successfully processed reapply action, CDR file range: %s/%s - %s/%s
reachable	notice	Target '%s' is reachable.
reconfig	notice	Handling reconfiguration with respect to '%s' changes
flush_fs_config_nothing_to do	notice	Target '%s' is processing a config change and will not handle flush. Retry later
reapply_fs_config_nothing_todo	notice	Target '%s' is processing a config change and will not handle reapply. Retry later
flow_on	notice	Handling flow ON request, current state is %s time: %s.
flow_off	notice	Handling flow OFF request, current state is %s time: %s
cli_flow_on	notice	Handling CLI flow ON request, current state is %s
cli_flow_off	notice	Handling CLI flow OFF request, current state is %s
processed_flow_on	notice	Processed flow ON. Latest state is %s
processed_flow_off	notice	Processed flow OFF. Latest state is %s

Event Name	Severity	Displayed Text
sync_flow_control	notice	Re-synchronizing internal flow control at startup to %s, current state is %s
purgecomplete_archive	notice	Completed a purge for target ‘%s’ on %s, for archives prior to ‘%s’. %u archive(s) deleted
failed	warning	Failed to log to %s: %s
failed_to_log	warning	Failed to log %s to Ts: %s
diskfull	warning	Device for %s is %u%% full...performing a purge
files_left	warning	Target '%s' is deleted. Files more recent than %d day(s) need to be purged manually from %s
mixed_media_error	warning	Target %s failed to include mixed media in %s for record %llu/%llu, session: %016llx, reason: %s
archive_saved	warning	Target %s, saved %s containing records %llu to %llu as %s (failure was: %s)

Archiving Events

Event Name	Severity	Displayed Text
error	error	An error occurred while archiving for vsp %s: %s
endpoint_failure	info	Failed to archive to %s: %s
mix_problem	error	Problem mixing session %s: %s
archive_create_error	error	Create archive error. Thread=%d, %s, start/end free memory=%s. %s
start	info	Archiving started for vsp %s
stop	info	Archiving complete for vsp %s
queue_action	notice	Queuing archive action for vsp %s
complete_action	notice	Archive action completed: %s records.

Authentication Events

Event Name	Severity	Displayed Text
error_means_accept	notice	session %016llx authentication for user '%s' resulted in an error (%s); translating to Accept as specified in configuration

Certificate Events

Event Name	Severity	Displayed Text
cert_missing	error	entry %s: certificate file '%s' not found
ca_missing	error	entry %s: certificate authority file '%s' not found
crl_missing	error	entry %s: certificate revocation list file '%s' not found
cert_format	error	entry %s: certificate file '%s' format not recognized (must be PEM or PKCS#12)
cert_pkey	error	entry %s: certificate file '%s' does not contain a valid private key

Event Name	Severity	Displayed Text
cert_before	error	entry %s: certificate file '%s' not yet valid; it becomes valid %s
cert_expired	error	entry %s: certificate file '%s' expired %s
cert_expiring_now	error	entry %s: certificate file '%s' expiring very soon (%s)
cert_decrypt	error	entry %s: certificate file '%s' decrypt error; passphrase is likely incorrect
cert_expiring	warning	entry %s: certificate file '%s' is expiring soon (%s)

Cluster Events

Event Name	Severity	Displayed Text
version_mismatch	error	Box %s version mismatch (%s, %s, %s); cannot be joined *Boxes have incompatible message structures (version mismatch), and therefore cannot be joined.*
missing_intf	error	No cluster interface found - mark box %d as disabled
begin	info	Beginning cluster
end	info	Ending cluster

CMS Events

Event Name	Severity	Displayed Text
actiontimeout	error	%s executed action %s. No response received
add	info	%s added %s
edit	info	%s edited %s
delete	info	%s deleted %s
update	info	%s updated live configuration on %s
save	info	%s saved configuration on %s
include	info	%s included %s in %s for %s
remove	info	%s removed %s from %s in %s
action	info	%s executed action %s
import	info	%s imported configuration from file %s
export	info	%s exported configuration to file %s
open	info	%s loaded configuration on %s
createKeyStore	info	%s created keystore %s
genKeyCert	info	Generated alias %s key and self signed certificate in keystore %s
requestSignCert	info	Generated certificate signing request for %s in keystore %s
updateCert	info	updated certificate %s in keystore %s

Event Name	Severity	Displayed Text
importKeyStore	info	%s imported keystore %s
openKeyStore	info	%s opened keystore %s for editing
reloadKeyStore	info	%s reloaded keystore %s
saveKeyStore	info	%s saved keystore %s
deleteKeyStore	info	%s deleted keystore %s
passwordKeyStore	info	%s changed password for keystore %s
importKey	info	%s imported key or certificate %s into keystore %s
deleteKey	info	%s deleted key or certificate %s in keystore %s
policyWizard	info	%s generated %s settings in rule %s in policy %s
template	info	%s executed %s template for %s
editTemplate	info	%s edited template %s
no_priv_exec_template	warning	User %s has insufficient permissions to execute template %s

CNX Events

Event Name	Severity	Displayed Text
alert	alert	%s
crit	crit	%s
debug	debug	%s
emerg	emerg	%s
error	error	%s
info	info	%s
notice	notice	%s
warning	warning	%s

Collection Events

Event Name	Severity	Displayed Text
error	error	%s
failure	error	Collect action failed: %s
progress	info	%s
invoked	warning	Collect action invoked with the following arguments: \n%.*s\n
success	warning	Collect action succeeded after %d.%03d seconds; file ‘%s’ is %u bytes

Database Events

Event Name	Severity	Displayed Text
alert	alert	%s
crit	crit	%s
debug	debug	%s
emerg	emerg	%s
error	error	%s
info	info	%s

Event Name	Severity	Displayed Text
notice	notice	%s
warning	warning	%s

DIAMETER Events

Event Name	Severity	Displayed Text
pended	debug	request %08x pended; server %s has %u outstanding
deactivated	error	group %s server %s deactivated (%s)
none_allowed	error	Listener on %s (port %d, application %s) does not have any allowed peers configured
peer_rejected	error	Listener on %s (port %d, application %s) rejects incoming connection from %s, which is not in the configured list of allowed peers
host_rejected	error	Incoming connection from %s specified Host-IP-Address %s, which is not in the configured list of allowed peers; disconnecting
cred_type	error	request %08x (user %s, session ID %016llx) specifies credentials type %s; only Digest is supported by Diameter
incoming_app	error	listener on %s (port %d) is configured for application %s; rejecting incoming connection from %s
outgoing_app	error	group %s peer %s is configured for application %s, which is not supported by the remote peer
cea_error	error	group %s peer %s received CEA with Diameter error %d (%s)
incoming_tls	error	security mismatch: listener on %s (port %d) is configured for %s, peer %s says %s; disconnecting
outgoing_tls	error	security mismatch: group %s peer %s is configured for %s, peer says %s; disconnecting
rx_timeout	error	group %s peer %s gets timeout after reading %u bytes of a %u-byte message; disconnecting
no_ref	error	request on session %016llx (%s -> %s) has no Diameter group reference; configuration is likely incorrect

Event Name	Severity	Displayed Text
bad_ref	error	request on session %016llx (%s -> %s) has bad Diameter group reference (ID %d, string '%s'); configuration is likely incorrect
watchdog	error	group %s peer %s has not responded to %u consecutive watchdog messages; disconnecting
peer_accepted	info	Listener on %s (port %d, application %s) allows incoming connection from %s
host_accepted	info	Incoming connection from %s specified Host-IP-Address %s; connection will proceed
posted	info	request %08x posted to server %s as ID %u; timeout %u ms, retries remaining %u
submitted	notice	request %08x submitted to group %s; user %s, session ID %016llx
assigned	notice	request %08x assigned to server %s
resubmitted	notice	request %08x resubmitted to group %s (server %s %s)
completed	notice	request %08x completed; user %s, session ID %016llx, result %u (%s), time %u milliseconds
activated	warning	group %s server %s activated (%s)
clipped	warning	request %08x clipped; server %s queue length (%u) is at its limit (%u)
timeout	warning	request %08x timed out after %u milliseconds waiting for server %s

DIAMETER Traffic Events

Event Name	Severity	Displayed Text
debug	debug	%s
info	info	%s
notice	notice	%s

Directory Events

Event Name	Severity	Displayed Text
user_filtered	debug	The user %s was filtered from phantom %s
group_filtered	debug	The group %s was filtered from phantom %s
ignoring_no_derived_address	debug	Ignoring user %s on phantom %s, no derived sip address
master_configured	debug	Master is configured as %s
master_resolved	debug	Master resolved to %s
master_instantiated	debug	Master instantiated as %s
resolved_reference	debug	Reference %s resolved to %s
user	debug	User %s retrieved for %s
group	debug	Group %s retrieved for %s
uri	debug	Provider %s URI: %s
db_address_does_not_exist	debug	User address %s does not exist
db_name_does_not_exist	debug	User name %s does not exist
db_created_user_id	debug	Created user id %s
db_persisted_profile	debug	Persisted profile for %s in %sms
db_persisted_user	debug	Persisted user for %s in %sms
ignoring_unknown_action_request	debug	Ignoring unknown action request %s
good_user_creds	debug	Good credentials for user %s
bad_user_creds	debug	Bad credentials for user %s
denying_login_attempt	debug	Denying attempt to login with blank password for user %s

Event Name	Severity	Displayed Text
no_provider_for_directory	debug	No provider for %s
reset_failed	error	Failed to reset provider %s: %s
bad_config	error	Failed to connect providers, configuration aborted: %s
ignoring_provider	error	Ignoring provider %s: %s
retry_connect	error	Retrying failed provider %s: %s
ignoring_exception	error	Ignoring exception configuring provider %s: %s
retry_n_failed	error	Retry %n for provider %s failed: %s
retries_failed	error	All retries failed for provider %s
parent_not_found	error	The parent provider %s in %s was not found
invalid_parent	error	The parent provider %s in %s is a circular reference
master_not_resolved	error	Failed to resolve master %s
name_collision	error	Name collision between %s and %s
unresolved_reference	error	Unresolved reference %s
no_value	error	Reference %s has no value
failed_to_get_group	error	Failed to get group %s from %s: %s
failed_group_lookup	error	Failed group lookup for %s: %s
failed_user_lookup	error	Failed user lookup for %s: %s
invalid_enum	error	Invalid ENUM address %s for %s
invalid_lookup	error	Invalid lookup for %s: %s
db_failed_prepared_statements	error	Failed to create prepared statements: %s
db_failed_user_name	error	Failed to get user name %s: %s
db_failed_create	error	Failed to create internal database: %s
db_purge_failed	error	Database purge failed: %s
directory_not_found	error	Referenced directory %s not found in server %s
not_ready	error	The directory server is not ready but has been requested to do work: %s
address_mising_attribute	error	Required sip attribute '%s' is missing from %s but is required in %s

Event Name	Severity	Displayed Text
failed_to_init	error	Failed to init the directory service: %s
failed_to_create_indices	error	Failed to create indices on directory tables: %s
failed_to_resolve_reference	error	Failed to resolve '%s': %s
failed_to_resolve_group	error	Failed to resolve %s into %s
failed_to_start_server	error	Failed to start server: %s
failed_to_produce_userrecords_file	error	Failed to produce user records xml file: %s
data_loading_error	error	%s
start	info	***Started the directory service
stop	info	Stopped the directory service
reset	info	Provider %s reset
directory_disabled	info	Directory %s is disabled
server_disabled	info	Server %s is disabled
unmapped_primary_group_id	info	Unmapped primary group id %s for user %s in %s
unresolved_group	info	Ignoring unresolved group %s in %s in directory %s
users	info	Retrieved %s users from %s in %sms
groups	info	Retrieved %s groups from %s in %sms
start_config	info	Starting configuration for %s
end_config	info	Configuration complete for %s: %sms
directories_up	info	Directories are up for %s: %sms
users_persisted	info	Persisted %s users for %s in %sms (%sms per user)
resolved_address	info	Resolved the address %s as belonging to user %s
resolving_address	info	Attempting to resolve the address %s
completed_to_write_userrecords_file	info	User records file %s write completed and saved in %s seconds
started_users_load	info	Started user records loading from %s
started_groups_load	info	Started group records loading from %s

Event Name	Severity	Displayed Text
users_loaded	info	%s users from %s loaded to database in %s seconds
groups_loaded	info	%s groups from %s loaded to database in %s seconds
failed_to_load_users	info	Failed to load users records for %s because %s
failed_to_load_groups	info	Failed to load groups records for %s because %
data_loading_status	info	%s
ignoring_invalid_derived_address	warning	Ignoring user %s on phantom %s, invalid derived sip address
ignoring_no_domains	warning	Ignoring provider %s which has no domains configured
failed_reverse	warning	Failed to reverse host name %s
failed_to_parse_alias	warning	Failed to parse alias %s
unmapped_group_ids	warning	Unmapped group ids %s found in %s
ignoring_no_address	warning	Ignoring user %s from %s, no sip address
unknown_user_in_group	warning	Unknown user %s in group %s for directory %s

DNS Events

Event Name	Severity	Displayed Text
failed_to_resolve	error	Failed to resolve, name: %s, type: %s, result: %s
failed_to_resolve_short	error	Failed to resolve, name: %s
failed_to_load_config	error	Failed to load %s config: %s %s, result: %s
failed_to_unload_config	error	Failed to unload %s config: %s %s, result: %s
server_marked_down	error	Server %s is marked as Down. dead-count has exceeded dead-threshold of %d
server_marked_up	notice	Server %s is marked as Up. dead-interval exceeded since server was marked as Down
input_warn	warning	Unexpected input, name is empty, type: A, resolved as: %s
failed_to_reverse	warning	Failed to reverse %s

Denial of Service (DOS) Events

Event Name	Severity	Displayed Text
trigger	alert	Query %s %s (%u in %us) triggered defense #%llu; %u instances of [%s]
untrigger	alert	Query %s %s (%u in %us) removed defense #%llu [%s] due to inactivity
invalid_select	error	Query %s %s has no properties selected for observation, and is thus not configured properly. This query will not be run until at least one property is selected for observation
query_begin	notice	Query %s %s (%u in %us) executing; %u seconds of data to analyze
query_end	notice	Query %s %s (%u in %us) completed in %u.%03u seconds; %u defenses triggered
query_end2	notice	Analyzed %u records, %u instances; %u unique entries, maximum hits %u

DOS Database Events

Event Name	Severity	Displayed Text
data_translation_failed	alert	translation of data to new call leg tables failed
data_translation_cost_too_high	alert	translation of data to new call leg tables is cancelled because the cost is too high
corruption_detected	alert	Database corruption detected
corruption_repaired	alert	Database corruption repaired. Use 'database repair data-recovery' to attempt data recovery
data_backedup	alert	Database backed up as %s after unclean shutdown
open_failed	crit	Unable to open system database
corruptionrepair_failed	crit	Unable to repair database corruption: %s
maintenance_failure_detail	error	system database maintenance failed during %s(%s): %s
maintenance_failure_summary	error	system database maintenance(%s) encountered %d failures
maintenance_running	error	operation (%s) failed because another system database operation is already running
restore_failed	error	restore of %s database failed, %s
backup_failed	error	backup of %s database failed, %s
upgrade_failed	error	upgrade command for %s failed: %s
restore_success	info	restore of %s database succeeded
backup_success	info	backup of %s database succeeded
upgrade_success	info	upgrade command for %s succeeded: %s
upgrade_unnecessary	info	upgrade command for %s unnecessary: %s
maintenance_start	notice	system database maintenance(%s) started
maintenance_success	notice	system database maintenance(%s) completed successfully
corruption_notdetected	notice	No database corruption detected
corruption_detecting	warning	Checking for database corruption

SIP DOS Events

Event Name	Severity	Displayed Text
create	alert	Creating Denial-of-Service sip rule '%s', count %d
delete	alert	Deleting Denial-of-Service sip rule '%s'
needuserservices	error	sip policy '%s' requires vsp user-services to be enabled
needdirectory	error	sip policy '%s' requires master-services directory to be enabled

Transport DOS Events

Event Name	Severity	Displayed Text
create	alert	Creating Denial-of-Service sip rule '%s', count %d
delete	alert	Deleting Denial-of-Service transport rule '%s'

URL DOS Events

Event Name	Severity	Displayed Text
create	alert	Creating Denial-of-Service sip rule '%s', count %d
tofrom	alert	url %s was sent from %s Ts to %s
delete	alert	Deleting Denial-of-Service url rule '%s'

EPS Events

Event Name	Severity	Displayed Text
req_resources	crit	Request (%s -> %s, session ID %llx) from %s fails to allocate resources
req_bad_group	crit	Request (%s -> %s, session ID %llx) from %s specifies missing group %s (record %u)

Event Name	Severity	Displayed Text
req_missing_group	crit	Request (%s -> %s, session ID %llx) from %s does not specify an external-policy group
server_event	debug	Group %s server %s in state %s gets event %s
server_state	debug	Group %s server %s changes state %s -> %s
conn_event	debug2	Connection %s in state %s gets event %s
conn_state	debug	Connection %s changes state %s -> %s
req_rx_200_data	debug	Received %u bytes: %.*s
server_config_uri	error	Group %s server %s has no service-url configured; cannot start
server_config_scheme	error	Group %s server %s has an invalid service-url (not http: or https:); cannot start
server_config_host	error	Group %s server %s has an invalid service-url (not host name); cannot start
dns_timeout	error	Group %s server %s get DNS request timeout for '%.*s'; check DNS resolver configuration
dns_failure	error	Group %s server %s gets DNS error for host name '%.*s'
conn_route	error	Connection %s can't find route to %s; cannot connect
conn_failed	error	Connection %s failed to establish %s connection to %s
conn_timeout	error	Connection %s timed out while establishing %s connection to %s
keepalive_error	error	Connection %s keepalive request (GET %s) gets error: %.*s; please check keepalive page configuration
keepalive_timeout	error	Connection %s keepalive request (GET %s) timed out; disconnecting
keepalive_disconnect	error	Connection %s keepalive request (GET %s) got disconnected without a reply
req_clipped	error	Request %08x (%s -> %s, session ID %llx) gets queue-clipped; group %s has %u requests pending

Event Name	Severity	Displayed Text
req_empty_group	error	Request %08x (%s -> %s, session ID %llx) specifies group %s, which has no servers that are configured and enabled
req_timeout1	error	Request %08x (%s -> %s, session ID %llx) on connection %s timed out; will disconnect
req_timeout2	error	Request %08x (%s -> %s, session ID %llx) on group %s timed out while on pending queue
req_disconnect	error	Request %08x (%s -> %s, session ID %llx) got disconnected without a reply on connection %s
req_soap_error	error	Request %08x (%s -> %s, session ID %llx) received error parsing SOAP/XML response from connection %s: %s
req_rx_error	error	Request %08x (%s -> %s, session ID %llx) on connection %s got error response (%.*s)
req_rx_error_data	error	Received %u bytes: %.*s
req_result_bad	error	Request %08x (%s -> %s, session ID %llx) gets final result %s (handle %p)
keepalive_tx	info	Connection %s keepalive request (GET %s) sent
keepalive_ok	info	Connection %s keepalive request (GET %s) gets 200 OK
req_created	info	Request %08x (%s -> %s, session ID %llx) created for %s (handle %p)
req_submitted	info	Request %08x (%s -> %s, session ID %llx) submitted to group %s; now %u pending (%u maximum)
req_posted		Request %08x (%s -> %s, session ID %llx) posted to connection %s
req_rx_200	info	Request %08x (%s -> %s, session ID %llx) on connection %s got 200 OK response (%u.%03u seconds)
req_result_good	info	Request %08x (%s -> %s, session ID %llx) gets final result %s (handle %p)
conn_start	notice	Connection %s initiating %s connection to %s

Event Name	**Severity**	**Displayed Text**
conn_success	notice	Connection %s established %s connection to %s
new_enabled	warning	New-style external policy service is enabled; creating configured groups, servers, and connections in the Manager process. Future requests will be sent via the Manager process
new_disabled	warning	New-style external policy service is disabled; destroying all groups, servers, and connections. Future requests will be sent via the Java-based WS process
group_created	warning	Group %s created (connection mode %s)
group_destroyed	warning	Group %s destroyed
server_created	warning	Group %s server %s created (priority %u, max connections %u)
server_changed	warning	Group %s server %s %sconfiguration changed
server_admin	warning	Group %s server %s admin changed %s -> %s; restart required
server_scheme	warning	Group %s server %s URI scheme changed %s -> %s; restart required
server_host_ip	warning	Group %s server %s URI host IP address changed %s -> %s; restart required
server_host_name	warning	Group %s server %s URI host name changed %.*s -> %.*s; restart required
server_host_port	warning	Group %s server %s URI host port %u -> %u; restart required
server_mode	warning	Group %s server %s connection mode changed %s -> %s; adjustments may be required
server_destroyed	warning	Group %s server %s destroyed
dns_request	warning	Group %s server %s posts DNS request for host name '%.*s'
dns_success	warning	Group %s server %s DNS lookup for '%.*s' succeeds with %u address(es)
dns_result	warning	%2u: %s
conn_created	warning	Connection %s created (mode %s)

Event Name	Severity	Displayed Text
conn_destroyed	warning	Connection %s destroyed
conn_now_persists	warning	Connection %s is now persistent; initiating connection
conn_now_transient	warning	Connection %s is now transient; initiating disconnection
conn_fewer	warning	Group %s server %s connection count changed %u -> %u; destroying connection %s
conn_more	warning	Group %s server %s connection count changed %u -> %u; creating new connection
conn_disconnect	warning	Connection %s was disconnected by remote host; mode is %s; will%s reconnect
req_rx_empty	warning	Request %08x (%s -> %s, session ID %llx) received 200 OK response with no contents
req_rx_null	warning	Request %08x (%s -> %s, session ID %llx) received 200 OK response with no session configuration information

File Transfer Events

Event Name	Severity	Displayed Text
abort	error	Transfer aborted from %s to %s
ok	info	Transfer ok from %s to %s
deleted	info	File %s from session %llx has been deleted
timeout	info	File %s from session %llx hit inactivity timeout
blocked	notice	Transfer blocked from %s to %s: policy
delete_old	notice	Deleted %u old files in %u seconds
msn_badbye	warning	MSNFTP: Invalid BYE parameter %s received
lock_failed	warning	Files transferred under session %llx will be deleted

General Events

Event Name	Severity	Displayed Text
alert	alert	%s
crit	crit	%s
debug	debug	%s
emerg	emerg	%s
error	error	%s
info	info	%s
notice	notice	%s
warning	warning	%s

H.323 Failed Call Events

Event Name	Severity	Displayed Text
callcrit	crit	Desc: %s, Error: %s
callerror	error	Desc: %s, Error: %s
failedcallhistory	error	[call %p %s] %s
callinfo	info	Desc: %s

H.323 Process Events

Event Name	Severity	Displayed Text
generalcrit	crit	Desc: %s, Error: %s
heartbeat	crit	%s, last known healthy time %u, current time %u
generalerror	error	Desc: %s, Error: %s
invalidip	error	%s ip: %s, intf: %s, transport: %s, port: %u
generalinfo	info	Desc: %s

H.323 RAS Events

Event Name	Severity	Displayed Text
raserror	error	GK: %p Error: %s - %s
rasinfo	info	GK: %p - %s - %p
listeninfo	info	GK: %p Listener: %p - %s
raswarning	warning	GK: %p Warning: %s - %s
gkstartstop	warning	GK: %p State: %s - % - Caller %p

Install Events

Event Name	Severity	Displayed Text
debug	debug	%s
entry	info	%s

IP Events

Event Name	Severity	Displayed Text
routeError	error	Static route %s failed!
routeGatewayError	error	Static route gateway address %s not reachable from local interface %s
invalidTrustedPeer	error	Invalid trusted peer address %s on %s
route	info	%s static route %s gateway %s

IPSec Events

Event Name	Severity	Displayed Text
tunnel	error	ipsec-tunnel error- %s
invalidtunnel	error	Add ipsec-tunnel config error %s; %s -> %s, %s -> %s
transport	error	ipsec-transport error- %s
sa	error	ipsec-sa-%s

Event Name	Severity	Displayed Text
key	error	ipsec-key-%s
ipsec	info	Generic log- %s

Java Events

Event Name	Severity	Displayed Text
debug	debug	%s
error	error	%s
info	info	%s
warn	warning	%s
exception	warning	Caught Exception: %s

Kernel Client Events

Event Name	Severity	Displayed Text
pkt_size	alert	session ID %llx to %s: pkt with size %u not in range %u-%u
pkt_size_unknown	alert	session ID %llx to %s: pkt with size %u not in range
pkt_rate	alert	session ID %llx to %s: stream exceeded pkt rate %u
ptk_rate_unknown	alert	session ID %llx to %s: stream exceeded pkt rate
verify_rtp	alert	session ID %llx to %s: %u non-RTP or unprofiled RTP packets
verity_rtcp	alert	session ID %llx to %s: %u bad RTCP packets
mem	crit	Out of memory
adding	debug	%u: adding: %s
added	debug	%u: added
addFailed	debug	%u: add-failed
MXadded	debug	%u: MX-added %s/%s
MXaddFailed	debug	%u: MX-add-Failed %s/%s
changing	debug	%u: changing
changed	debug	%u: changed
changeFailed	debug	%u: change-failed
MXchanged	debug	%u: MX-changed %s/%s

Event Name	Severity	Displayed Text
MXchangeFailed	debug	%u: MX-change-failed %s/%s
deleting	debug	%u: deleting
deleted	debug	%u: deleted
deleteFailed	debug	%u: delete-failed
MXdeleted	debug	%u: MX-deleted %s/%s
MXdeleteFailed	debug	%u: MX-delete-failed %s/%s
badmoduleversion	error	Invalid version string found in module %s
modulenotloaded	error	Expected module is not loaded
rmmod	error	Unable to unload module %s
createdev	error	Unable to create kernel device
opendev	error	Unable to create kernel device
mmap	error	Unable to memory map kernel device
write	error	Unable to write to kernel module: %s
read	error	(%s) Unable to read from kernel module: %s
client	error	Unexpected problem with kernel: %s
trailer	error	Command trailer failed verification
badcmd	error	Unknown command read from device
badinst	error	Bad Instance Handle
badver	error	Module version mismatch
ruleinuse	error	Unable to delete rule since it appears to be in use
addfailure	error	Error adding rule to kernel: %s (%s)
moduleload	info	Loaded kernel module %s
src_addr_change	info	session ID %llx to %s: Source address changed to %s from %s
failmoduleload	warning	Unable to load kernel module %s: %s
seq	warning	Unexpected sequence number - reset
squish	warning	Problem squishing rule: %s (%s)

Kernel SIP Events

Event Name	Severity	Displayed Text
mem	crit	Out of memory
modulenotloaded	error	Expected module is not loaded
opendev	error	Unable to open kernel device
read	error	(%s) Unable to read from kernel module: %s
client	error	Unexpected problem with kernel: %s
trailer	error	Command trailer failed verification
badcmd	error	Unknown command read from device
badinst	error	Bad Instance Handle
badver	error	Module version mismatch
seq	warning	Unexpected sequence number - reset

Kernel System Events

Event Name	Severity	Displayed Text
alert	alert	%s
crit	crit	%s
debug	debug	%s
emerg	emerg	%s
error	error	%s
info	info	%s
notice	notice	%s
warning	warning	%s

Load Balancing Events

Event Name	Severity	Displayed Text
build_tree	crit	Kernel reports error building rule tree: %s
if_create_local	debug	Local interface %s created; IP address %s, current op state %s

Event Name	Severity	Displayed Text
if_create_remote	debug	Remote interface %s created; initializing op state to down
if_update	debug	Interface %s has been reported %s by %s; was %s (owner %s)
if_update_unknow	debug	Interface %s has been reported %s by %s, but the interface cannot be found
if_observer	debug	Local interface %s has been reported %s on physical interface %s
if_observer_change	debug	Local interface %s (%s on %s) has changed from %s to %s
if_request_tx	debug	Requesting interface op-state updates from %s (%p)
if_request_rx	debug	%s has requested interface op-state updates
if_replying	debug	Sending interface op-state update to %s (%p)
if_reply	debug	Telling %s that local interface %s (%s) is %s
if_fixup	debug	Interface %s (%s) is local and up; ignoring %s from %s
hash_changed	error	Head-end interface %s changed hash function from %s to %s; hash table will be recalculated, which will affect connectivity
undersubscribed	error	Head-end interface %s is undersubscribed (%u active of %u configured); connectivity will be limited until all backing interfaces are active
rule_write_error	error	Failed to write kernel rule: %s %s port %u
rule_erase_error	error	Failed to remove kernel rule %p: %s %s port %u (%s)
if_self		Interface %s (%s) is configured to be its own backing interface; interface will be ignored
rule_written	info	Kernel rule handle %p written: %s %s port %u
rule_erased	info	Kernel rule handle %p removed: %s %s port %u
if_disabled	info	Interface %s (%s) is configured as a backing interface to %s (%s), but is disabled, and thus will not be used

Event Name	Severity	Displayed Text
backing_added	notice	Interface %s has been added as a backing interface to head-end interface %s
backing_removed	notice	Interface %s has been removed as a backing interface to head-end interface %s
head_end_created	warning	Head-end interface %s activated with %u backing interfaces; hash function %s
head_end_destroyed	warning	Head-end interface %s is no longer configured for load-balancing
subscribed	warning	Head-end interface %s now fully subscribed; all of its %u configured backing interfaces are active
backing_died	warning	backing interface %s is down; process %s has gone down
backing_up	warning	interface %s, a backing interface to %s, has been reported up by %s
backing_down	warrning	interface %s, a backing interface to %s, has been reported down by %s
backing_move	warning	interface %s, a backing interface to %s, appears to have failed over from box %s to box %s
becomes_master	warning	This box has become the master for the load-balance service
not_master	warning	This box is no longer the master for the load-balance service
rewrite_action	warning	The 'load-balancing rewrite-rules' action has been executed; all kernel rules will be rewritten, but this will likely not disrupt load-balancing functionality
routing_table	warning	The SIP service routing table has changed; all kernel rules will be rewritten, but this will likely not disrupt load-balancing functionality

Route-Server Events

Event Name	Severity	Displayed Text
all_done	debug	All done. No file to load
operation_started	debug	*** Operation started, caller %p
operation_ended	debug	*** Operation ended, caller %p
inprogress	error	Action %s ignored: an action (%s) is already in progress
routeset_load_failed	error	Failed to load route-set from %s: %s
action_failed	error	Action \'%s\' failed with error: %s.
routeset_read_failed	error	Failed to read %s: %s
file_get_failed	error	Failed to get %s from route-server master: %s
backup_delete_failed	error	Failed to delete route set %s on box %u: %s
invalid_entry	error	Invalid entry found in file %s while importing: %s
propagate_failed	error	Failed to update %s: %s
cancel_peer_unresponsive	error	Rolling back operation because peer %s did not respond in %u tries
action_success	info	Action \'%s\' succeeded.
scheduled_activate_execute	info	Activate scheduled for %s is executing
slave_report	info	%s gets peer report %s
wait_status	info	Notify from box %u; waiting for %u more
wait_start	info	Wait for %s for 20 secs, try %u (%s!)
save_state	info	Save state: box %s -> (%s, %s)
master_request	info	%s gets Master request %s %s %s
report_to_master	info	Report to master: box %s -> (%s, %s)
master_request_nothing_to_do	info	Master request %s: Nothing to do
routeset_load_success	notice	Loaded %u routes from %s
master_stop	notice	Switching to route-server slave mode
master_start	notice	Switching to route-server master mode

Event Name	Severity	Displayed Text
activate_scheduled	notice	Activate for new route set %s is scheduled for %s
routeset_read_success	notice	Read %u entries from %s. Time taken is %s
file_get_success	notice	Fetched %s of size %u. Time taken is %s
backup_delete_success	notice	Deleted backup route set %s
activated	notice	Activated new route set %s with %u routes
wait_start_summary	notice	Waiting for %u peers
loading	notice	Loading %s
pulling_file	notice	Pulling file %s from master
file_overwrite	notice	File %s activated at %s of size %u bytes is being overwritten by file of same name with size %u bytes
file_exists	notice	Processing %s available locally since name and size of file in new request matches. Size is %u bytes
ignore_peer_response	notice	Ignoring response from peer %u since we were not waiting for a response
member	notice	Box is a route-server host. Sending notification
not_member	notice	Box is no longer a route-server host. Sending notification
wait_for_peer_success	notice	Wait for %s (box %u) for %u secs, try %u
wait_for_peer_failed	notice	Wait for %s (box %u) for %u secs, try %u failed. (%s)
file_backed_up	notice	File %s (%u routes, %u bytes, activated at %s) is replaced by active file %s. Old file %s is backed up in %s
max_routes	warning	Maximum routes %u reached
samefile	warning	Action to replace file in route-server directory (%s) is ignored
peer_unresponsive	warning	Peer %s did not respond in try %u

Route-Server Import Events

	Severity	Displayed Text
did_import_db_failure	error	Failed to commit DIDs to database (initiated by %s): %s
did_import_error	error	Perform import DIDs error: %s
did_purge_failure	error	Failed to purge DIDs (initiated by %s): %s
did_purge_template_error	error	Failed to purge DID templates (initiated by %s): %s
did_restore_failure	error	Failed to restore DIDs from file %s (initiated by %s), too many errors
did_restore_error	error	Restore DIDs from file %s (initiated by %s) error: %s
did_backup_failure	error	Failed to back up DIDs (initiated by %s). 0 records were backed up
did_backup_error	error	Failed to back up DIDs (initiated by %s) due to error: %s
did_add_error	error	Failed to add DID (%s), initiated by %s: %s
did_edit_error	error	Failed to edit DID from (%s) to (%s), initiated by %s: %s
did_delete_error	error	Failed to delete DID (%s), initiated by %s
did_generate_error	error	Failed to generate DIDs (initiated by %s): %s
did_add_split_error	error	Failed to add split DID (%s), initiated by %s: %s
update_server_error	error	Failed to update server %s (initiated by %s): %s
update_revert_server_error	error	Failed to update (revert) server %s (initiated by %s): %s
rates_import_db_failure	error	Failed to commit Rates to database initiated by %s): %s
rates_import_error	error	Perform import rates error: %s
rates_purge_failure	error	Failed to purge Rates (initiated by %s): %s
rates_purge_templates_failure	error	Failed to purge Rate Templates (initiated by %s): %s
rates_restore_failure	error	Failed to restore Rates (initiated by %s), too many errors. filename=%s

	Severity	Displayed Text
rates_restore_error	error	Restore Rates (initiated by %s) from file (%s) error: %s
rates_backup_failure	error	Restore Rates (initiated by %s) from file (%s) error: %s
rates_backup_error	error	Filed to backup Rates (initiated by %s) due to error: %s
intralate_rates_import_failure	error	Failed to import Intra LATA Rates. Action initiated by %s
lata_rates_import_failure	error	Failed to import LATA Rates to NPA.NXX. Action initiated by %s
regioncode_import_failure	error	Failed to import Region Code to Dial Code. Action initiated by %s
db_failed_create	error	Failed to create internal database: %s
data_loading_error	error	%s
region_import_failure	error	Failed to import region code from file %s (initiated by %s). %s
lata_import_failure	error	Failed to import LATA from file %s (initiated by %s). %s
no_crypto	error	No crypto store is provided for authentication
no_crypto_password	error	No crypto store password is provided for authentication
did_replace_error	error	Failed to replace DID ranges from (%s) to (%s), initiated by %s: %s
cancel_update_failure	error	Failed to cancel update on server %s, initiated by %s, because %s
get_routes_failure	error	Failed to retrieve routes from server %s, initiated by %s, because %s
cancel_get_routes_failure	error	Failed to cancel retrieving routes on server %s, initiated by %s, because %s
start	info	The route-server import service started
stop	info	The route-server import service stopped
web_start	info	Web server started
web_start_failed	info	Web server failed to start
web_stop	info	Web server stopped
web_start_failed	info	Web server failed to start

	Severity	Displayed Text
web_stop	info	Web server stopped
did_import_db_start	info	Import DIDs to database started (initiated by %s)
did_import_db_success	info	Successfully imported DIDs to database (initiated by %s). %s
did_import_cancel	info	%s canceled Import DIDs successfully
did_purge_start	info	Purge DIDs started (initiated by %s).
did_purge_success	info	Successfully purged DIDs (initiated by %s); purged %d records
did_purge_template_start	info	Purge DID templates started (initiated by %s).
did_purge_template_success	info	Successfully purged DID templates (initiated by %s); purged %d records
did_restore_start	info	Restoring DIDs started (initiated by %s).
did_restore_success	info	Successfully restored DIDs from file %s (initiated by %s). %s
did_backup_start	info	Backup DIDs started (initiated by %s).
did_backup_success	info	Successfully backed up DIDs (initiated by %s). %s
did_add_success	info	Successfully added DID (initiated by %s) (%s)
did_edit_success	info	Successfully updated DID (initiated by %s) from (%s) to (%s).
did_delete_success	info	Successfully deleted DID (%s), initiated by %s
did_generate_success	info	Successfully generated DIDs (initiated by %s). %s
did_add_split_success	info	Successfully added split DID (initiated by %s) (%s)
update_server_success	info	Successfully updated server %s (initiated by %s), %d records inserted; used SSH for copying (%s)
activate_server_success	info	Successfully activated routes on server %s (initiated by %s), %d records inserted
update_revert_server_success	info	Successfully updated (revert) server %s (initiated by %s), %d records inserted; used SSH for copying (%s)

	Severity	Displayed Text
rates_import_db_start	info	Import Rates to database started (initiated by %s).
rates_import_db_success	info	Successfully imported Rates to database (initiated by %s). %s
rates_import_cancel	info	%s canceled Import Rates successfully.
rates_purge_start	info	Purge Rates started (initiated by %s).
rates_purge_success	info	Successfully purged Rates (initiated by %s); purged %d records
rates_purge_templates_start	info	Purge Rate templates started (initiated by %s).
rates_purge_templates_success	info	Successfully purged Rate Templates (initiated by %s); purged %d records
rates_restore_start	info	Resting Rates started (initiated by %s).
rates_restore_success	info	Successfully restored Rates (initiated by %s) from file (%s). %s
rates_backup_start	info	Backup Rates started (initiated by %s).
rates_backup_success	info	Successfully backed up Rates (initiated by %s). %s
intralata_rates_import_success	info	Successfully imported Intra LATA Rates. Action initiated by %s
lata_rates_import_success	info	Successfully imported LATA Rates to NPA.NXX. Purged existing records (%s). Action initiated by %s
regioncode_import_success	info	Successfully imported Region Code to Dial Code. Purged existing records (%s). Action initiated by %
db_ready	info	Internal database: %s is ready for use
data_loading_status	info	%s
login	info	%s login
logout	info	%s logout
region_import_success	info	Successfully imported region code from file %s (initiated by %s). %s
lata_import_success	info	Successfully imported LATA from file %s (initiated by %s). %s

	Severity	Displayed Text
did_replace_success	info	Successfully replaced DID ranges (initiated by %s) from (%s) to (%s).
cancel_update_success	info	Successfully cancelled update on server %s, initiated by %s
get_routes_success	info	Successfully retrieved routes (files:%s) from server %s, initiated by %s. Overall %s entries inserted.
cancel_get_routes_success	info	Successfully cancelled retrieving routes from server %s, intitiated by %s.
restore_get_routes	info	Successfully restored %d DID and rates entries to database from backup
norestore_get_routes	info	No restore from backup performed
user_cancel_get_routes	info	User (%s) canceled get routes from server %s after viewing filenames.
user_cancel_update_routes	info	User (%s) canceled update routes to server %s after presenting filename.
did_import_stop	warning	Stopped import DIDs, too many failures
rates_import_stop	warning	Stopped import Rates, too many failures
login_failure	warning	%s login failure. %s

Management Events

Event Name	Severity	Displayed Text
actionexecinternal	debug	‘%s’ action executed internally: %s
badchildfilter	error	Filter ‘%s%s’ will be ignored because it has higher permission than parent filter ‘%s%s’
invalidfilter	error	Filter '%s' is invalid. Invalid token is '%s'
badactionfilter	error	Filter '%s' is invalid.
badactionfilter_nameonly	error	Filter '%s' is invalid. Specify action name without paramaters
changeproperty	info	'%s\\%s' changed by %s via %s: %s
changepropertyanon	info	'%s\\%s' changed: %s
changeconfig	notice	'%s' configuration changed by %s via %s
changeconfiganon	notice	'%s' configuration changed
actionexec	notice	'%s' action executed by %s via %s: %s
actionexecanon	notice	'%s' action executed: %s

Media Anchoring Events

Event Name	Severity	Displayed Text
disconnect_bac_peer	error	Disconnecting session %llx, invalid anchoring configuration peer_target=%s
disconnect_bad_anchor_source	error	Disconnecting session %llx, media resource allocation failed, anchor_source=%s target=%s tag=%s
disconnect_bad_anchor_target	error	Disconnecting session %llx, media resource allocation failed, anchor_target=%s target=%s tag=%s
disconnect_no_resource	error	Disconnecting session %llx, unable to allocate mstream
no_delete	error	Unable to delete file %s
disconnect_no_media_proxy	error	Disconnecting session %llx, unable to find media-proxy for target %s, tag %s

Event Name	Severity	Displayed Text
ignored_dtmf	error	Session %llx, leg %u dropped DTMF event-id=%u: last event only started %u msecs ago (%u msec minimum)
report_no_media	info	Session %llx, leg %u (%s), stream %u(%s) had no media packets
directory_clean	notice	Deleted %u empty directories in %u seconds
no_recording	notice	Not recording session %llx: %s - %s
delete_old	notice	Deleted %u old files in %u seconds
invalid_file	notice	Invalid file: %s

Messaging System Events

Event Name	Severity	Displayed Text
session_attach_socket	error	session %s already has socket handle %p attached - caller %p
session_create	info	Session %s (%s) (handle %p) created by %p, %p
session_destroy	info	Session %s (%s) (handle %p) destroyed by %p, %p
cluster_notice	notice	Box %s notice: %s (%u successes, %u errors)
box_created	warning	Box %s (handle %p) has been created by %p: %s
box_destroyed	warning	Box %s (handle %p) has been destroyed by %p: %s
socket_attach	warning	Session %s (handle %p) gets socket %d (handle %p) from %p
socket_detach	warning	Session %s (handle %p) loses socket %d (handle %p) from %p
socket_error	warning	Session %s (handle %p) has socket %d (handle %p); ignoring socket %d (handle %p) from %p

MIKEY Events

Event Name	Severity	Displayed Text
auth_failure	error	Session 0x%016llx MIKEY authentication failure
invalid_ts	error	Session 0x%016llx invalid MIKEY timestamp
invalid_prf	error	Session 0x%016llx invalid MIKEY Pseudo-Random Function (PRF)
invalid_mac	error	Session 0x%016llx invalid MIKEY Message Authentication Code (MAC)
invalid_ea	error	Session 0x%016llx unsupported MIKEY encryption algorithm

Event Name	Severity	Displayed Text
invalid_ha	error	Session 0x%016llx unsupported MIKEY hash algorithm
invalid_dh	error	Session 0x%016llx unsupported MIKEY Diffie-Hellman group
invalid_id	error	Session 0x%016llx unsupported MIKEY Identifier
invalid_cert	error	Session 0x%016llx unsupported MIKEY Certificate
invalid_sp	error	Session 0x%016llx unsupported MIKEY Security Parameter
invalid_sppar	error	Session 0x%016llx unsupported MIKEY Security Parameter value
invalid_dt	error	Session 0x%016llx unsupported MIKEY data type
unspecified	error	Session 0x%016llx unspecified MIKEY error
unsupported	error	Session 0x%016llx unparsable MIKEY message
invalid_encoding	error	Session 0x%016llx unsupported MIKEY encoding, probably not base-64
invalid_version	error	Session 0x%016llx unsupported MIKEY version
missing_payload	error	Session 0x%016llx missing required MIKEY payload
missing_csmap	error	Session 0x%016llx missing requested MIKEY CSMAP
missing_required	error	Session 0x%016llx missing required MIKEY message
missing_tls	error	Session 0x%016llx missing required TLS for MIKEY message
miscellaneous	error	Session 0x%016llx unknown

Messaging Events

Event Name	Severity	Displayed Text
box_keepalive_failure	crit	Box %s reached keepalive failure limit %d (%d seconds); bringing box down
pb_depletion	crit	All PB buffers are depleted, see more details in crash report %s
cluster_if	error	Could not find a route to box %s; perhaps the appropriate interface does not have messaging enabled
process_keepalive_failure	error	Session %s reached keepalive failure limit %d (%d seconds); bringing session down
cluster_failure	error	Box %s error: %s (%u successes, %u errors)
session_attach_socket	error	session %s already has socket handle %p attached - caller %p
session_create	info	Session %s (%s) (handle %p) created by %p, %p
session_destroy	info	Session %s (%s) (handle %p) destroyed by %p, %p
cluster_notice	notice	Box %s notice: %s (%u successes, %u errors)
cluster_success	notice	Box %s connected successfully (%u successes, %u errors)
hello_checksum	notice	Received connection attempt from %s with a checksum mismatch; this process is running an incompatible software version
hello_yourself_checksum	notice	Connected to %s, but with a checksum mismatch; this process is running an incompatible software version
box_created	warning	Box %s (handle %p) has been created by %p: %s
box_destroyed	warning	Box %s (handle %p) has been destroyed by %p: %s
socket_attach	warning	Session %s (handle %p) gets socket %d (handle %p) from %p

Event Name	Severity	Displayed Text
socket_detach	warning	Session %s (handle %p) loses socket %d (handle %p) from %p
socket_error	warning	Session %s (handle %p) has socket %d (handle %p); ignoring socket %d (handle %p) from %p

MX Events

Event Name	Severity	Displayed Text
alert	alert	%s
crit	crit	%s
debug	debug	%s
emerg	emerg	%s
error	error	%s
info	info	%s
notice	notice	%s
warning	warning	%s

Netfilter Events

Event Name	Severity	Displayed Text
FirewallHole	error	Netfilter kernel rule refused rule src %s:%d dst %s:%d proto %d, too permissive
CreateKernelRule	notice	Netfilter creating kernel rule - source %s:%d dest %s:%d proto %d intf %s
DeleteKernelRule	notice	Netfilter deleting kernel rule - source %s:%d dest %s:%d proto %d intf %s
warning	warning	Netfilter kernel rule warning: %s

PktLog Events

Event Name	Severity	Displayed Text
stats	error	%s@%s: Discarded %llu %s pkts within previous %u seconds
blacklist	error	%s@%s: Blacklist %s:%u Discarded %llu %s pkts within previous %u seconds

Event Name	Severity	Displayed Text
packet	notice	%s@%s: Discarded pkt: %s:%u -> %s:%u, Proto: %s
track_port	notice	%s@%s: %u %s ports hit within previous %u seconds. %s

Presence Events

Event Name	Severity	Displayed Text
debug	debug	%s
bwSessionStarted	debug	BroadWorks session for %s (session %s) on %s started
bwSessionEnded	debug	BroadWorks session for %s (session %s) on %s ended
failed_to_connect	error	Failed to connect to server: %s reason: %s
error	error	%s
bwConnectFailure	error	Connection to BroadWorks server %s failed: %s
moc_Reset_Failed	error	Unable to reset all the MOC clients. %s
moc_Update_Failed	error	Unable to reset all the MOC clients. %s
moc_Search_Failed	error	Unable to change the state of the MOC client. %s
moc_Device_Not_Found	error	Specified URI not found in MOC cache. %s
moc_Keepalive_Timeout	error	MOC keepalive timer expired. %s
moc_Session_NotConnected	error	MOC session not connected. %s
moc_Session_Torn_Down	error	MOC session torn down: %s
serverConnectFailure	error	Connection to %s server %s failed
start	info	Started the External Presence service
stop	info	Stopped the External Presence service
info	info	%s
bwConnect	info	Connecting to BroadWorks server %s
serverConnected	info	Start connection to %s server for config %s
serverDisabled	info	Disabling connection to %s server for config %s
serverDeleted	info	Disabling deleted connection to %s server for config %s
warn	warning	%s
exception	warning	Caught Exception: %s

Pushlet Eventpush Events

Event Name	Severity	Displayed Text
start	info	Started the eventpush service
stop	info	Stopped the eventpush service

RADIUS Events

Event Name	Severity	Displayed Text
pended	debug	request %08x pended; server %s has %u outstanding
attribute	debug	%s
ignore_attribute	debug	Session ID %016llx user '%s' ignoring attribute %d (%s) received from %s
deactivated	error	group %s server %s deactivated (%s)
timeout	error	request %08x timed out after %u ms, server %s; %u retries remaining
write_error	error	request %08x error on socket %d; wrote %u of %u bytes; %u retries remaining
dup_error	error	request %08x failed to duplicate %u-byte buffer; %u retries remaining
too_short	error	Rx from %s is %u bytes long; too short to be a RADIUS message
too_short2	error	Rx from %s is %u bytes long; RADIUS header says it is %u bytes; ignoring
rx_auth	error	Rx %-16s ID %-3u %4u bytes from %s fails authentication; likely a shared-secret mismatch
bad_id	error	Received %s ID %d from %s; can't find corresponding request; ignoring
prioritized_config	error	Group %s is in Prioritized mode, but servers %s and %s both have the same priority (%d). Please assign a unique priority to each server in this group
object_name	error	Unknown CXC-Object name '%s' received from %s for user %s

Event Name	Severity	Displayed Text
property_name	error	Unknown property '%s' in CXC-Object '%s' received from %s for user %s; ignoring object
property_value	error	Invalid value '%s' for property '%s' in CXC-Object '%s' received from %s for user %s; ignoring object
sess_property_name	error	Unknown property '%s' in session config object '%s' received from %s for user %s
sess_property_value	error	Invalid value '%s' for session config object '%s' property '%s' received from %s for user %s (%s)
no_ref	error	request on session %016llx (%s -> %s) has no RADIUS group reference; configuration is likely incorrect
bad_ref	error	request on session %016llx (%s -> %s) has bad RADIUS group reference (ID %d, string '%s'); configuration is likely incorrect
posted	info	request %08x posted to server %s as ID %u; timeout %u ms, retries remaining %u
traffic	info	%s
sess_property_set	info	Session ID %016llx user '%s' gets session config property: %s %s %s
submitted	notice	request %08x submitted to group %s; user %s, session ID %016llx
assigned	notice	request %08x assigned to server %s
resubmitted	notice	request %08x resubmitted to group %s (server %s %s)
completed	notice	request %08x completed; user %s, session ID %016llx, result %u (%s), time %u milliseconds
activated	warning	group %s server %s activated (%s)
clipped	warning	request %08x clipped; server %s queue length (%u) is at its limit (%u)

Received RTCP Events

Event Name	Severity	Displayed Text
badpktprocess	info	Invalid packet received from %s - Attempting to process
badpkt	notice	Invalid packet received from %s - Dropping
badhdr	notice	Packet with invalid RTCP header received from %s - Aborting
problem	notice	Problem processing packet received from %s

RTCP Generate from RTP

Event Name	Severity	Displayed Text
generalcrit	crit	Desc: %s, Error: %s
generalerror	error	Desc: %s, Error: %s

Real Time Protocol Events

Event Name	Severity	Displayed Text
anchor_disconnect_bad_peer	error	Disconnecting session %llx, invalid anchoring configuration peer_target=%s
anchor_disconnect_bad_anchor_source	error	Disconnecting session %llx, invalid anchoring configuration anchor_source=%s
anchor_disconnect_bad_anchor_target	error	Disconnecting session %llx, invalid anchoring configuration anchor_target=%s
blocked	error	Disconnecting session %llx, no allowed media types left
unlicensed	error	Media not sent due unlicensed %s codec
unmixable	error	Session %llx not mixed due to an internal error
unlicensed_session	error	Session %llx not mixed due to an unlicensed coded
deleted	info	Recorded media from session %llx (stream %u; channel %u) has been deleted

Event Name	Severity	Displayed Text
unplayable	notice	Session %llx not mixed due to unplayable RTP
codec_auto_size	warning	Pkt size verification 'automatic' invalid for unknown media type %s - disabling
codec_auto_rate	warning	Pkt rate verification 'automatic' invalid for unknown media type %s - disabling

SDP Events

Event Name	Severity	Displayed Text
encode	error	Session %llx unable to encode SDP into buffer
unknown_lines	error	Session %llx Unknown lines found
port_full_limit_reached	error	Ports allocated has reached full-limit for card %s, processor %s, full-limit is %d
parse_errors	error	Session %llx Unable to proceed due to errors in the parse module
bad_username	error	Session %llx provided bad username='%s'

Sensor Events

Event Name	Severity	Displayed Text
physical_security_0	alert	general chassis intrusion
physical_security_1	alert	drive bay intrusion
physical_security_2	alert	I/O card area intrusion
physical_security_3	alert	processor area intrusion
physical_security_5	alert	unauthorized dock/undock
physical_security_6	alert	fan area intrusion
event_logging_disabled_4	alert	log full
management_subsystem_health_0	alert	sensor access degraded or unavailable
management_subsystem_health_1	alert	controller access degraded or unavailable
management_subsystem_health_2	alert	management controller off-line
management_subsystem_health_3	alert	management controller unavailable
management_subsystem_health_4	alert	sensor failure
management_subsystem_health_5	alert	FRU failure

Event Name	Severity	Displayed Text
event_threshold_4	alert	lower non-recoverable going low
event_threshold_5	alert	lower non-recoverable going high
event_threshold_10	alert	upper non-recoverable going low
event_threshold_11	alert	upper non-recoverable going high
badprocessor	crit	%s: %s
processor_7	debug	presence detected
processor_8	debug	disabled
processor_9	debug	terminator presence detected
processor_10	debug	throttled
power_supply_0	debug	presence detected
power_supply_1	debug	failure detected
power_supply_6_0	debug	config error: vendor mismatch
power_supply_6_1	debug	config error: revision mismatch
power_supply_6_2	debug	config error: processor missing
power_supply_6	debug	config error
power_unit_0	debug	power off/down
power_unit_1	debug	power cycle
power_unit_2	debug	240VA power down
power_unit_3	debug	interlock power down
power_unit_5	debug	soft-power control failure
power_unit_6	debug	failure detected
memory_0	debug	correctable ECC
memory_1	debug	uncorrectable ECC
memory_2	debug	parity
memory_3	debug	memory scrub failed
memory_4	debug	memory device disabled
memory_5	debug	correctable ECC logging limit reached
memory_6	debug	presence detected
memory_7	debug	configuration error
memory_8	debug	spare
memory_9	debug	throttled

Event Name	Severity	Displayed Text
drive_slot_0	debug	drive present
drive_slot_1	debug	drive fault
drive_slot_2	debug	predictive failure
drive_slot_3	debug	hotspare
drive_slot_4	debug	parity check in progress
drive_slot_5	debug	in critical array
drive_slot_6	debug	in failed array
drive_slot_7	debug	rebuild in progress
drive_slot_8	debug	rebuild aborted
system_firmware_progress_2_0	debug	unspecified
system_firmware_progress_2_1	debug	memory initialization
system_firmware_progress_2_2	debug	hard-disk initialization
system_firmware_progress_2_3	debug	secondary CPU Initialization
system_firmware_progress_2_4	debug	user authentication
system_firmware_progress_2_5	debug	user-initiated system setup
system_firmware_progress_2_6	debug	USB resource configuration
system_firmware_progress_2_7	debug	PCI resource configuration
system_firmware_progress_2_8	debug	option ROM initialization
system_firmware_progress_2_9	debug	video initialization
system_firmware_progress_2_10	debug	cache initialization
system_firmware_progress_2_11	debug	SMBus initialization
system_firmware_progress_2_12	debug	keyboard controller initialization

Event Name	Severity	Displayed Text
system_firmware_progress_2_13	debug	management controller initialization
system_firmware_progress_2_14	debug	docing station attachment
system_firmware_progress_2_15	debug	enabling docking station
system_firmware_progress_2_16	debug	docking station ejection
system_firmware_progress_2_17	debug	disabling docking station
system_firmware_progress_2_18	debug	calling operating system wake-up vector
system_firmware_progress_2_19	debug	system boot initiated
system_firmware_progress_2_20	debug	motherboard initialization
system_firmware_progress_2_21	debug	reserved
system_firmware_progress_2_22	debug	floppy initialization
system_firmware_progress_2_23	debug	keyboard test
system_firmware_progress_2_24	debug	pointing device test
system_firmware_progress_2_25	debug	primary CPU initialization
system_firmware_progress_2	debug	unknown progress
event_logging_disabled_0	debug	correctable memory error logging disabled
event_logging_disabled_1	debug	event logging disabled
event_logging_disabled_3	debug	all event logging disabled
watchdog_1_0	debug	BIOS reset
watchdog_1_1	debug	OS reset
watchdog_1_2	debug	OS shut down
watchdog_1_3	debug	OS power down

Event Name	Severity	Displayed Text
watchdog_1_4	debug	OW power cycle
watchdog_1_5	debug	OS NMMI/diag interrupt
watchdog_1_6	debug	OS expired
watchdog_1_7	debug	OS pre-timeout interrupt
system_event_0	debug	system reconfigured
system_event_1	debug	OEM system boot event
system_event_2	debug	undetermined system hardware failure
system_event_3	debug	entry added to auxiliary log
system_event_4	debug	PEF action
ctitical_interrupt_0	debug	front panel NMI
ctitical_interrupt_1	debug	bus timeout
ctitical_interrupt_2	debug	I/O channel check NMI
ctitical_interrupt_3	debug	software NMI
ctitical_interrupt_4	debug	PCI PERR
ctitical_interrupt_5	debug	PCI SERR
ctitical_interrupt_6	debug	EISA failsafe timeout
ctitical_interrupt_7	debug	bus correctable error
ctitical_interrupt_8	debug	bus uncorrectable error
ctitical_interrupt_9	debug	fatal NMI
cable_interconnect_0	debug	connected
cable_interconnect_1	debug	config error
boot_error_0	debug	no bootable media
boot_error_1	debug	non-bootable disk in drive
boot_error_2	debug	PXE server not found
boot_error_3	debug	invalid boot sector
boot_error_4	debug	timeout waiting for selection
os_boot_0	debug	A: boot completed
os_boot_1	debug	C: boot completed
os_boot_2	debug	PXE boot completed
os_boot_3	debug	diagnostic boot completed
os_boot_4	debug	CD-ROM boot completed

Event Name	Severity	Displayed Text
os_boot_5	debug	ROM boot completed
os_boot_6	debug	boot completed - device not specified
os_critical_stop_0	debug	error during system startup
os_critical_stop_1	debug	run-time critical stop
os_critical_stop_2	debug	OS graceful stop
os_critical_stop_3	debug	OS graceful shutdown
os_critical_stop_4	debug	PEF initiated soft shutdown
os_critical_stop_5	debug	agent not responding
slot_connector_0	debug	fault status asserted
slot_connector_1	debug	identify status asserted
slot_connector_2	debug	slot/connector device installed/attached
slot_connector_3	debug	slot/connector ready for device installation
slot_connector_4	debug	slot/connector ready for device removal
slot_connector_5	debug	slot power is off
slot_connector_6	debug	slot/connector device removal request
slot_connector_7	debug	interlock asserted
slot_connector_8	debug	slot is disabled
slot_connector_9	debug	spare device
system_acpi_power_state_0	debug	S0/G0: working
system_acpi_power_state_1	debug	S1: sleeping with system hw & processor context maintained
system_acpi_power_state_2	debug	S2: sleeping, processor context lost
system_acpi_power_state_3	debug	S3: sleeping, processor & hw context lost, memory retained
system_acpi_power_state_4	debug	S4: non-volatile sleep/suspend-to-disk
system_acpi_power_state_5	debug	S5/G2: soft-off
system_acpi_power_state_6	debug	S4/S5: soft-off

Event Name	Severity	Displayed Text
system_acpi_power_state_7	debug	G3: mechanical off
system_acpi_power_state_8	debug	Sleeping in S1/S2/S3 state
system_acpi_power_state_9	debug	G1: sleeping
system_acpi_power_state_10	debug	S5: entered by override
system_acpi_power_state_11	debug	legacy ON state
system_acpi_power_state_12	debug	legacy OFF state
system_acpi_power_state_14	debug	unknown
watchdog_2_0	debug	timer expired
watchdog_2_1	debug	hard reset
watchdog_2_2	debug	power down
watchdog_2_3	debug	power cycle
watchdog_2_4	debug	reserved
watchdog_2_5	debug	reserved
watchdog_2_6	debug	reserved
watchdog_2_7	debug	reserved
watchdog_2_8	debug	timer interrupt
platform_alert_0	debug	platform generated page
platform_alert_1	debug	platform generated LAN alert
platform_alert_2	debug	platform event trap generated
platform_alert_3	debug	platform generated SNMP trap, OEM format
entity_presence_0	debug	present
entity_presence_1	debug	absent
entity_presence_2	debug	disabled
lan_0	debug	heartbeat lost
lan_1	debug	heartbeat
battery_0	debug	low

Event Name	Severity	Displayed Text
battery_1	debug	failed
battery_2	debug	presence detected
version_change_0	debug	hardware change detected
version_change_1	debug	firmware or software change detected
version_change_2	debug	hardware incompatibility detected
version_change_3	debug	firmware or software incompatibility detected
version_change_4	debug	invalid or unsupported hardware version
version_change_5	debug	invalid or unsupported firmware or software version
version_change_6	debug	hardware change success
version_change_7	debug	firmware or software change success
fru_state_0	debug	not installed
fru_state_1	debug	inactive
fru_state_2	debug	activation requested
fru_state_3	debug	activation in progress
fru_state_4	debug	active
fru_state_5	debug	deactivation requested
fru_state_6	debug	deactivation in progress
fru_state_7	debug	communication lost
fru_hot_swap_0	debug	transition to M0
fru_hot_swap_1	debug	transition to M1
fru_hot_swap_2	debug	transition to M2
fru_hot_swap_3	debug	transition to M3
fru_hot_swap_4	debug	transition to M4
fru_hot_swap_5	debug	transition to M5
fru_hot_swap_6	debug	transition to M6
fru_hot_swap_7	debug	transition to M7
ipmb_status_0	debug	IPMB-A disabled, IPMB-B disabled
ipmb_status_1	debug	IPMB-A enabled, IPMB-B disabled
ipmb_status_2	debug	IPMB-A disabled, IPMB-B enabled
ipmb_status_3	debug	IPMB-A enabled, IPMB-B enabled

Event Name	Severity	Displayed Text
module_hot_swap_0	debug	module handle closed
module_hot_swap_1	debug	module handle opened
module_hot_swap_2	debug	quiesced
oem_0	debug	OEM specific
event_threshold_0	debug	lower non-critical going low
event_threshold_1	debug	lower non-critical going high
event_threshold_6	debug	upper non-critical going low
event_threshold_7	debug	upper non-critical going high
event_discrete_usage_0	debug	transition to idle
event_discrete_usage_1	debug	transition to active
event_discrete_usage_2	debug	transition to busy
event_discrete_state_0	debug	state deasserted
event_discrete_state_1	debug	state asserted
event_discrete_predictive_failure_0	debug	predictive failure deasserted
event_discrete_limit_exceeded_0	debug	limit not exceeded
event_discrete_limit_exceeded_1	debug	limit exceeded
event_discrete_performance_met_0	debug	performance met
event_discrete_performance_met_1	debug	performance lags
event_discrete_serverity_0	debug	transition to OK
event_discrete_serverity_1	debug	transition to non-critical from OK
event_discrete_serverity_2	debug	transition to critical from less severe
event_discrete_serverity_3	debug	transition to non-recoverable from less severe
event_discrete_serverity_4	debug	transition to non-critical from more severe
event_discrete_serverity_5	debug	transition to critical from non-recoverable
event_discrete_serverity_6	debug	transition to non-recoverable
event_discrete_serverity_7	debug	monitor
event_discrete_serverity_8	debug	informational

Event Name	Severity	Displayed Text
event_discrete_device_presence_0	debug	device absent
event_discrete_device_presence_1	debug	device present
event_discrete_device_enable_0	debug	device disabled
event_discrete_device_enabled_1‘	debug	device enabled
event_discrete_availability_0	debug	transition to running
event_discrete_availability_1	debug	transition to in test
event_discrete_availability_2	debug	transition to power off
event_discrete_availability_3	debug	transition to on line
event_discrete_availability_4	debug	transition to off line
event_discrete_availability_5	debug	transition to off duty
event_discrete_availability_6	debug	transition to degraded
event_discrete_availability_7	debug	transition to power save
event_discrete_availability_8	debug	install error
event_discrete_redundancy_0	debug	fully redundant
event_discrete_redundancy_2	debug	redundancy degraded
event_discrete_redundancy_4	debug	non-redundant: sufficient from insufficient
event_discrete_redundancy_6	debug	redundancy degraded from fully redundant
event_discrete_redundancy_7	debug	redundancy degraded from non-redundant

Event Name	Severity	Displayed Text
event_discrete_acpi_power_0	debug	D0 power state
event_discrete_acpi_power_1	debug	D1 power state
event_discrete_acpi_power_2	debug	D2 power state
event_discrete_acpi_power_3	debug	D3 powerstate
unknown	debug	Unknown
platform_security_0	error	front panel lockout violation attempted
platform_security_1	error	pre-boot password violation - user password
platform_security_2	error	pre-boot password violation - setup password
platform_security_3	error	pre-boot password violation - network boot password
platform_security_4	error	other pre-boot password violation
platform_security_5	error	out-of-band access password violation
processor_0	error	IERR
processor_1	error	thermal trip
processor_2	error	FRB1/BIST failure
processor_3	error	FRB2/hang in POST failure
processor_4	error	FRB3/processor startup/init failure
processor_5	error	configuration error
processor_6	error	SM BIOS uncorrectable CPU-complex error
system_firmware_progress_0_0	error	unspecified
system_firmware_progress_0_1	error	no system memory installed
system_firmware_progress_0_2	error	no usable system memory
system_firmware_progress_0_3	error	unrecoverable IDE device failure
system_firmware_progress_0_4	error	unrecoverable system-board failure

Event Name	Severity	Displayed Text
system_firmware_progress_0_5	error	unrecoverable diskette failure
system_firmware_progress_0_6	error	unrecoverable hard-disk controller failure
system_firmware_progress_0_7	error	unrecoverable PS/2 or USB keyboard failure
system_firmware_progress_0_8	error	removable boot media not found
system_firmware_progress_0_9	error	unrecoverable video controller failure
system_firmware_progress_0_10	error	no video device selected
system_firmware_progress_0_11	error	BIOS corruption detected
system_firmware_progress_0_12	error	CPU voltage mismatch
system_firmware_progress_0_13	error	CPU speed mismatch failure
system_firmware_progress_0	error	unknown error
system_firmware_progress_1_0	error	unspecified
system_firmware_progress_1_1	error	memory initialization
system_firmware_progress_1_2	error	hard-disk initialization
system_firmware_progress_1_3	error	secondary CPU Initialization
system_firmware_progress_1_4	error	user authentication
system_firmware_progress_1_5	error	user-initiated system setup
system_firmware_progress_1_6	error	USB resource configuration
system_firmware_progress_1_7	error	PCI resource configuration

Event Name	Severity	Displayed Text
system_firmware_progress_1_8	error	option ROM initialization
system_firmware_progress_1_9	error	video initialization
system_firmware_progress_1_10	error	cache initialization
system_firmware_progress_1_11	error	SMBus initialization
system_firmware_progress_1_12	error	keyboard controller initialization
system_firmware_progress_1_13	error	management controller initialization
system_firmware_progress_1_14	error	docking station attachment
system_firmware_progress_1_15	error	enabling docking station
system_firmware_progress_1_16	error	docking station ejection
system_firmware_progress_1_17	error	disabling docking station
system_firmware_progress_1_18	error	calling operating system wake-up vector
system_firmware_progress_1_19	error	system boot initiated
system_firmware_progress_1_20	error	motherboard initialization
system_firmware_progress_1_21	error	reserved
system_firmware_progress_1_22	error	floppy initialization
system_firmware_progress_1_23	error	keyboard test
system_firmware_progress_1_24	error	pointing device test
system_firmware_progress_1_25	error	primary CPU initialization

Event Name	Severity	Displayed Text
system_firmware_progress_1	error	unknown hang
critical_interrupt_10	error	bus fatal error
event_threshold_2	error	lower critical going low
event_threshold_3	error	lower critical going high
event_threshold_8	error	upper critical going low
event_threshold_9	error	upper critical going high
event_discrete_redundancy_3	info	non-redundant: sufficient from redundant
physical_security_4	notice	system unplugged from LAN
event_logging_disabled_2	notice	log area reset/cleared
system_event_5	notice	timestamp clock sync
button_0	notice	power button pressed
button_1	notice	sleep button pressed
button_2	notice	reset button pressed
button_3	notice	FRU latch
button_4	notice	FRU service
system_boot_initiated_0	notice	initiated by power up
system_boot_initiated_1	notice	initiated by hard reset
system_boot_initiated_2	notice	initiated by warm reset
system_boot_initiated_3	notice	user requested PXE boot
system_boot_initiated_4	notice	automatic boot to diagnostic
system_boot_initiated_5	notice	OS initiated hard reset
system_boot_initiated_6	notice	OS initiated warm reset
system_boot_initiated_7	notice	system restart
power_supply_2		
power_supply_3	warning	power supply AC lost
power_supply_4	warning	AC lost or out-of-range
power_supply_5	warning	AC out-of-range, but present
power_unit_4	warning	AC lost
power_unit_7	warning	predictive failure

Event Name	Severity	Displayed Text
drive_slot_2	warning	predictive failure
event_logging_disabled_5	warning	log almost full
event_discrete_predictive_failure_0	warning	predictive failure deasserted
event_discrete_predictive_failure_1	warning	predictive failure asserted
event_discrete_redundancy_1	warning	redundancy lost
event_discrete_redundancy_5	warning	non-redundant insufficient resources

Setup Information

Event Name	Severity	Displayed Text
system	info	system name: %s, description: %s, contact: %s, location: %s
software	info	software version: %s, build: %s
chassis	info	chassis model: %s, build: %s
license	info	license name: %s, key: %s, expiration: %s
interface	info	interface device: %s, name: %s, address: %s

SIP Session Logs

Event Name	Severity	Displayed Text
messageAlert	alert	Session log message %s
messageCrit	crit	Session log message %s
messageDebug	debug	Session log message %s
messageEmerg	emerg	Session log message %s
messageError	error	Session log message %s
messageInfo	info	Session log message %s
messageNotice	notice	Session log message %s
messageWarning	warning	Session log message %s

SIP Events

Event Name	Severity	Displayed Text
rvExcep	alert	%s
monitorParseErroers	alert	%u SIP parse error%s detected in the last %u minute%s
transportHeartbeat	crit	%s, last known healthy time %u, current time %u
rvDebug	debug	%s
rvLock	debug	%s

Event Name	Severity	Displayed Text
sessionAdded	debug	session 0x%0X (sessID: %08llX) added
assocAddedPolicy	debug	added policy %s to association To:%s From:%s
policyEval	debug	evaluating policy %s for session 0x%0X (sessID: %08llX)
ruleEval	debug	Rule %s in policy %s is being evaluated for session 0x%0X (sessID: %08llX)
ruleApply	debug	Rule %s in policy %s is being applied for session 0x%0X (sessID: %08llX)
rvError	error	%s
transportVThread	error	SIP worker threads are overloaded, current time %s, number of pending events %u, high-water %u, low-water mark %u
transportMonitor	error	SIP worker threads are overloaded, current time %s, number of pending events %u, high-water %u, low-water mark %u
noPacketMem	error	Packet Buffer Pool exhausted processing SIP message
noTransportMessPool	error	transportMessPool exhausted processing SIP message
StackInitFailure	error	SIP Stack failed to initialize: %s - %s
wordListFileError	error	%s: %s, referenced by word-list %s
urListFileError	error	%s: %s, referenced by url-list %s
message_log_failure	error	Failed to retrieve SIP message log for session 0x% 01611x: %s
ifStatus	info	SIP stack running on %s:%d
rvInfo	info	%s
unknownSession	info	%s:%d <-- %s:%d %sing received SIP %s for unknown session
terminating	info	Terminating session %016llx reason: %s, caller %p
callFailedToConnect	info	%s->%s failed to connect %s/%s
stackRestart	notice	SIP stack: restart initiated
stackRestartDone	notice	SIP stack restart finished
message_log_scanning	notice	Scanning for SIP message log requests

Event Name	Severity	Displayed Text
rvWarn	warning	%s
nonSip	warning	%s:%d <-- %s:%d Non-SIP data received on SIP port: |%.*s|
invalidMethod	warning	%s:%d <-- %s:%d Invalid SIP method in received message: |%.*s|
invalidHdr	warning	%s:%d <-- %s:%d Invalid SIP header in received message: |%.*s|
longLine	warning	%s:%d <-- %s:%d Line in SIP header too long: |%.*s|
longHdr	warning	%s:%d <-- %s:%d SIP header too long: |%.*s|
longMsg	warning	%s:%d <-- %s:%d SIP Message too long
shortMsg	warning	%s:%d <-- %s:%d SIP Message too short
invalidChar	warning	%s:%d <-- %s:%d SIP Message has invalid character
decompressFailed	warning	%s:%d <-- %s:%d Couldn't decompress compressed SIP Message
partial	warning	%s:%d <-- %s:%d SIP message incomplete: |%.*s|
missingRequiredHeader	warning	%s:%d <-- %s:%d SIP message missing required %.*s header
invalidDuplicateHeader	warning	%s:%d <-- %s:%d SIP message has disallowed duplicate header
noContentLen	warning	%s:%d <-- %s:%d SIP message missing Content-Length: header: |%.*s|
shortContent	warning	%s:%d <-- %s:%d actual length of SIP message content is less than indicated in Content-Length: header
methodSyntax	warning	%s:%d <-- %s:%d Syntax error in SIP message method line: %.*s
badResponseCode	warning	%s:%d <-- %s:%d Bad response code in SIP message method line: %.*s
invalidRequestURI	warning	%s:%d <-- %s:%d Invalid request URI in SIP message method line: %.*s
tooManyHeaders	warning	%s:%d <-- %s:%d too many headers in SIP message: %.*s

Event Name	Severity	Displayed Text
headerSyntax	warning	%s:%d <-- %s:%d Syntax error in SIP message header: %.*s
rvHeaderSyntax	warning	%s:%d <-- %s:%d Syntax error in SIP %s %s message: %s
reject	warning	%s:%d <-- %s:%d SIP message rejected
maxcalls	warning	%d. sessions currently active (maximum allowed). %s
timeout	warning	%s <-- %s timeout on SIP %s socket
peerSocketMax	warning	Too many open sockets (%d) for peer %s, connect rejected
disconnecting	warning	Disconnecting session %016llx reason: %s, caller %p
stackRestartCancel	warning	SIP stack restart cancelled
message_log_requested	warning	Found SIP message log request for session 0x%-1611x
message_log_success	warning	Retrieved SIP message log for session 0x%01611x to %s

SIP Call Admission Control Logs

Event Name	Severity	Displayed Text
deny_bandwidth	warning	Call %s to %s %s denied by %s bandwidth %s control : max %dkbps current %dkbps
deny_calls	warning	Call %s to %s %s denied by %s call %s control : max %d current %d in-flight %d
deny_calls_in_flight	warning	Call %s to %s %s denied by %s call-in-flight %s control : max %d current %d
deny_call_rate_limit	warning	Call %s to %s %s denied by %s call-rate-limiting %s control : max %d per %ds interval
deny_registration	warning	Registration %s to %s %s denied by %s registration %s control : max %d current %d in-flight %d
deny_registration_in_flight	warning	Registration %s to %s %s denied by %s registration-in-flight %s control : max %d current %d
deny_tls	warning	TLS connection to hSocket %p socket-handle %p denied by TLS %s control : max %d current %d in-flight %d
call_dyn_changed	warning	Changed call dynamic threshold to %d at average cpu %d%% last calls dropped %d
reg_dyn_changed	warning	Changed registration dynamic threshold to %d at average cpu %d%% last registrations suppressed %d

SIP Message Alerts

Event Name	Severity	Displayed Text
alert	alert	SIP IM %s - From: %s, To: %s - Text: %s
crit	crit	SIP IM %s - From: %s, To: %s - Text: %s
debug	debug	SIP IM %s - From: %s, To: %s - Text: %s
emerg	emerg	SIP IM %s - From: %s, To: %s - Text: %s
error	error	SIP IM %s - From: %s, To: %s - Text: %s
info	info	SIP IM %s - From: %s, To: %s - Text: %s

Event Name	Severity	Displayed Text
notice	notice	SIP IM %s - From: %s, To: %s - Text: %s
warning	warning	SIP IM %s - From: %s, To: %s - Text: %s

SIP Message URL Alerts

Event Name	Severity	Displayed Text
alert	alert	SIP IM %s - %s URL %s (list %s) From: %s, To: %s%s%s
crit	crit	SIP IM %s - %s URL %s (list %s) From: %s, To: %s%s%sSIP IM %s - %s URL %s (list %s) From: %s, To: %s%s%s
debug	debug	SIP IM %s - %s URL %s (list %s) From: %s, To: %s%s%s
emerg	emerg	SIP IM %s - %s URL %s (list %s) From: %s, To: %s%s%s
error	error	SIP IM %s - %s URL %s (list %s) From: %s, To: %s%s%s
info	info	SIP IM %s - %s URL %s (list %s) From: %s, To: %s%s%s
notice	notice	SIP IM %s - %s URL %s (list %s) From: %s, To: %s%s%s
warning	warning	SIP IM %s - %s URL %s (list %s) From: %s, To: %s%s%s

SIP Message Word Alerts

Event Name	Severity	Displayed Text
alert	alert	SIP IM %s - Match word from list: %s - From: %s, To: %s%s%s
crit	crit	SIP IM %s - Match word from list: %s - From: %s, To: %s%s%s
debug	debug	SIP IM %s - Match word from list: %s - From: %s, To: %s%s%s
emerg	emerg	SIP IM %s - Match word from list: %s - From: %s, To: %s%s%s
error	error	SIP IM %s - Match word from list: %s - From: %s, To: %s%s%s
info	info	SIP IM %s - Match word from list: %s - From: %s, To: %s%s%s

Event Name	Severity	Displayed Text
notice	notice	SIP IM %s - Match word from list: %s - From: %s, To: %s%s%s
warning	warning	SIP IM %s - Match word from list: %s - From: %s, To: %s%s%s

SIP Message Audit Events

Event Name	Severity	Displayed Text
alert	alert	%s
crit	crit	%s
debug	debug	%s
emerg	emerg	%s
error	error	%s
info	info	%s
notice	notice	%s
warning	warning	%s

SIP Registration Logs

Event Name	Severity	Displayed Text
contact_invalid	alert	AOR %s has invalid contact %s
aor_delete	debug	AOR %s location cache deleted reason %s
resp_nocontact	debug	REGISTER Response for AOR %s has no contact
req_zeroexpire	debug	AOR %s client expiration is 0 in REGISTER Request from %s
resp_zeroexpire	debug	AOR %s client expiration is 0 in REGISTER Response from %s
ip_changed	debug	Binding replacement for AOR %s contact %s call ID %s IP changed from %s to %s
port_changed	debug	Binding replacement for AOR %s contact %s call ID %s port changed from %d to %d
transport_changed	debug	Binding replacement for AOR %s contact %s call ID %s transport changed from %s to %s
priv_ip_changed	debug	Binding replacement for AOR %s contact %s call ID %s private IP changed from %s to %s
priv_port_changed	debug	Binding replacement for AOR %s contact %s call ID %s private port changed from %d to %d

Event Name	Severity	Displayed Text
conn_changed	debug	Binding replacement for AOR %s contact %s call ID %s connection changed from %08x to %08x
callid_changed	debug	Binding replacement for AOR %s contact %s call ID changed from %s to %s
client_port_changed	debug	Binding replacement for AOR %s contact %s call ID %s client port changed from %d to %d
binding_delete	debug	AOR %s binding %s deleted reason %s
regreq_recved	debug	REGISTER Request for AOR %s received from %s
regres_recved	debug	REGISTER Response %d for AOR %s received from %s
regreq_delegated	debug	REGISTER AOR %s delegated to %s
regreq_proxied	debug	REGISTER AOR %s proxied to %s
regreq_tunneled	debug	REGISTER AOR %s tunneled to %s
regres_sent	debug	REGISTER Response %d for AOR %s sent to %s
unregister_failed	error	Failed to send unregister for AOR %s contact %s call-ID %s : %s
new_binding	info	Adding new binding contact %s with callID %s for AOR %s private %s
update_binding	info	Updating existing binding for contact %s callID %s AOR %s private %s
binding_aged	info	Binding for AOR %s contact %s has aged out
unregister_timeout	info	We encountered a problem while trying to unregister AOR %s contact %s : %s
invite_failauth	warning	INVITE from %s to %s failed max of %d challenges from %s
reg_failauth	warning	REGISTER for %s failed max of %d challenges from %s
reg_proxy_contact	warning	Declined AOR %s registration from %s with proxy contact %s

Event Name	Severity	Displayed Text
toomany_bindings	warning	AOR %s has too many bindings replacing existing contact %s callID %s with new contact %s callID %s
resreq_dropped_rexmit	warning	REGISTER Request for AOR %s has been dropped because it appears to be a retransmit

SIP Routing Logs

Event Name	Severity	Displayed Text
vdp_match_limit	alert	Hit virtual-dial-plan match limit of %d
uri_changed	debug	call %s: %s URI changed from %s to %s
inb_uri_changed	debug	call %s: Inbound %s changed to %s
reg_trunk_port	debug	call %s: Registration acquired trunk port %s for AOR %s
arbiter_opt	debug	call %s Option %d: preference %lld bandwidth %ld cap %ld rate %ld mos %d pdd %d acd %d %ld%%(%ld calls) selected %s
arbiter_result	debug	call %s arbitrated priority %d %s hunting total %d next %d
arbiter_route	debug	call %s route %s %s priority %d best %s
regplan_match	debug	call %s matched registration plan %s
dialplan_match	debug	call %s matched dial plan %s
location_match	debug	call %s matched location cache %s binding %s
deny_loopback	debug	Removing server from route-set for call %s because a %s loop was detected : source %s:%d transport %s, destination %s:%d transport %s
route_set_leak	error	Route destroyed during deferred cleanup. Session 0x%0X (sessID: %08llX), initial method %s, from-uri: %s, to-uri: %s
hunt_call	info	call %s: apply %s hunting
fork_ua	info	call %s: use location binding %s private %s:%d local %s:%d
outb_setup	info	call %s: dialplan set up outbound host %s port %d transport %s
dns_setup	info	call %s: DNS set up outbound host %s port %d transport %s
sipsetting	info	call %s routing resolved by session-config -> sip-settings -> transport/port
enum_timeout	warning	call %s: ENUM lookup timeout for AOR %s
nodns4xx	warning	call %s failed dial plan/location lookup; DNS lookup disabled; return 4xx

Event Name	Severity	Displayed Text
plan_deny	warning	call %s denied by action BLOCK of dial plan or registration plan
deny_unreged	warning	call %s denied because from AOR %s is not registered
decline_busy	warning	call %s declined because all servers busy

SIP Session Alerts

Event Name	Severity	Displayed Text
alert	alert	SIP session %s - type: %s From: %s, To: %s
crit	crit	SIP session %s - type: %s From: %s, To: %s
debug	debug	SIP session %s - type: %s From: %s, To: %s
emerg	emerg	SIP session %s - type: %s From: %s, To: %s
error	error	SIP session %s - type: %s From: %s, To: %s
duplicateTermination	error	(sessID: %08llX) was terminated twice inleg callID = %s outleg callID = %s
info	info	SIP session %s - type: %s From: %s, To: %s
notice	notice	SIP session %s - type: %s From: %s, To: %s
warning	warning	SIP session %s - type: %s From: %s, To: %s

SIP Session Audit Events

Event Name	Severity	Displayed Text
alert	alert	%s
crit	crit	%s
debug	debug	%s
emerg	emerg	%s
error	error	%s
info	info	%s
notice	notice	%s
warning	warning	%s

SIP Server Logs

Event Name	Severity	Displayed Text
load_counter	error	SIP CAC counters for session ID = %08llX callID = %s : %s
state_init	info	SIP server peer %s server %s initiated to %s

Event Name	Severity	Displayed Text
state_master	info	SIP server peer %s server %s updated by master to %s
state_notice	info	Notification of %s:%d transport %s changing to %s
state_change	info	SIP server peer %s server %s changed to %s
connection_down	info	SIP %s connection is down for server %s (%s:%d)

SIP TLS Log Entries

Event Name	Severity	Displayed Text
no_start	error	SIP TLS connection failed to start due to lack of resources (local %s:%u)
failure	error	SIP TLS connection failure: %s (local %s:%u, remote %s:%u)
connect	info	SIP TLS connected successfully (local %s:%u, remote %s:%u)
disconnect	info	SIP TLS disconnected (local %s:%u, remote %s:%u)

Socket Manager Events

Event Name	Severity	Displayed Text
tx_block_timeout_tcp	crit	socket %d (type %s, local %s, remote %s) got Tx-blocked timeout; disconnecting
tx_block_timeout_udp	crit	UDP socket %d (local address %s) got Tx-blocked timeout; resetting
netlink_overrun	error	netlink overrun receiving on socket %d (%p) error %d (%s); continuing to read socket

Shared Memory Buffer Events

Event Name	Severity	Displayed Text
generalcrit	crit	Desc: %s, Error: %s
generalerror	error	Desc: %s, Error: %s

SNMP Events

Event Name	Severity	Displayed Text
alert	alert	%s
badopen	alert	Could not create an SNMP session on interface %s

Event Name	Severity	Displayed Text
crit	crit	%s
debug	debug	%s
emerg	emerg	%s
error	error	%s
badretransmit	error	Too many traps are queued for retransmission
info	info	%s
notice	notice	%s
warning	warning	%s

Secure Real Time Protocol Events

Event Name	Severity	Displayed Text
alloc	warning	Session %llx, key-tag=%u: Failed to allocate memory for key
invalid_suite	warning	Session %llx, key-tag=%u: Unsupported cryptographic suite
session_params	warning	Session %llx, key-tag=%u: Unsupported session parameters
bad_key	warning	Session %llx, key-tag=%u: Specified symmetric key is invalid
duplicate_key	warning	Session %llx, key-tag=%u: More than one unequal keys without an identifier
bad_mki	warning	Session %llx, key-tag=%u: Malformed Master Key Identifier
mki_length	warning	Session %llx, key-tag=%u: Unsupported number of Master Key Identifier bytes
bad_lifetime	warning	Session %llx, key-tag=%u: Invalid key lifetime
key_expired	warning	Session %llx, key-tag=%u: Key lifetime exceeded

System Events

Event Name	Severity	Displayed Text
logdrop	alert	Event log service has dropped %d messages
wrongtable	alert	Reinitializing table %s in database %s
halt	alert	System is being halted
badmodel	alert	Unable to determine product model
nomodel	alert	Product Model set to %s: Running on unqualified hardware
dbconnecfail	alert	Database connection failure: %s
dbdiskfull	alert	Database writes stopped due to disk full condition: %d percent in use
dbshutdown	alert	Database server is being stopped
dbinitialize	alert	Database server is being reinitialized

Event Name	Severity	Displayed Text
dbtranslationfail	alert	Database repair/translate failed
dbrecoveryfail	alert	Database repair/recovery failed.
dbrecoveryerror	alert	Database repair/recovery %s failed for %s %s: %s
dbsnapshotfail	alert	Database snapshot failed: %s
dbsnapshotopenfail	alert	Failed to open database snapshot for port %d %s: %s
dbsnapshoptclosefail	alert	Failed to close database snapshot for %s: %s
dbcreatecolumn	alert	Creating column %s for table %s in database %s
dbdropcolumn	alert	Dropping column %s for table %s in database %s
expirelicense	alert	Expiring license %s
cpusdowngrade	alert	The Net-Net 2600 will restart in %d minutes to revoke the multiprocessor upgrade
monitoralert	alert	Monitor alert for %s: value is %u, threshold is %u
monitoralertprocess	alert	Monitor alert for %s on %s: value is %u, threshold is %u
monitoralertstorage	alert	Monitor alert for storage device %s: free space is %u MB out of %u MB
monitoralertsyncookies	alert	Possible SYN flood attack detected - %u SynCookies sent in the last %u minute%s
monitoralertpacketdrops	alert	Monitor alert for %s: session %llx, packets dropped is %llu, threshold is %u (verification %llu, Route %llu, CryptoMisc %u, CrptoAuth %u, CryptoReplay %u, Internal %llu)
monitoralertskbusage	alert	Monitor alert %u SKB usage exceeds threshold %u in the last %u minute%s
monitoralerttcpskbdrops	alert	Monitor alert %u TCP dropped packets due to SKB congestion exceeds threshold %u in the last %u minute%s
intfunknown	alert	Interface with MAC address %s not handled
intfmacunknown	alert	Interface with MAC address %s not found - was to be named %s
rescuestickfail	alert	restore-stick-create failed, %s

Event Name	Severity	Displayed Text
rescuestickfailsave	alert	restore-stick-create failed, you must perform a full-backup first
process_crash	crit	External process %s PID %d has crashed; will restart
crash_report	crit	The %s process has experienced a fault
crash_dump	crit	The %s process has started writing a core dump
process_dead	crit	The %s process has been declared dead due to excessive faults
badlicense	crit	Cannot apply license file %s: %s
expirecrit	crit	License %s will expire at %s
violatelicense	crit	License violation for %s...total number of failures is %d
violatecrypto	crit	License violation for crypto support
violatehttps	crit	License violation for HTTPS support
devicefull	crit	Storage device %s is full
badports	crit	port conflict between %s %s and %s %s
raideventlogCrit	crit	RAID event code %d, %s
actionexecinternal	debug	'%s' action executed internally: %s
filepurged	debug	purged file %s
raideventlogEmerg	emerg	RAID event code %d, %s
badtimezone	error	Timezone could not be changed to %s
badconfig	error	%s line %d: '%s' %s
terribleconfig	error	have reported %d errors for %s...not reporting any more
badtask	error	Cannot schedule task %s: %s
badsolsetting	error	Cannot enable remote console access: %s
dbbadname	error	Cannot use reserved database name: %s
dbdroprecord	error	A total of %u records has been dropped from database %s
db_corrupt_block	error	Database corruption detected: file %s, block %d

Event Name	Severity	Displayed Text
installprerequsite	error	Required OS prerequisite (%s) failed installing %s
badinstall	error	Install of %s failed: %s
postbadinstall	error	%s: Install failed: %s
badinstallnic	error	Unable to assign tmp interface in %s
badrestart	error	Controlled restart failed for %s: %s
badtranslate	error	%s file not translated by %s: %s
savebeforeupgrade_error	error	Errors while backing up current configuration : %s
expireddevice	error	Cannot import licenses from expired device
routeifaddrerror	error	%s - route %s has invalid address 0.0.0.0 for interface %s
routeifaddrrepair	error	%s - route %s repaired with source address %s for interface %s
intfnotsupported	error	Interface setting is not supported for %s: %s %s
badmask	error	Invalid mask, bringing IP interface down - %s %s %s
badproxy	error	%s proxy to %s:%hu on %s: %s
nfsmounterror	error	An error occurred while mounting NFS share %s:%s: %s
raideventlogError	error	RAID event code %d, %s
filesendbad	error	An error occurred while sending %s to %s: %s
tivolipause	error	Pausing transmission to Tivoli server %s
run_fail	error	%p: Failed to execute command
run_error	error	%p: Program returns error code %d (%s)
update_error	error	Config-update #%d action returns error: %s
message	info	Log message
action_args	info	'%s' action arguments: %.*s
action_info	info	'%s' action information returned: %s
model	info	Product model is %s
tftpread	info	TFTP read request for %s received from %s

Event Name	Severity	Displayed Text
tftpwrite	info	TFTP write request for %s received from %s
restartsend	info	Controlled restart sending %s to %s
restartexec	info	Controlled restart restarting %s
restartsave	info	Controlled restart saving %s
restartload	info	Controlled restart loading %s
license	info	Applying license %s
revokelicense	info	Revoking license %s
importlicense	info	Imported license %s
newpfoxy	info	%s proxy to %s:%hu created on %s
nfsmounted	info	Mounted NFS share %s:%s
raideventlogInfo	info	RAID event code %d, %s
rescuesticksuccess	info	restore-stick-create successful
filesend	info	sending %s to %s
run_data	info	%p: %s
update_data	info	%s
logstarted	notice	Event log service is starting
processup	notice	Process is starting build %s: %s
clockset	notice	System clock has been updated
hostnameset	notice	Hostname has been changed to %s
timezoneset	notice	Timezone has been changed to %s
changeconfig	notice	'%s' configuration changed by %s via %s
changeconfiganon	notice	'%s' configuration changed
actionexec	notice	'%s' action executed by %s via %s: %s
actionexecanon	notice	'%s' action executed: %s
solsetting	notice	Remote console access enabled on %s
restorestickcomplete	notice	restore-stick-create operation complete
process_starting	notice	The %s process is starting
process_init_complete	notice	The %s process has completed initialization
dbresumewrite	notice	Database writes resumed: %d percent in use
dbtranslationstart	notice	Database repair/translate started.
dbtranslationsuccess	notice	Database repair/translate successful.

Event Name	Severity	Displayed Text
dbrecoverystart	notice	Database repair/recovery started.
dbrecoverysuccess	notice	Database repair/recovery successful
dbstart	notice	Database is started.
dbmovedata	notice	Copy corrupted database data to %s.
dbactiondone	notice	Database %s of %s returns %s
dbsnapshotstart	notice	Start database snapshot for %s...
dbsnapshotsuccess	notice	Database snapshot: %s
dbautovacuumed	notice	An automatic VACUUM FULL was performed on database table %s to reclaim %u unused pointers
db_record_count	notice	database %s, table %s has %u records exceeding limit of %u
installing	notice	Installing %s...
install	notice	Installed %s
postinstalling	notice	%s: Started installing at %s
postinstall	notice	%s: Completed installation at %s
postinstallinfo	notice	%s: %s
restart	notice	Initiating a controlled restart with %s
autoinstallnic	notice	Initial NICs installed. Restarting.
translate	notice	%s file translated by %s
savebeforeupgrade	notice	Current configuration is backed up as %s (%s format)
cpusupgrade	notice	Multiprocessor upgrade will take effect at the next cold restart
opstate	notice	Interface %s is %s
filesent	notice	sent %s to %s (%u bytes)
filespurge	notice	purged %u files specified by %s
filespuregebad	notice	An error occurred while purging %s: %s
tivoliresume	notice	Resuming transmission to Tivoli server %s...%d objects were dropped
run_start	notice	Run action begins; session is %p
run_exec	notice	%p: Executing command ‘%s’

Event Name	Severity	Displayed Text
run_success	notice	%p: Program returns succss
run_finish	notice	%p: Completing action with result %s
update_none	notice	Configuration has changed, but no config-update tasks are defined
update_start	notice	Configuration has changed; scheduling update task
update_begin	notice	Processing config-update change #%d with %d tasks (%d updates pending)
update_exec	notice	Config-update #%d executing task ‘%s’; arguments ‘%s’
update_success	notice	Config-update #%d action %s returns success
update_finish	notice	Config-update change #%d complete; %d pending updates
badsyslog	warning	Discarding syslog packet from %s
mirrorconfigsave	warning	Saved configuration may be overridden by master cluster configuration
badplatformsetting	warning	Config setting %s invalid for this platform
badsolconsole	warning	Remote console access: %s
process_down	warning	The %s process is down
dbneedvacuum	warning	Database table %s has %u unused pointers and requires a VACUUM FULL
expirewarn	warning	License %s will expire at %s
raideventlogWarning	warning	RAID event code %d, %s
ntpnoresponse	warning	No NTP response received from %s
ntpbadresponse	warning	Invalid NTP response received from %s
update_prune	warning	Too many configuration updates are pending; removing oldest (#%d)

TLS/SSL Events

Event Name	Severity	Displayed Text
verify_ok3	debug	Issuer: %s
verify_ok4	debug	Subject: %s
tx	debug	socket %d transmits %5u bytes for caller %p
rx	debug	socket %d receives %5u bytes for caller %p
socket_debug	debug	socket %d (local %s, remote %s) %s
openssl_sock_error	error	socket %d (local %s, remote %s) got OpenSSL error from %s() (returned %d):
openssl_gen_error	error	OpenSSL error from %s() (returned %d):
openssl_error	error	OpenSSL error %08lx: %s (%s:%d)
openssl_extra	error	-> %s
cert_file_not_spec	error	Cert entry '%s' did not specify a certificate file name; if this is not a server certificate, then this error can be ignored
cert_file_not_found	error	Cert entry '%s' could not open certificate file '%s'
cert_file_format	error	Cert entry '%s' certificate file '%s' is not a supported format (PEM or PKCS#12)
cert_file_parse	error	Cert entry '%s' could not parse certificate file '%s'; could be wrong passphrase (secret tag is %s), or unsupported format (PEM or PKCS#12)
gets_bad_cert	error	Cert entry '%s' found cert '%s' in '%s', but it could not be loaded, and cannot be used
gets_no_cert_chain	error	Cert entry '%s' failed to load certificate chain from file '%s'; perhaps the passphrase is incorrect
gets_bad_pkey	error	Cert entry '%s' found a private key in '%s', but it could not be loaded, and cannot be used
gets_no_pkey	error	Cert entry '%s' could not load a private key from '%s'; if this is not a server certificate, then this error can be ignored
pkey_error	error	Cert entry '%s' private key from '%s' fails verification; could be incorrect passphrase (secret tag is %s)

Event Name	Severity	Displayed Text
gets_no_chain_cert	error	Cert entry '%s' found no chain certs in '%s'
gets_bad_ca_cert	error	Cert entry '%s' found CA cert '%s' in '%s', but it could not be loaded, and cannot be used
gets_no_ca_cert	error	Cert entry '%s' failed to load CA certs from '%s'; file may be missing, or not in PEM format
gets_no_crl	error	Cert entry '%s' failed to load CRL from '%s'; CRL file must be in PEM format
crl_file_not_found	error	Cert entry '%s' could not open CRL file '%s'
listen_no_config	error	socket %d (interface %s, address %s) listener has invalid or missing certificate configuration entry specified; no incoming connections can be accepted
listen_no_cert_file	error	socket %d (interface %s, address %s) listener could not find certificate file '%s' specified in config entry '%s'; no incoming connections can be accepted
listen_no_cert	error	socket %d (interface %s, address %s) listener could not load certificate from file '%s' specified in config entry '%s'; no incoming connections can be accepted
listen_no_key	error	specified in config entry '%s', perhaps due to incorrect passphrase (tag '%s'); no incoming connections can be accepted
config_record	error	socket %d (local %s, remote %s) specified config record %d, which could not be located
verify_failed1	error	socket %d (local %s, remote %s) certificate verification failed at depth %d)
verify_failed2	error	Error: %d (%s)
verify_failed3	error	Cert name: %s
verify_failed4	error	Issuer: %s
verify_failed5	error	Subject: %s
verify_failed6	error	Default CA: %s
verify_failed7	error	Specific CA: %s
no_peer_cert	error	socket %d (local %s, remote %s) peer did not present certificate; can't check for required name '%s'

Event Name	Severity	Displayed Text
no_peer_name	error	socket %d (local %s, remote %s) peer certificate contains no DNS name or Common name; can't check for required name '%s'
cert_name	error	socket %d (local %s, remote %s) certificate name mismatch; required '%s', presented '%s'
socket_error	error	socket %d (local %s, remote %s) %s
openssl_stack	info	caller %d: %s
entry_info	info	%-21s %s
gets_cert	info	Cert entry '%s' gets cert '%s' from '%s'
gets_cert_chain	info	Cert entry '%s' gets cert chain from '%s'
gets_pkey	info	Cert entry '%s' gets private key from '%s'
gets_chain_cert	info	Cert entry '%s' gets chain cert '%s' from '%s'
gets_bad_chain_cert		Cert entry '%s' found chain cert '%s' in '%s', but it could not be loaded, and cannot be used
loading_ca	info	Cert entry '%s' loading CA certs from '%s' (%s)
gets_ca_cert	info	Cert entry '%s' gets CA cert '%s' from '%s'
loading_crl	info	Cert entry '%s' loading CRL from '%s' (%s)
gets_crl	info	Cert entry '%s' gets CRL from '%s'
listening	info	socket %d (interface %s, address %s) is a new listener socket; certificate entry is '%s'
initiated	info	socket %d (local %s, remote %s) is a new outgoing connection attempt; certificate entry is '%s'
answered	info	socket %d (local %s, remote %s) is a new incoming connection attempt; certificate entry is '%s'
connected	info	socket %d (local %s, remote %s) TLS is connected; cipher is '%s' (0x%04lx)
disconnect	info	socket %d (local %s, remote %s) gets a disconnect from address %p; state is %s
transport_up	info	socket %d (local %s, remote %s) gets underlying TCP connection

Event Name	Severity	Displayed Text
transport_down	info	socket %d (local %s, remote %s) loses underlying TCP connection; state is %s
disconnected	info	socket %d (local %s, remote %s) is disconnected (%s)
rx_shutdown	info	socket %d (local %s, remote %s) received shutdown from remote; state is %s
listenerdestroyed	info	socket %d (interface %s, address %s) is destroyed from address %p; %u connections accepted, %u failed
destroyed	info	socket %d (local %s, remote %s) is destroyed from address %p; %u bytes sent, %u bytes received
verify_ok1	info	socket %d (local %s, remote %s) certificate verification succeeded at depth %d for certificate '%s'
socket_info	info	socket %d (local %s, remote %s) %s
entry_start	notice	Cert entry '%s' initializing (config record %d)
entry_done	notice	Cert entry '%s' initialization is complete
gets_no_cert	warning	Cert entry '%s' found no certificate in '%s'
no_config	warning	socket %d (local %s, remote %s) did not set TLS config on a listener socket; no certificate available
socket_warning	warning	socket %d (local %s, remote %s) %s

Tracing Information

Event Name	Severity	Displayed Text
debug	debug	%s
enabled	notice	Trace target %s enabled.
disabled	notice	Trace target %s disabled.
disable_all	notice	Tracing to %s disabled.
enable_all	notice	Tracing to %s enabled.
update	notice	Tracing %s at %s level.
command	notice	Trace command %s executed by %s.
start_command	notice	Tracing to %s STARTED by %s.
stop_command	notice	Tracing to %s STOPPED by %s.

UID32 Events

Event Name	Severity	Displayed Text
generated	debug	Value %08x was generated (box %02x, seed %02x, serial %08x)
read_seed	warning	Seed value %02x was read from file
wrote_seed	warning	Seed value %02x was written to file
gen_seed	warning	Seed value %02x was generated randomly
wrap_seed	warning	Seed value %02x was arrived at via wrap
serial_init	warning	Serial value %08x was generated randomly
init	warning	Initialized with seed %02x, serial %08x

VRRP Events

Event Name	Severity	Displayed Text
end	alert	Ending VRRP *VRRP terminated on Manager.*
groupFailover	alert	Master Services received a VRRP Group %d failover indication *VRRP group failover*

Event Name	Severity	Displayed Text
vinterfaceFailoverMaster	alert	VRRP vinterface %s failover: went to master on interface %s; reason: %s *VRRP vinterface failover - went to backup*
masterServiceFailoverBackup	alert	master service %s went to backup *master service went to backup*
masterServiceFailoverMaster	alert	master service %s went active *master service went active*
vrrpInterfaceMasterCause	alert	vrrp interface %s on interface %s went to master due to cause: %s *vrrp interface went to master for this reason*
vrrpMasterPriority0	alert	attempting to become vrrp master for vrid %d after receiving a priority 0 advertisement *attempting to become vrrp master for a given vinterface after receiving a priority 0 advertisement*
sendingPriority0	alert	sending a priority 0 advertisement for vrid %d - %s *sending a priority 0 advertisement for the given vinterface*
restartRequest	alert	Received a restart request from %s - doing a group-down all *Received a restart request from the specified source*
illegalhosts	crit	invalid combination of %s host interfaces
vinterfaceFailoverBackup	debug	VRRP vinterface %s failover: went to backup on interface %s *VRRP vinterface failover - went to backup*
vrrpInterfaceBackupCause	debug	vrrp interface %s on interface %s went to backup due to cause: %s *vrrp interface went to backup for this reason*
incorrectKernel	error	Unable to start VRRP - incorrect kernel *Unable to start VRRP - incorrect kernel*
begin	info	Beginning VRRP *VRRP initialized on Manager.*
masterServiceGroupUp	notice	master service %s being activated due to group up *master service being activated due to group up*

Event Name	Severity	Displayed Text
masterServiceHostUp	notice	master service %s: host box %u is up *master service host box is up*
masterServiceHostDown	warning	master service %s: host box %u is down *master service host box is down*

Web Events

Event Name	Severity	Displayed Text
get	debug	GET for %s: %s?%s
post	debug	POST for %s: %s?%s
failed_to_start	error	Failed to start HTTP server: %s
invalid_software_update	error	The software update at %s does not appear to be valid
start	info	Started the web service
stop	info	Stopped the web service
started	info	Started HTTP server on %s
software_update	info	Uploaded software update %s to %s
sessions_query	info	User %s doing query %s
details_query	info	User %s retrieving details for session %s

Web Services

Event Name	Severity	Displayed Text
availability_changed	error	The availability of the server %s has changed from %s to %s
failure_limit_reached	error	The failure limit for the server %s has been reached (%s failures)
response_limit_reached	error	The response limit for the server %s has been reached (%s milliseconds)
io_exception	error	An I/O exception occurred making a request to the server %s: %s

Event Name	Severity	Displayed Text
soap_exception	error	A SOAP exception occurred making a request to the server %s: %s
no_heartbeat_configured	error	The server %s has no heartbeat URL configured but is being actively checked for failure
heartbeat_failure	error	No heartbeat detected for server %s
contacting	info	Contacting server %s heartbeat at %s
heartbeat_failed	info	Server %s heartbeat try %s failed
heartbeat_failed_exception	info	Server %s heartbeat try %s failed: %s

Appendix C. Result Codes

Result Codes

The appendix lists the result codes that can possibly appear within event messages in the log file.

Access

Result	Severity	Displayed Text
challengetimeout	error	Access challenge timeout
baduser	error	Invalid username or password
badpermissions	error	No permissions configured for this user
nocli	error	No CLI access
noconfigwrite	error	No configuration write access
nostatus	error	No status access
nosecret	error	Secret not found
badsecretread	error	Error while reading secret
badsecretwrite	error	Error while setting secret
badsecretsync	error	Error while synchronizing secrets...must be cluster-master
nouser	error	User not found
badwritepermission	error	User does not have write permission
pending	info	Access request is pending
active	info	Access request is active
challenge	info	Access request was challenged
unlockeduser	info	User is not locked
nousers	notice	Access granted since there are no configured users
expiredpassword	warning	Access granted but password needs to be changed

accounting

Result	**Severity**	**Displayed Text**
badservice	crit	Inactive accounting service...neither master nor host
contact_failed	error	Failed to contact server
null_host_failed	error	Failed to contact server due to null host value
count_failed	error	Failed to count records on server
create_failed	error	Failed to create table on server
query_failed	error	Failed to execute query on server
clear_failed	error	Failed to clear records on server
reset_failed	error	Failed to reset server
copy_failed	error	Failed to copy call records
badagent	error	Could not find accounting agent
badresponse	error	Illegal agent response code
badreapplywindow	error	Invalid reapply window
read_failed	error	Read failed
badcontext	error	Bad accounting target context
unblockagent	info	Unblocking the accounting agent
purgedisabled	notice	Accounting purge is disabled
purgestarted	notice	Accounting purge has been initiated...check the event log for results
reapplystarted	notice	Accounting reapply has been initiated...check the event log for results
flushstarted	notice	Accounting flush has been initiated...check the event log for results
emptyreapplywindow	notice	No records in the specified reapply window
purgeactive	warning	Accounting purge is already active
flowoff	warning	Accounting service is busy
target_blocked	warning	Target is blocked from processing

action

Result	**Severity**	**Displayed Text**
badregister	error	Invalid action registration
badprovider	error	Invalid action provider
badsession	error	Invalid action session
timeout	error	Action timeout
nocancel	error	Action cannot be cancelled
badclass	error	Specified class is not an action class
badargs	error	Invalid action arguments
pending	info	Action request is pending
cancelled	info	Action has been cancelled
failed	info	Action has failed; no further information is available

badinfo	warning	Action session has no information to update

archive

Result	**Severity**	**Displayed Text**
invalid_scp	error	Invalid vsp specified
failed_to_launch	error	The archiving failed to launch for the specified vsp
call_does_not_exist	error	The call does not exist
scp_not_configured	warning	The specified vsp is not configured for archiving
scp_already_archiving	warning	The specified vsp is already archiving
scp_archiving_disabled	warning	The specified vsp has archiving disabled

auth

Result	**Severity**	**Displayed Text**
bad_request_handle	error	Invalid auth request handle specified
bad_provider	error	Invalid auth provider specified
no_radius_group	error	RADIUS group name not specified
bad_radius_group	error	Specified RADIUS server group not found
no_radius_server	error	RADIUS server index not specified
bad_radius_server	error	Specified RADIUS server index not found in group
radius_server_disabled	error	Specified RADIUS server is disabled
bad_radius_attribute	error	Invalid RADIUS attribute
no_user_name	error	User name not specified
failed	error	Authentication attempt failed
no_hash_key	error	Unable to obtain hash key

av

Result	**Severity**	**Displayed Text**
infected	alert	File is infected
badengine	crit	Cannot open virus scan engine
CRITICALERROR	error	Terminate immediately
UNSUPPORTEDCALL	error	This platform does not support this function
BADPARAMETER	error	Parameter passed invalid
OUTOFMEMORY	error	An allocation operation failed
INVALIDSCANOBJECT	error	Request made to scan an object that did not exist

READERROR	error	Read error on boot/partition/file scan
LOADFAILURE	error	Support DLL load failed
DRIVERFAILURE	error	Virus Driver failed. e.g. SCAN.DAT missing
USERTERMINATED	error	User quit program
MISMATCHEDDRIVERS	error	The DAT files are not all the same version
CORRUPTEDFILE	error	A corrupted archive file error
EXPIREDLIFE	error	Engine has expired
error	error	Generic error
protected	error	File is protected
badscan	error	File could not be scanned
file_not_found	error	File not found
badupdates	error	Could not update virus scan databases
badupdatefetch	error	Could not fetch virus scan database update
notlicensed	error	Cannot perform a virus scan update...there is no license for this feature
suspicion	info	File is suspicious
nopupdate	info	The virus scan database is already up to date
disabled	warning	Virus scanning is disabled
warning	warning	File may be infected
noscan	warning	File was not scanned
notmaster	warning	Cannot perform a cluster virus scan update...this is not the cluster master

box

Result	Severity	Displayed Text
invalid_action	error	An invalid action name was specified
reenter	error	A box backup or restore action is already executing; cannot initiate another
no_config	error	Could not find backed-up config file
no_version	error	Could not determine version of backed-up config file
no_script	error	The required script could not be found
no_execute	error	An error occured while executing the script
output_not_writable	error	Cannot write to specified file
no_temp_dir	error	Unable to create temporary directory
backup_script	error	Error returned by backup script
backup_tar	error	Unable to store files in destination archive file

input_not_found	error	Cannot open specified input file
input_not_valid	error	The specified input file does not appear to be a valid file
restore_script	error	Error returned by restore script
restore_untar	error	Unable to extract files from source file; file must be a valid .tar.gz archive

call

Result	**Severity**	**Displayed Text**
fail	error	unable to complete the specified call
invalid	error	invalid parameters provided
memory	error	memory allocation failure
handle	error	specified instance does not exist
bad_to	error	bad To: uri
bad_from	error	bad From: uri
leg	error	unable to create call-leg
dialog	error	unable to create server-dialog
media_fail	error	media failure
rv_fail	error	internal error
Bad_Request	error	Bad Request
Unauthorized	error	Unauthorized
Payment_Required	error	Payment Required
Forbidden	error	Forbidden
Not_Found	error	Not Found
Method_Not_Allowed	error	Method Not Allowed
Not_Acceptable	error	Not Acceptable
Proxy_Authentication_Required	error	Proxy Authentication Required
Request_Timeout	error	Request Timeout
Gone	error	Gone
Request_Entity_Too_Large	error	Request Entity Too Large
Request_URI_Too_Long	error	Request-URI Too Long
Unsupported_Media_Type	error	Unsupported Media Type
Unsupported_URI_Scheme	error	Unsupported URI Scheme
Bad_Extension	error	Bad Extension
Extension_Required	error	Extension Required
Interval_Too_Brief	error	Interval Too Brief
Temporarily_Unavailable	error	Temporarily Unavailable
Call_Transaction_Does_Not_Exist	error	Call/Transaction Does Not Exist
Loop_Detected	error	Loop Detected
Too_Many_Hops	error	Too Many Hops
Address_Incomplete	error	Address Incomplete
Ambiguous	error	Ambiguous
Busy_Here	error	Busy Here
Bad_Event	error	Bad Event
Request_Terminated	error	Request Terminated

Not_Acceptable_Here	error	Not Acceptable Here
Request_Pending	error	Request Pending
Undecipherable	error	Undecipherable
Server_Internal_Error	error	Server Internal Error
Not_Implemented	error	Not Implemented
Bad_Gateway	error	Bad Gateway
Service_Unavailable	error	Service Unavailable
Server_Time_out	error	Server Time-out
Version_Not_Supported	error	Version Not Supported
Message_Too_Large	error	Message Too Large
Busy_Everywhere	error	Busy Everywhere
Decline	error	Decline
Does_Not_Exist_Anywhere	error	Does Not Exist Anywhere

cbuf

Result	**Severity**	**Displayed Text**
empty	error	buffer is empty
full	error	buffer is full

cert

Result	**Severity**	**Displayed Text**
password_invalid	error	The password provided for the key file is incorrect.
ioexception	error	Error while reading file.
missing_customer_name	error	Missing customer name.
invalid_input_parameters	error	One or more input parameters invalid.
ssl	error	Error during key or certification generation
error	error	Error during certificate management task.
non_key_request	error	Certification signing request not possible for a non-key entry.
non_key_update	error	Certificate update not possible for a non-key entry.
no_certificate_chain	error	Invalid certificate file.
non_key_file_exist	error	Key file does not exist.

cli

Result	Severity	Displayed Text
badcommand	error	Invalid command
toofewargs	error	Too few arguments
toomanyargs	error	Too many arguments
badconfirm	error	Confirm doesn't match
redir_missing	error	Redirection output file name missing
redir_open	error	Unable to open file for output redirection
showhelp	info	
skip	info	

cnx

Result	Severity	Displayed Text
error	error	Generic CNX error
notconfigured	error	CNX card is not configured

codec

Result	Severity	Displayed Text
bad	info	Bad/NULL context
mismatch	info	Context does not match encode/decode operation
init	info	Failed to initialize low-level context
purpose	info	Invalid purpose given during initialization
unsupported	info	Unsupported codec for given operation
input	info	Bad input data
frame_overrun	info	Input frame was too long for allocated output
sequence	info	Input frame timestamp is before last input frame
api	info	Codec API library failed
nomemory	warning	No memory

collect

Result	Severity	Displayed Text
outdir	crit	Could not create output directory file
outfile	crit	Could not create output file
space	crit	Insufficient disk space
tempdir	crit	Could not create temporary directory

tag	crit	Unknown collection tag specified
fetch	crit	Failed to fetch data file from remote box

csta

Result	Severity	Displayed Text
moc_Reset_Failed	error	Unable to reset all the MOC clients
moc_Update_Failed	error	Unable to change the state of the MOC client
moc_Search_Failed	error	Unable to search for the MOC client
moc_Device_Not_Found	error	Specified URI not found in MOC cache

db

Result	Severity	Displayed Text
badshutdown	crit	Could not shut down the database server
error	error	Unknown database error
badconnect	error	Could not connect to the database
badtables	error	Could not fetch tables
badcolumns	error	Could not fetch columns
badmodify	error	Could not modify table
deletefailed	error	Failed to delete record
badquery	error	Cannot perform the query
baddrop	error	Could not drop the database
badindex	error	Could not create index
badvacuum	error	Could not vacuum database table
translationfailed	error	translation of data to new call leg tables failed
translationcosttoohigh	error	translation of data to new call leg tables was cancelled because the cost was too high.
corrupted	error	Database corruption is detected.
recoveryfailed	error	DB recovery failed.
snapshotfailed	error	DB snapshot failed.
snapshotopenfailed	error	Failed to open DB snapshot instance.
snapshotclosefailed	error	Failed to close DB snapshot instance.
snapshotalreadyactive	error	A database snapshot is already active
badmaintenance	error	Multiple failures occurred...check the event log for details
queuefull	error	Too many records queued for insertion
nodatasource	error	Data source not found and no default driver specified
connectionfailure	error	connection failure

connectionfailuretrans	error	connection failure during transaction
commlinkfailure	error	communication link failure
syntaxerror	error	syntax error
undefinedcolumn	error	undefined column
undefinedfunction	error	undefined function
undefinedtable	error	undefined table
undefinedparameter	error	undefined parameter
undefinedobject	error	undefined object
duplicatecolumn	error	duplicate column
duplicatecursor	error	duplicate cursor
duplicatedatabase	error	duplicate database
duplicatefunction	error	duplicate function
duplicatepreparedstatement	error	duplicate prepared statement
duplicateschema	error	duplicate schema
duplicatetable	error	duplicate table
duplicatealias	error	duplicate alias
duplicateobject	error	duplicate object
indexnotfound	error	index not found
insufficientresources	error	insufficient resources
diskfull	error	disk full
outofmemory	error	out of memory
toomanyconnections	error	too many connections
programlimitexceeded	error	program limit exceeded
crashshutdown	error	crash shutdown
cannotconnectnow	error	cannot connect now
ioerror	error	io error
undefinedfile	error	undefined file
duplicatefile	error	duplicate file
configfileerror	error	config file error
plpgsqlerror	error	plpgsql error
raiseexception	error	raise exception
internalerror	error	internal error
datacorrupted	error	data corrupted
indexcorrupted	error	index corrupted
notable	info	Table does not exist
deletesucceeded	info	Successfully deleted record
nomoredata	info	No more data
translationprogress	info	Translation in progress, check event log for status...
recoveryprogress	info	DB recovery in progress, check event log for status...
actionstart	info	Started database operation, check the event log for results.
snapshotprogress	info	DB snapshot in progress, check database status for result...
queued	info	Record has been queued for insertion
expensivequery	notice	The query would take too long to execute

snapshotnoneed	notice	DB snapshot was not performed - too few records in database.
wrongtable	warning	Table schema has changed
insertduplicate	warning	Could not insert a duplicate record

diameter

Result	**Severity**	**Displayed Text**
no_group	error	DIAMETER group name not specified
bad_group	error	Specified DIAMETER server group not found
no_server	error	DIAMETER server index not specified
bad_server	error	Specified DIAMETER server index not found in group
server_disabled	error	Specified DIAMETER server is disabled
wrong_state	error	Diameter event received in unexpected state
wrong_mode	error	Diameter event received in unexpected mode
wrong_event	error	Unexpected diameter event received
dns_fail	error	DNS failed to resolve name
peer_disconnect	error	Peer disconnected
peer_noroute	error	Peer disconnected
buf_overflow	error	Diameter message buffer overflowed
sock_wrterr	error	Diameter message failed to be delivered

dns

Result	**Severity**	**Displayed Text**
disabled	error	DNS is disabled
no_servers	error	No DNS servers to query
name_not_exists	error	Name does not exist
cache_error	error	DNS Cache operation failed
serv_fail	error	DNS server returned failure
notimplemented	error	Not yet implemented
refused	error	DNS server refused query
name_invalid	error	Invalid domain name
conn_failed	error	Error sending to DNS server
server_timeout	error	DNS Service timed out waiting for server
client_timeout	error	Client timed out waiting for DNS Service
enum_invalid	error	Invalid ENUM.164 number
naptr_service_unknown	error	Unsupported service - not SIP or H323
badserver	error	Cannot determine server for the request

badclient	error	Cannot determine client for the response
badrequest	error	Invalid DNS request
badresponse	error	Invalid DNS response
badwrite	error	Error while sending DNS packet
pending	info	DNS query is pending
notconnected	info	DNS socket is not connected

dsocket

Result	**Severity**	**Displayed Text**
badhandle	error	Invalid handle
pend	notice	Pending creation since local socket already exists
alreadyexists	warning	Socket already exists
paused	warning	The destination socket is paused

ent

Result	**Severity**	**Displayed Text**
no_directory	error	There was no directory specified
provider_not_found	error	The directory was not found
reset_failed	error	Failed to reset
vsp_not_found	error	The specified vsp was not found
gateway_missing	error	Can not find the specified directory
group_not_found	error	The specified group was not found
failed	error	General internal failure
bad_user_resolution	error	Bad user resolution
keystore_overwritten	error	The keystore has changed since it was opened
uri_not_found	error	The URI was not found
uri_already_assigned	error	The URI is already assigned to a user
uri_assignment_failed	error	Failed to assign the URI
uri_name_does_not_exist	error	The specified name does not exist
max_users_returned	warning	The maximum number of users was returned
configuring	warning	The directory is being reconfigured

event

Result	Severity	Displayed Text
fail	error	unable to complete the specified call
invalid	error	invalid parameters provided
memory	error	memory allocation failure
handle	error	specified instance does not exist
rv_fail	error	internal error
not_found	error	not found

file

Result	Severity	Displayed Text
filenotfound	error	File not found
couldnotopen	error	Could not open file
notdir	error	Directory not specified
badsend	error	One or more errors occurred...check the event log for details
toomanypending	error	Too many pending file requests
too_small	error	File is too small
badtar	error	Error while reading tar file
badtarchecksum	error	Incorrect tar file checksum
badtransfer	error	File transfer error
CURL_UNSUPPORTED_PROTOCOL	error	Unsupported protocol
CURL_FAILED_INIT	error	Initialization failure
CURL_URL_MALFORMAT	error	Invalid URL
CURL_URL_MALFORMAT_USER	error	Invalid URL user
CURL_COULDNT_RESOLVE_PROXY	error	Could not resolve proxy
CURL_COULDNT_RESOLVE_HOST	error	Could not resolve host
CURL_COULDNT_CONNECT	error	Could not connect
CURL_FTP_WEIRD_SERVER_REPLY	error	Unknown FTP server reply
CURL_FTP_ACCESS_DENIED	error	A service was denied by the FTP server due to lack of access
CURL_FTP_USER_PASSWORD_INCORRECT	error	Incorrect FTP password
CURL_FTP_WEIRD_PASS_REPLY	error	Unknown FTP password reply
CURL_FTP_WEIRD_USER_REPLY	error	Unknown FTP user reply
CURL_FTP_WEIRD_PASV_REPLY	error	Unknown FTP reply
CURL_FTP_WEIRD_227_FORMAT	error	Unknown FTP format
CURL_FTP_CANT_GET_HOST	error	Could not get FTP host
CURL_FTP_CANT_RECONNECT	error	Could not reconnect to FTP server

CURL_FTP_COULDNT_SET_BINARY	error	Could not set FTP binary
CURL_PARTIAL_FILE	error	Partial file
CURL_FTP_COULDNT_RETR_FILE	error	FTP could not retrieve file
CURL_FTP_WRITE_ERROR	error	FTP write error
CURL_FTP_QUOTE_ERROR	error	FTP quote error
CURL_HTTP_RETURNED_ERROR	error	HTTP returned error
CURL_WRITE_ERROR	error	Write error
CURL_MALFORMAT_USER	error	Invalid user
CURL_FTP_COULDNT_STOR_FILE	error	Failed FTP upload
CURL_READ_ERROR	error	Could open or read from file
CURL_OUT_OF_MEMORY	error	Out of memory
CURL_OPERATION_TIMEOUTED	error	The timeout time was reached
CURL_FTP_COULDNT_SET_ASCII	error	Could not set FTP ACSII
CURL_FTP_PORT_FAILED	error	FTP PORT operation failed
CURL_FTP_COULDNT_USE_REST	error	FTP REST command failed
CURL_FTP_COULDNT_GET_SIZE	error	FTP SIZE command failed
CURL_HTTP_RANGE_ERROR	error	HTTP RANGE command failed
CURL_HTTP_POST_ERROR	error	HTTP POST error
CURL_SSL_CONNECT_ERROR	error	SSL connection error
CURL_BAD_DOWNLOAD_RESUME	error	Could not resume download
CURL_FILE_COULDNT_READ_FILE	error	Could not read file
CURL_LDAP_CANNOT_BIND	error	LDAP bind failed
CURL_LDAP_SEARCH_FAILED	error	LDAP search failed
CURL_LIBRARY_NOT_FOUND	error	Library not found
CURL_FUNCTION_NOT_FOUND	error	Function not found
CURL_ABORTED_BY_CALLBACK	error	Terminated by callback
CURL_BAD_FUNCTION_ARGUMENT	error	Invalid function argument
CURL_BAD_CALLING_ORDER	error	Invalid calling order
CURL_INTERFACE_FAILED	error	URLOPT_INTERFACE failed
CURL_BAD_PASSWORD_ENTERED	error	Invalid password
CURL_TOO_MANY_REDIRECTS	error	Too many redirects
CURL_UNKNOWN_TELNET_OPTION	error	Unknown TELNET option
CURL_TELNET_OPTION_SYNTAX	error	Illegal TELNET option
CURL_OBSOLETE	error	Obsolete

CURL_SSL_PEER_CERTIFICATE	error	Peer certificate error
CURL_GOT_NOTHING	error	Got nothing
CURL_SSL_ENGINE_NOTFOUND	error	SSL crypto engine not found
CURL_SSL_ENGINE_SETFAILED	error	Could not set SSL crypto engine as default
CURL_SEND_ERROR	error	Send error
CURL_RECV_ERROR	error	Receive error
CURL_SHARE_IN_USE	error	Share is in use
CURL_SSL_CERTPROBLEM	error	Local certificate error
CURL_SSL_CIPHER	error	Could not use specified cipher
CURL_SSL_CACERT	error	CA cert error
CURL_BAD_CONTENT_ENCODING	error	Unknown transfer encoding
CURL_LDAP_INVALID_URL	error	Invalid LDAP URL
CURL_FILESIZE_EXCEEDED	error	Maximum file size exceeded
CURL_FTP_SSL_FAILED	error	Requested FTP SSL level failed
CURL_SEND_FAIL_REWIND	error	Sending the data requires a rewind that failed
CURL_SSL_ENGINE_INITFAILED	error	Failed to initialize SSL engine
CURL_LOGIN_DENIED	error	Failed login
CURL_TFTP_NOTFOUND	error	File not found on server
CURL_TFTP_PERM	error	Permission problem on server
CURL_REMOTE_DISK_FULL	error	Out of disk space on server
CURL_TFTP_ILLEGAL	error	Illegal TFTP operation
CURL_TFTP_UNKNOWNID	error	Unknown transfer ID
CURL_REMOTE_FILE_EXISTS	error	File already exists
CURL_TFTP_NOSUCHUSER	error	No such user
CURL_CONV_FAILED	error	Conversation failed
CURL_CONV_REQD	error	Caller must register conversion callbacks
CURL_SSL_CACERT_BADFILE	error	Could not load CACERT file, missing or wrong format
CURL_REMOTE_FILE_NOT_FOUN	error	Remote file not found
CURL_SSH	error	SSH error
CURL_SSL_SHUTDOWN_FAILED	error	Failed to shut down the SSL connection
pending	info	File request is pending
outofdate	info	File timestamp is out of date
notfat	info	File system is not FAT
emptyFile	warning	File is empty

ft

Result	**Severity**	**Displayed Text**
write	error	Problem writing to stream
no_port	error	Unable to allocate port
bad_filename	error	Invalid filename specified

open	error	Unable to open file on disk
bad_filesize	error	Filesize larger than specified in policy
no_resource	error	Unable to obtain required system resource
no_data	error	Unable to get more data from source
pass	info	vent can pass
queue	info	Event must be queued for next stage

gdp

Result	Severity	Displayed Text
invalid_handle	error	GDP gateway instance invalid handle
unknown_route_table	error	Unknown GDP route table name
rtentrypool_failed	error	GDP route entry memory pool creation failed
rtsetentrypool_failed	error	GDP route set entry memory pool creation failed
carrierendpointpool_failed	error	GDP route set entry memory pool creation failed
instpool_failed	error	GDP gateway instance memory pool creation failed
adjpool_failed	error	GDP gateway adjacency memory pool creation failed
vertexpool_failed	error	GDP SPF vertex memory pool creation failed
rtentry_notfound	error	Gateway route entry not found
gwentry_notfound	error	Gateway entry not found
adjacency_notfound	error	Gateway entry not found
duplicate_route	error	Add route failed duplicate route found
invalid_carrierendpoint	error	Invalid carrier endpoint name

h323

Result	Severity	Displayed Text
limitexceeded	error	maximum value exceeded
nomemory	error	Insufficient memory
invalidgateway	error	H323 gateway not found
invalidhandle	error	Invalid handle provided
invalidstate	error	Invalid state for FSM
invalidmessage	error	invalid h323 message
illegal	error	illegal value specified
notfound	error	requested item not found
msg_nosess	error	Message is not associated with any session
stackconnecterr	error	ooh323 connect error
stackwriteerr	error	ooh323 write error
stackprotocolerr	error	ooh323 protocol error

stackresourceerr	error	ooh323 resource error
unknownerr	error	ooh323 unknown stack error
invalid_syntax	error	invalid syntax
novalidcodecs	error	no valid codecs
maxgwcalls	error	no available gateway call capacity
maxcalls	error	no available call capacity
socket_io_err	error	socket io error
socket_conn_err	error	socket connection error
oostackerr	error	OO stack internal error
unsupported	error	currently unsupported
transporterror	error	Transport error
invalidargument	error	Invalid argument
rejected	error	Rejected
failed	error	Failed
partialmsg	info	partial msg received
null	warning	Null pointer specified

hmr

Result	Severity	Displayed Text
nomemory	error	Out of memory
badarg	error	Invalid arguments
nosipmaniptable	error	No SIP Manipulation Table Found
nosipmanip	error	No SIP Manipulation Entry Found
activatefailed	error	Unable to activate the sip-manipulation changes
deactivatefailed	error	Unable to deactivate the sip-manipulation changes
sipmaniptable_create_failed	error	Unable to create new SIP manipulation entry to table
sipmaniptable_add_failed	error	Unable to add new SIP manipulation entry to table
nosipmanipdata	error	No SIP Manipulation Data
nosipmessage	error	No SIP Message
sipmaniptable_emptry	info	No SIP Manipulation Header Rule
noelementrule	info	No SIP Manipulation Element Rule

http

Result	Severity	Displayed Text
resources	crit	Insufficient resources
handle	error	Invalid HTTP client connection handle specified
canceled	error	Request was canceled
timeout	error	Request timedout
failure	error	Received HTTP error response
disconnected	error	Remote host disconnected without a response
class_id	error	Invalid status class ID specified

nostatus	error	Response did not contain a status object
shutdown	error	Invalid operation; HTTP cli8ent connection has been shut down
invalid_uri	error	Invalid HTTP URI specified
interim	warning	Interim callback

ike

Result	**Severity**	**Displayed Text**
no_open_file	error	Can't open IKE temporary file stream

instrument

Result	**Severity**	**Displayed Text**
disabled	error	instrument disabled

intf

Result	**Severity**	**Displayed Text**
error	error	Generic interface error
badargs	error	Invalid arguments
no_ioctl_socket	error	Unable to obtain socket
notsupported	error	Interface setting is not supported
bad_name	error	Invalid interface name
bad_vlanid	error	Invalid VLAN ID
bad_qosmap	error	Invalid QOS map
alreadyup	info	Interface is already up
alreadydown	info	Interface is already down

ip

Result	**Severity**	**Displayed Text**
bad_addr_mask	error	Network address does not match netmask
bad_host_route_mask	error	Host route mask must be 255.255.255.255
bad_mask	error	Invalid netmask
bad_gateway	error	invalid gateway address
no_dns_resolution	error	Hostname not found
unknown_hosttype	error	Unknown host type
too_many_ip_interfaces	error	Failed to find a free IP interface array entry
cannot_open_netlink_socket	error	Cannot open netlink socket
netlink_timeout	error	Netlink timeout

netlink_malformed_msg	error	Netlink malformed msg
netlink_no_response	error	No response from netlink
netlink_msg_exceeds_len	error	Netlink message exceeds len
netfilter_upload_failed	error	Netfilter upload failed
netfilter_no_memory	error	Netfilter memory alloc failed
netfilter_ip_pool_exhausted	error	Netfilter IP memory pool alloc failed
netfilter_tcp_pool_exhausted	error	Netfilter TCP memory pool alloc failed
netfilter_udp_pool_exhausted	error	Netfilter UDP memory pool alloc failed
netfilter_icmp_pool_exhausted	error	Netfilter ICMP memory pool alloc failed
netfilter_vrrp_pool_exhausted	error	Netfilter VRRP memory pool alloc failed
netfilter_entry_not_found	error	Netfilter entry not found
netfilter_counter_read_failed	error	Netfilter counter read failed
netfilter_firewall_hole	error	Netfilter refused rule that was too permissive
netfilter_bad_kernel_rule	error	Failed to create a kernel rule
arptimeout	error	Did not receive an ARP response
unknown_ip_interface	warning	Failed to find IP interface

ipmi

Result	Severity	Displayed Text
error	error	IPMI error
badinit	error	Could not initialize the IPMI service
badterm	error	Could not terminate the IPMI service
nosol	error	The platform does not support serial over LAN
badsolgateway	error	Invalid default gateway
badsolusername	error	Invalid username
badsolrate	error	Invalid console rate
sertest5701	error	BMC operational code corrupted
selftest5702	error	BMC boot/firmware update code corrupted
selftest5704	error	BMC FRU internal use area corrupted
selftest5708	error	SDR repository empty
selftest5710	error	IPMB Signal Error

selftest5720	error	BMC FRU device inaccessible
selftest 5740	error	BMC SDR repository inaccessible
selftest 5780	error	BMC SEL devide inaccessible
selftest5800	error	BMC RAM test error
selftest5801	error	BMC Fatal hardware error
selftestC0XX	error	Management controller 0x%02hhx not responding
selftestC1XX	error	Private I2C bux 0x%02hhx not responding
selftestC2XX	error	BMC internal exception 0x%02hhx
selftestC300	error	BMC A/D timeout error
selftestC301	error	SDR repository corrupt
selftestC302	error	SEL corrupt
selftestC303	error	PIA corrupted
selftestC4XX	error	I2C Bux 0x%02hhx initialization error
selftestC500	error	Platform type mismatch
selftextEEXX	error	Unhandled ARM Exception: 0x%02hhx
selftextEE01	error	Unhandled ARM Exception: undefined Instruction
selftestEE03	error	Unhandled ARM Exception: Prefetch Abort
selftestEE04	error	Unhandled ARM Exception: ARM Data Abort
selftestEE05	error	Unhandled ARM Exception: ARM reserved exception
selftestEE06	error	Unhandled ARM Exception: Unhandled IRQ
selftestEE07	error	Unhandled ARM Exception: Unhandled FIQ
selftestunknown	error	Uknown
selftestcode	error	0x%02hhx 0x%02hhx
selftest5500	info	Success!
selftest5600	info	Not implemented
notready	warning	IPMI still initializing - please try again
badsolconsole	warning	Settings should be 8 data bits, no parity, 1 stop bit, RTS/CTS flow control

ipsec

Result	**Severity**	**Displayed Text**
no_memory	error	Memory allocation failed
buffer_too_small	error	sadb message buffer is too small
no_address	error	No ip address available
invalid_buffer_len	error	Invalid buffer length
no_src_address	error	NO source IP address available
no_dst_address	error	NO destination IP address available

invalid_action	error	Invalid ipsec transport provision action
invalid_sa_family	error	src and dst addresses are not in the same SA Family
invalid_family	error	invalid address family
invalid_prefixlen	error	invalid prefix length
invalid_lifetime_type	error	invalid lifetime type
invalid_from_net	error	invalid From network for tunnel
invalid_to_net	error	invalid To network for tunnel
no_tunnel_end	error	Failed to find the remote IP for the defining tunnel
no_tunnel_start	error	Invalid start point of the defining tunnel
no_remote_addr	error	Invalid remote address for the defining ipsec transport policy
no_service_ip	error	Must define a service IP for which the defining tunnel will service
invalid_policy_proto	error	IPSec policy protocol must be ah, esp or ipcomp
no_policy	error	Empty policy context
pfkey_sock_error	error	Failed to open a PF_KEY socket
pfkey_sock_opt_error	error	Failed to set PK_KEY socket option
pfkey_send_error	error	pfkey send failed
pfkey_recv_error	error	pfkey receive failed
pfkey_msg_error	error	pfkey message error
spdadd_error	error	ipsec policy request failed by the kernel

krnl

Result	**Severity**	**Displayed Text**
notinit	crit	Kernel client failed initialization
nocovdevice	crit	Unable to create cov device
nocovsipdevice	crit	Unable to create covsip device
nocovkilldevice	crit	Unable to create covkill device
onrulelist	crit	Rule is still on the instance rule-list
poolexhausted	error	Match memory pool exhausted
toomanyhandles	error	Too many handles specified
timeout	error	Operation timed out
addpending	error	Rule still being added
notactive	error	Rule not in active state
systemerr	error	Error calling system()
badevent	error	Invalid event received
objecttoobig	error	Squished rule to large
objectunexpected	error	Squished rule contains unexpected object
pending	info	Requested operation in pending
invalidhandle	warning	Invalid Match handle

invalidtarget	warning	Rule Targets incompatible with each other
modulenotfound	warning	Module not found
badmodver	warning	Unable to parse module version
badkeylen	warning	Invalid key length
toomanytransports	warning	More than one transport specified
bad_rule	warning	Invalid rule specified
notransport	warning	No transport specified
toomanykeys	warning	Invalid number of keys specified
badkeytag	warning	Invalid MKI length
badremote	warning	Unable to send to remote

Route-Server

Result	**Severity**	**Displayed Text**
bad_state	error	Box ininvalid state
invalid_handle	error	Invalid handle
action_on_master	error	Execute action on master
peers_not_ready	error	Peers are initializing. Try again later
simple_updates_disabled	error	Only controlled updates are permitted by config
propagate_failed	error	Update ot one or more peers failed
output_failure	error	Unable to create output file
invalid_did_range	error	Invalid DID range
invalid_cfg_file	error	Invalid config file
invalid_test_file	error	Invalid test vector file
invalid_results_file	error	Invalid results file
invalid_results_file1	error	Invalid results file1
invalid_results_file2	error	Invalid results file2
internal_error	error	Internal error
invalid_query	error	Invalid test case query
invalid_csv_file	error	Invalid csv file
invalid_table	error	Invalid route-table
noroutes	error	No routes returned by route-server lookup
novars	error	No variables returned by route-server lookup
vars_assign_mismatch	error	Variable assignation mismatch
noquery	error	No query matches returned
not_ready	error	System not ready. Initialization in progress
msg_unhandled	info	Message is not handled
update_scheduled	info	Update is scheduled
actioninprogress	notice	LCR action in progress, check lcr-action-status for result.
unknownactiontype	notice	LCR action type unknown.
action_ignored	notice	Action is ignored. Another action is in progress
controlled_action	notice	Action in progress, check route-server-controlled-action-

		status for result
maxroutes	warning	Maximum LCR routes reached.
samefile	warning	Action to replace file in lcr directory is ignored.
only_cancel_accepted	warning	A controlled update is in progress. Only cancel action is accepted

linksys

Result	**Severity**	**Displayed Text**
bad_uber_key	error	Unable to load Linksys CA key
bad_phone_key	error	Unable to generate key
bad_username	error	Invalid username
bad_userid	error	Invalid user ID
bad_expiration	error	Certificate has expired
bad_sig	error	Unable to create signature
uber_key_exists	error	Unable to overwrite Linksys CA key
bad_minicert_length	error	Provided mini-certificate length is invalid
bad_message	error	Provided invalid message type or length

location

Result	**Severity**	**Displayed Text**
feature_disabled	debug	The location feature is not enabled.
badarg	error	Invalid arguments
noalias	error	No location alias entry was found.
nocache	error	No location cache entry was found.
nobinding	error	No location binding entry was found.
notrunkport	error	Unable to acquire trunk port.
noauthresponse	error	No auth response data was found.
nomemory	error	Insufficient memory.
nocontactmap	error	No contact mapping entry found.
dupserveraor	error	Duplicate server-side AOR found.

media

Result	**Severity**	**Displayed Text**
not_started	error	Media Session not started
stopped	error	Media Session stopped
resource_alloc	error	Resource allocation failure
no_route	error	route lookup failed
no_source	error	Media source not configured
no_dest	error	Media destination not configured
bad_channel_count	error	Invalid number of channels
no_recording	error	media recording unavailable

bad_file	error	invalid file pointer
bad_file_name	error	invalid file name
bad_file_mode	error	invalid file mode
bad_pb	error	invalid PB pointer
eom	error	end of media stream
eof	error	end of RTP file
unplayable	error	Failed to mix unplayable media
unsupported	error	Unsupported media type/codec specified
unlicensed	error	Unable to obtain license for codec
transcode_unavailable	error	Unable to obtain license for transcode session
srtp_unavailable	error	Unable to obtain license for media encryption session
recording_license_unavailable	error	Unable to obtain license for media recording session
transcode_unnecessary	error	No transcoding necessary
svc_unavailable	error	Service unavailable
invalid_sdp	error	invalid sdp
unmixable	error	Unable to mix this session due to an internal mixer error
transcode_lock	error	Unable to obtain transcoding session lock
blocked	info	Request blocked due to policy
done	info	Done scanning for media files
delay	notice	Delay media

mem

Result	**Severity**	**Displayed Text**
alreadyinit	error	Memory system already initialized in this process
nomemory	error	Insufficient memory
protected	error	System domain cannot be destroyed or shrunk
doublefree	error	Specified pointer is already marked as free
outofrange	error	Specified pointer is out of range
invalidpointer	error	Invalid pointer specified
invalidhandle	error	Invalid handle specified
invalidlength	error	Heap objects have conflicting lengths
invalidarea	error	Memory domain has invalid area pointer
invaliditemlow	error	Low item in area is invalid
invaliditemhigh	error	High item in area is invalid
invalidlink	error	link in item header is invalid
invaliddomain	error	Memory object has invalid domain tag
invalidserial	error	Memory object has invalid serial number
heapintegrity	error	Heap integrity error

alignment	error	Pointer is not properly aligned
free	error	Heap object in busy list is marked as free
fencepost	error	Fencepost bytes modified; buffer overrun
notgroup	error	Specified domain is not a pool group
badgroup	error	Pool group configuration is corrupt
noshrink	error	Domain could not be shrunk
notshrinkable	error	Specified domain is marked as non-shrinkable
nogrow	error	Domain could not be grown
bad_serial	error	Handle's serial number is invalid (0)
bad_pointer	error	Handle's corresponding address is not in the system heap area
bad_domain	error	Handle's corresponding domain address is not in the system heap area
bad_signature	error	Handle's corresponding domain signature is not valid
wrong_serial	error	Handle's serial number does not match current value
not_busy	error	Handle corresponds to a memory block, but the block is not in use
mlock	error	Failed to lock system heap memory
busy_in_bin	error	Block in bin is marked as busy
invalid_for_proxy	error	Requested operation is invalid for a proxy domain
mmap	error	Failed to map requested memory
null	warning	Null pointer specified

mgmt

Result	Severity	Displayed Text
badreference	crit	Corrupted reference link
badclass	error	Invalid class
badobject	error	Invalid object
badproperty	error	Invalid property
badobserver	error	Invalid observer
badprovider	error	Invalid provider
badvalue	error	Illegal value
outofrange	error	Value is out of range
missingvalue	error	Required property is missing
badxml	error	Invalid XML
badreplace	error	Invalid replacement string
badstartup	error	The startup configuration contained errors
badconfig	error	The configuration file contained errors
badipnet	error	Invalid network address

badipnetroute	error	Invalid network route
badhostname	error	Invalid network hostname
badport	error	Invalid port value
badpassword	error	Invalid password
shortpassword	error	Password is too short
simplepassword	error	Password does not contain enough different character types
weakpassword	error	Password may not contain sequences or repeated characters
reusedpassword	error	Password may not be reused
badmirror	error	Invalid configuration mirror
badrevision	error	Object revision mismatch
badreplicate	error	Unable to replicate database
xmlformat	info	XML format
nomatch	info	Property does not match pattern
customreplace	info	Custom replacement string
changed	info	The configuration contains changes
baduserresolution	info	Unable to resolve users
nochange	info	The object did not change
mirrorchange	info	Mirror the object change
nostartup	notice	Type 'config setup' to configure your CXC
nullhost	warning	Null network host address

mikey

Result	**Severity**	**Displayed Text**
auth_failure	error	MIKEY authentication failure
invalid_ts	error	Invalid MIKEY timestamp
invalid_prf	error	Invalid MIKEY Pseudo-Random Function (PRF)
invalid_mac	error	Invalid MIKEY Message Authentication Code (MAC)
invalid_ea	error	Unsupported MIKEY encryption algorithm
invalid_ha	error	Unsupported MIKEY hash algorithm
invalid_dh	error	Unsupported MIKEY Diffie-Hellman group
invalid_id	error	Unsupported MIKEY Identifier
invalid_cert	error	Unsupported MIKEY Certificate
invalid_sp	error	Unsupported MIKEY Security Parameter
invalid_sppar	error	Unsupported MIKEY Security Parameter value
invalid_dt	error	Unsupported MIKEY data type
unspecified	error	Unspecified MIKEY error
unsupported	error	Unparsable MIKEY message
invalid_encoding	error	Unsupported MIKEY encoding, probably not base-64
invalid_version	error	Unsupported MIKEY version
missing_payload	error	Missing required MIKEY payload

missing_csmap	warning	Missing requested MIKEY CSMAP

monitor

Result	Severity	Displayed Text
badrequest	crit	Could not execute process request
badfork	error	Could not start process
ignorerequest	info	Another process request is pending
alreadyrunning	warning	Process is already running
notrunning	warning	Process is not running
retryrequest	warning	Retrying process request

msg

Result	Severity	Displayed Text
choose_socket	crit	Could not choose local socket; process number not set
create_socket	crit	Could not create local socket; process may already be running
bind_socket	crit	Could not bind socket to local address
listen_socket	crit	Could not mark socket as listening for connections
create_group	crit	Failed to create socket group
create_listener	crit	Could not create messaging socket...application may be running
notimplemented	error	Requested feature not implemented yet
alreadyinit	error	Message system is already initialized in this process
alreadyregistered	error	Endpoint ID is already registered in this process
inactive	error	Inactive address specified
invalid	error	Invalid address specified
invalidbox	error	Invalid box ID specified
invalidprocess	error	Invalid process number specified
invalidinstance	error	Invalid process instance specified
invalidendpoint	error	Invalid endpoint ID specified
badhandle	error	Invalid handle specified
nomessage	error	Message structure could not be allocated
invalidmessage	error	Invalid message
invalidclass	error	Invalid management class ID
attach_socket	error	Could not attach socket; session already has a socket
alreadyset	error	The value is already set
joined	error	A cluster has already been joined
nojoin	error	Failed to join a cluster
notjoined	error	Not joined to a cluster

invalid_event	error	Invalid event ID specified
length	error	Message is too long
no_thread	error	Message worker thread is not active
crc_mismatch	error	CRC mismatch
length_mismatch	error	Length mismatch
mgmt_mismatch	error	Mgmt checksum mismatch; likely a version mismatch
version_mismatch	error	Version mismatch; likely incompatible versions
duplicate_mac	error	Duplicate MAC address detected
loopback	error	An attempt was made to connect to the local box
lost_connect	error	Remote connection lost
hung_up	error	Hung up remote connection
limited	error	Destination limited to fixed-ID messages
reject	error	Listener rejects incoming connection
default	info	Request default processing

msn

Result	**Severity**	**Displayed Text**
bad_appguid	error	Received unsupported application GUID
bad_proto	error	Received unexpected packet
no_session	error	Unable to obtain session for this transfer
sender_cancel	info	Sender has canceled the request
receiver_cancel	info	Receiver has canceled the request
no_keyword	warning	Unable to find an expected keyword in this message

mstream

Result	**Severity**	**Displayed Text**
bad_kernel_op	error	Kernel operation failed
no_anchor_src	info	Unable to allocate anchor source address and port
no_anchor_dst	info	Unable to allocate anchor destination address and port
bad_type	info	Operation not allowed with given media type
bad_operation	info	Bad operation

mx

Result	Severity	Displayed Text
badcardid	error	Invalid card ID specified
badconfig	error	Invalid MX configuration

ntp

Result	Severity	Displayed Text
badserver	error	Invalid NTP server
badsend	error	Error while sending NTP packet
discard	warning	Discarding received NTP packet

peng

Result	Severity	Displayed Text
badhandle	error	Invalid handle specified
badmsg	error	Invalid Message specified

ping

Result	Severity	Displayed Text
no_route	error	No valid route found
dns_fail	error	DNS name not resolved
bad_intf	error	Unable to find specified interface
badresponse	error	Invalid ICMP response
timeout	warning	Timeout, no response from host
badid	warning	Invalid ICMP response ID

policy

Result	Severity	Displayed Text
bad_handle	error	bad handle sent to policy function
continue	info	continue routing
cease	info	cease routing
go_to_dir	info	continue routing externally
allow	info	allow
discard	info	discard
refuse	info	refuse
strip_header	info	strip header
alter_header	info	alter header
default	info	default action

proxy

Result	Severity	Displayed Text
badports	crit	Port allocation conflict
noroute	error	Could not find a route to the proxy destination
nointerface	error	Could not configure the proxy interface
noports	error	Could not allocate ports for the proxy
norule	error	Could not create a kernel rule for the proxy
badautorule	error	Invalid kernel autorule

pt

Result	Severity	Displayed Text
file	crit	Unable to create output file; cannot start
running	error	Performance tracking is already running; cannot start again
stopped	error	Performance tracking is not running; cannot stop

reg

Result	Severity	Displayed Text
limitexceeded	error	maximum value exceeded
nomemory	error	Insufficient memory
invalidhandle	error	Invalid handle provided
illegal	error	illegal value specified
notfound	error	requested item not found
msg_nosess	error	Message is not associated with any session
registrar_syntax	error	Registrar line syntax error
static_binding	error	The URL is static binding
notlocal	error	Registrar peer not in local mode
null	warning	Null pointer specified

REST

Result	Severity	Displayed Text
permissions	error	Don't have the required permissions
missing_sessionid	error	Missing sessionid parameter
missing_aor	error	Missing aor parameter
missing_start_time	error	Missing starttime parameter
missing_end_time	error	Missing endtime parameter

parse_time	error	Failed to parse time property. Format: yyyyMMddHHmmss
invalid_status	error	Invalid status name
invalid_action	error	Invalid action name
invalid_query	error	Invalid query name
invalid_request	error	nvalid request. (action/status/query)
login_failed	error	Failed to login. Check username and password.
missing_login_info	error	Missing username/password parameter
failed_to_find_session	error	Failed to find session
no_associated_sessions_found	error	Didn't find any associated sessions

route

Result	**Severity**	**Displayed Text**
no_route	error	No valid route found
dns_fail	error	DNS name not resolved
bad_intf	error	Unable to find specified interface
internal	error	Internal error
timeout	warning	Timeout, no response from host

rtcp

Result	**Severity**	**Displayed Text**
nomemory	error	Insufficient memory
bad_version	error	RTCP version is invalid
too_short	error	RTCP packet is too short
packet_truncated	error	At least 1 RTCP packet in compound is truncated
bad_padding	error	RTCP padding is invalid
no_port	error	failed to allocate port
bad_header	error	Header invalid
bad_pb	error	Packet invalid
end_bad	warning	End of a compound packet is invalid

rtcp_gen

Result	**Severity**	**Displayed Text**
wait	debug	aiting for interval
nomemory	error	Insufficient memory
badlock	error	Failed to get session lock
no_stats	info	No RTP statistics to report
no_reports	info	No reports to be generated
no_source	info	No source address information
no_dest	info	No destination address information

no_socket	info	Socket is not open
no_rtp_rule	info	No RTP rule
not_started	notice	Session is not started

rtp

Result	**Severity**	**Displayed Text**
badstats	alert	Bad data received from kernel
no_data	alert	no data available
bad_version	error	RTP version is invalid
too_short	error	RTP packet is too short
header_truncated	error	RTP header is truncated
bad_padding	error	RTP padding is invalid
outside_window	error	RTP packet outside window
duplicate	error	duplicate RTP packet
invalid_ssrc	error	invalid RTP SSRC
no_port	error	failed to allocate port
invalid_payload_type	error	invalid payload type
unknown_payload_type	error	unknown payload type
mixing_failed_dir_full	error	Mixing failed directory has reached quota
recording_notfound	error	RTP XML recording file not found
mixing_queue_full	error	RTP mixing work queue full
no_vsp	warning	Unable to determine VSP

scale

Result	**Severity**	**Displayed Text**
limitexceeded	error	maximum value exceeded
nomemory	error	Insufficient memory
invalidhandle	error	Invalid handle provided
admin_prohibit	error	Administratively prohibited
socketerror	error	Socket system failure
not_supported	error	feature not supported
terminatefailure	error	terminate failed
disconnectfailure	error	disconnect failed
notb2b	error	can't terminate non-b2b call
rv_error	error	radvision error
illegal	error	illegal value specified
notfound	error	requested item not found
notmatch	error	requested item not match
notbestmatch	error	requested item not best match
notavail	error	remote endpoint is not available
inuse	error	requested item is in use
parse_error	error	parsing error
not_enum	error	URI is not enum
enum_toolong	error	ENUM string is too long
not_sip2	error	Message is not SIP/2.0
enum_lookup_fail	error	ENUM lookup failed

not_tel	error	Message is not tel: scheme
to_not_tel	error	TO line in Message is not tel: scheme
enum_nocallout	error	tel-sip switch is administratively prohibited
msg_nosess	error	Message is not associated with any session
msg_noinst	error	Message is not associated with any scale instance
secu_mismatch	error	Protocol mismatch with security
dns_lookup_fail	error	DNS lookup failed
loop_detected	error	Transport layer loop detected
invalidport	error	Port(s) specified: missing or invalid
registrar_syntax	error	Registrar line syntax error
authhdr_syntax	error	WWW Authenticator syntax error
authstr_toolong	error	String in Auth header is too long
vspnotfound	error	The specified VSP was not found
static_binding	error	The URL is static binding
notlocal	error	Registrar peer not in local mode
toomany_registrations	error	Too many registrations
transact_fail	error	SIP transaction failure
transact_timeout	error	SIP transaction timed out waiting for a response
reg_delegated	error	Registration is delegated to another server
reg_redirected	error	Registration is redirected to another server
reg_accepted	error	Registration is accepted locally
reg_forwarded	error	Registration is forwarded to another server
nolicenses	error	Maximum Licenses in use
message_dropped	error	SIP Message dropped because of error or system limit hit
invalid	error	invalid operation or parameters
media_fail	error	media operation failed, or not allowed
badarg	error	Invalid arguments
buffer_too_small	error	buffer is too small
indirect_match	info	requested item is indirect match
fsm_continue	info	fsm done processing this item
fsm_pend	info	fsm holding this item pending additional events
fsm_consume	info	fsm consumed this item
regexp_scan_stop	info	a regexp scan was stopped due to a terminal match
user_notmatch	info	User name does not match
authfail	info	Authentication failure
operationpend	info	operation is pending
operationcomplete	info	operation has completed

cxc_contact	info	CXC sets itself as contact of REGISTERs in transit
no_change	info	Same string; no change is necessary
wrongvthread	warning	Event dispatched to wrong vthread
null	warning	Null pointer specified
nosipcfg	warning	SIP not configured on an interface for SIP messages
noroute	warning	No route to SIP message destination blocked warning Call is blocked
blocked	warning	Call is blocked.
message_out_of_context	warning	SIP message out-of-context

script

Result	Severity	Displayed Text
file	error	Cannot open specified script file for execution
output	error	Cannot open specified output file for writing
command	error	Invalid command in script file
params	error	Invalid script parameter specified
unimplemented	error	Script command is not yet implemented
missing_param	error	Script command is missing a required parameter
log_file	error	Cannot create specified log file
aborted_on_error	error	Script execution aborted on error
missing_ip	error	IP address is not specified
invalid_ip	error	IP address is not valid
no_connect	error	Failed to connect to CXC
action_timeout	error	Timeout waiting for remote action to complete
no_action	error	No action is outstanding; can't wait for completion
shell_cmd	error	Shell command failed; Sys_popen() returned NULL
timeout	error	Script took too long to execute
temp_file	error	Unable to create temporary file

server

Result	Severity	Displayed Text
badarg	error	Invalid arguments
nomemory	error	Insufficient memory
notfound	error	Server not found
notavail	warning	Server not available
maxunregisters	warning	The server has reached the maximum amount of simultaneous unregisters it can send

sip

Result	Severity	Displayed Text
resources	error	Insufficient resources
text_too_short	error	SIP text field is too short
message_too_long	error	SIP message is too long
header_too_long	error	SIP header is too long
line_too_long	error	SIP header line is too long
text_too_long	error	SIP text field is too long
message_incomplete	error	Message is incomplete
malformed_message	error	Unable to interpret SIP start line
malformed_header	error	Unable to interpret SIP header line
incomplete_message	error	SIP message appears to be incomplete
header_index	error	Invalid header index specified
header_count	error	Too many headers specified
bodypart_count	error	Too many body parts specified
header_type	error	Invalid header type specified
request_type	error	Invalid standard request type specified
custom_header	error	Custom header type not allowed here
custom_message	error	Custom message type not allowed here
text_missing	error	Null or 0-length text is not allowed here
text_prohibited	error	Extra text not allowed here
separator_missing	error	Required separator character is missing
response_code	error	Invalid response code specified
not_integer	error	Failed to translate header value to integer value
integer_overflow	error	integer value too large
no_input	error	Message has no input
uri_format	error	URI parse error
uri_scheme	error	Invalid URI scheme
contact_format	error	Contact value parse error
escape_format	error	Invalid escape sequence
startline_syntax	error	Syntax error in start line
invalid_whitespace	error	Invalid whitespace
unsupported_version	error	SIP version is not supported
header_missing	error	Specified header not found
object_type	error	Incorrect or invalid object type
object_index	error	Incorrect or invalid object index
internal	error	SIP stack internal error
no_room	error	No room to add specified item
param_type	error	Specified parameter type is unknown
bad_param	error	Invalid parameter
bad_transport	error	Specified transport type is unknown
bad_ip	error	Invalid IP address specified
bad_port	error	Invalid port specified
bad_q_param	error	Invalid Q parameter specified
allocate_port	error	failed to allocate port on specified interface
allocate_timer	error	failed to allocate timer handle

allocate_parse_context	error	failed to allocate SIP parse context
create_socket	error	failed to create socket on specified interface
canceled	error	canceled by Esc key
invalid_character	error	Invalid character received
no_messages	error	No messages found for specified session ID
partial_message	info	Partial SIP message received, waiting for remainder
short_content	warning	actual length of SIP message is less than indicated in Content-Length header

sip_test

Result	Severity	Displayed Text
params	error	Invalid test parameters specified
nothing	error	Specified test parameters result in nothing to do
infinite	error	Specified test parameters result in never-ending test
running	error	A SIP test is already running
no_address	error	No IP address was specified
no_route	error	No route was found to the destination address
prereq_registers	error	Unable to register the prerequisite number of calls
prereq_calls	error	Unable to establish the prerequisite number of calls
baseline_results	error	Unable to find baseline results
incomplete	error	Baseline test incomplete
no_socket	error	Failed to create required sockets

sm

Result	Severity	Displayed Text
alreadyinit	error	Socket manager system already initialized in this process
badsocket	error	Invalid socket handle specified
badgroup	error	Invalid group handle specified
epoll_create	error	Error returned by epoll_create()
epoll_ctl	error	Error returned by epoll_ctl()
epoll_wait	error	Error returned by epoll_wait()
poll_set	error	Socket won't fit in poll() set; need epoll()
not_stream	error	Stream operation requested on non-stream socket
connect_error	error	Error returned by connect()
connect_fail	error	Failed to connect to remote host

unknown_event	error	An unknown or unexpected event occurred
tx_error	error	A serious error occurred during transmit
usersocket	error	Requested operation is invalid on a user-supplied socket
down	error	Requested interface is down
listen	error	Specified socket is already listening
connected	error	Specified socket is already connected
not_connected	error	Specified socket is not connected
alreadyset	error	Socket already has a socket file descriptor
readsize	error	Invalid read size specified
noaddress	error	pecified interface does not have an address
nobind	error	Failed to bind to the specified address
destroyed	error	Socket was destroyed
groupdestroyed	error	Socket group was destroyed
not_mcast	error	Specified socket is not a multicast socket
badkernelrule	error	Failed to create a kernel rule
tx_timeout	error	Tx block timeout; perhaps remote socket stopped reading?
no_route	error	No route exists to specified address
no_socket	error	Failed to create socket
no_connect	error	Failed to connect to remote address
connection_lost	error	Connection was established, but then disconnected
connection_failed	error	Connection attempt failed
invalid_address	error	Invalid address specified
not_listener	error	Socket is not a listener socket
parent_destroyed	error	Parent (listener) socket was destroyed
not_ip	error	Specified socket is not an IP socket
not_tcp	error	Specified socket is not a TCP socket
not_tcp	error	Specified socket is not a TCP socket
tx_blocked	error	Socket is Tx blocked

smtp

Result	**Severity**	**Displayed Text**
badhandle	error	invalid SMTP handle
badmessage	error	invalid SMTP message
badserver	error	could not contact SMTP server

snmp

Result	Severity	Displayed Text
badsocket	error	Could not create socket
notwritable	error	Property is read-only
coldstart	info	cold start
noindices	info	No indices specified
continue	info	Continue MIB walk

spotlite

Result	Severity	Displayed Text
queue_threshold	error	denial-of-service queue threshold exceeded
database_incorrect_semaphore	error	spotlite server unit test returned incorrect semaphore

Result	Severity	Displayed Text
database_incorrect_session	error	spotlite server unit test delete session failed
maintenance_running	error	operation failed because another system database operation is already running
file_not_found	error	operation failed because file not located in the specified directory
not_running	info	system database not running
not_found	info	denial-of-service entry not found

srtp

Result	Severity	Displayed Text
invalid_suite	warning	Unsupported cryptographic suite
bad_key	warning	Specified symmetric key is invalid
duplicate_key	warning	More than one unequal keys without an identifier
bad_mki	warning	Master Key Identifier does not fit in specified number of bytes
mki_length	warning	Unsupported number of Master Key Identifier bytes
mki_invalid	warning	Master Key Identifier has bad format
bad_lifetime	warning	Invalid key lifetime
bad_tag	warning	SDP tag conflicts with invalid value
alloc	warning	Failed to allocate space for key

ss8

Result	Severity	Displayed Text
no_route	error	Could not find a valid route to server's IP address
invalid_protocol	error	Invalid transport protocol specified
create_socket	error	Failed to create socket
server_not_found	error	Specified SS8 server not found
server_disabled	error	Specified SS8 server is disabled
invalid_target	error	Invalid or stale target handle specified
invalid_call	error	Invalid or stale call handle specified

ssh

Result	Severity	Displayed Text
keynotfound	error	Public key not found
badprivatekey	error	Could not load required private keys
toomanysessions	error	Too many sessions
badsend	error	Error while sending SSH packet

status

Result	Severity	Displayed Text
badregister	error	Invalid status registration
timeout	error	Status provider did not respond
noinstance	error	No such instance. The requested instance does not exist.
badsortkey	error	Invalid sort key
badclass	error	Invalid status class
noprovider	error	Status provider is not available
badsample	error	Cannot initiate sample request
pending	info	Status request is pending
nomoredata	info	No more data
invalidhandle	warning	Invalid handle

stun

Result	Severity	Displayed Text
internal_error	error	STUN internal software problem
bad_version	error	Improper STUN version for this operation
unknown_address_family	error	Unknown STUN address family
ipv6_address_family	error	IPv6 address family not supported
short_message	error	STUN message is too short
bad_attribute_length	error	Bad STUN attribute length

duplicate_attribute	error	Message contains duplicates of one STUN attribute
resources	error	Insufficient resources
out_of_memory	error	insufficient memory available
bad_ip_address	error	requested IP address not available on this server
bandwidth_too_high	error	requested bandwidth is higher than maximum allowed
allocate_port	error	failed to allocate port on specified interface
allocate_timer	error	failed to allocate timer handle
allocate_msg	error	failed to allocate STUN message
create_socket	error	failed to create socket on specified interface
bad_xact_id	error	bad transaction id
missing_attribute	error	missing mandatory attribute
missing_integrity	error	missing MESSAGE-INTEGRITY attribute
illegal_attribute	error	illegal attribute
bad_msg_length	error	bad message length
unknown_msg	error	unknown message
bad_error_class	error	bad error class
bad_error_number	error	bad error number (excluding error class)
reason_phrase_alignment	error	error code reason phrase not a multiple of 4 bytes
odd_unknown_attributes	error	odd number of unknown attributes not a multiple of 4 bytes
lifetime_increased	error	server increased the requested lifetime
bandwidth_not_equal	error	bandwidth attribute does not equal requested bandwidth
unsupported_transport	error	unsupported transport requested no_binding error no binding for given client IP:Port
no_binding	error	no binding for given client IP:Port
transitioning	error	SetActiveDestination request received while in Transitioning state
framing_lost	error	Lost framing on TCP/TLS STUN client socket
invalid_client	error	Invalid STUN client instance
auth_pending	info	Waiting for results from auth server
discard	warning	Discarding received STUN packet
attr_ignore	warning	Ignoring a STUN attribute
discard_noretx	warning	Ignoring a STUN attribute
doesnt_exist	warning	STUN is not configured on this interface/port
bad_request	warning	Bad request
unauthorized	warning	Unauthorized
unknown_attribute	warning	Unknown STUN attribute
stale_credentials	warning	Stale credentials

integrity_fail	warning	Message Integrity check failed
fingerprint_fail	warning	Message fingerprint check failed
miss_username	warning	Missing username
use_tls	warning	Use TLS
server_error	warning	Server error
global_fail	warning	Global failure
toomany_attrs	warning	Too many attributes
extra_attributes	warning	STUN Message contains extra attributes after MESSAGE-INTEGRITY attribute

svcrt

Result	**Severity**	**Displayed Text**
invalid_handle	error	Service Route Table instance invalid handle
unknown_route_table	error	Unknown service route table name
invalid_dbhandle	error	Service Route Database invalid handle
entrypool_failed	error	Service route entry memory pool creation failed
stunportpool_failed	error	Service route STUN port pool creation failed
instpool_failed	error	Service route table instance memory pool creation failed
sip_partner_pool_failed	error	Service route table SIP partne memory pool creation failed
partner_pool_failed	error	Service route table partner memory pool creation failed
rtentry_notfound	error	Service route entry not found
createdb_failed	error	Service route database creation failed
duplicate_route	error	Add route failed duplicate route found
partner_notfound	error	Service route table partner not found
duplicate_partner	error	Service route table add partner, duplicate partner
timer_failed	error	Service route database metric update timer allocation failed
invalid_routing_tag	error	Invalid routing tag
build_rttblname_failed	error	Failed to build route table name
max_observers	error	Exceeded maximum number of observers

system

Result	Severity	Displayed Text
cpusdowngrade	alert	The CXC will restart to revoke the multiprocessor upgrade
badfork	crit	Failed to fork a system call
badlicense	crit	Invalid license file
badlicenseid	crit	License file does not match the identifier
badlicensedigest	crit	Invalid license digest
badlicensesignature	crit	Invalid license signature
badlicensekey	crit	Could not authenticate the license because the public key is not valid
expiredlicense	crit	Expired license file
requiredfileparammissing	crit	Required file parameter missing
badlicensecert	crit	Invalid license certificate
error	error	Generic system error
nomemory	error	Out of memory
diskfull	error	Disk full
timeout	error	The operation timed out
canceled	error	The operation was canceled
nopb	error	Failed to allocate packet buffer
notimplemented	error	Not yet implemented
nosymbols	error	No symbols were found in the ELF executable file
elf_error	error	An error was encountered processing the ELF executable file
outofrange	error	A supplied parameter was out of range
unknownarg	error	Unknown command line option
badarg	error	Invalid command line option value
badclock	error	Invalid clock value
invalidname	error	Invalid name
memorymap	error	Failed to read process memory map
badproc	error	Failed to open a kernel 'proc'
nomodule	error	Module not found
devicenotwriteable	error	Device is not writeable or full
devicemissing	error	Required devide missing
nolicense	error	no license available
badinstallfile	error	Could not process install file
badcomponentdatabase	error	Could not process component database
installfilenotprovided	error	The install file was not provided
installprerequsite	error	A required prerequisite of the install file failed
badrestart	error	An error occurred while restarting the remote box
norestorescript	error	Trying to revert to an earlier OS, but no restore script found
expireddevice	error	Expired device
rpcerror	error	RPC error
secret_mismatch	error	Secret mismatch

nfserror	error	NFS error
EPERM	error	Operation not permitted
ENOENT	error	No such file or directory
ESRCH	error	No such process
EINTR	error	Interrupted system call
EIO	error	I/O error
ENXIO	error	No such device or address
E2BIG	error	Arg list too long
ENOEXEC	error	Exec format error
EBADF	error	Bad file number
ECHILD	error	No child processes
EAGAIN	error	Try again
ENOMEM	error	Out of memory
EACCES	error	Permission denied
EFAULT	error	Bad address
ENOTBLK	error	Block device required
EBUSY	error	Device or resource busy
EEXIST	error	File exists
EXDEV	error	Cross-device link
ENODEV	error	No such device
ENOTDIR	error	Not a directory
EISDIR	error	Is a directory
EINVAL	error	Invalid argument
ENFILE	error	File table overflow
EMFILE	error	Too many open files
ENOTTY	error	Inappropriate ioctl for device
ETXTBSY	error	Text file busy
EFBIG	error	File too large
ENOSPC	error	No space left on device
ESPIPE	error	Illegal seek
EROFS	error	Read-only file system
EMLINK	error	Too many links
EPIPE	error	Broken pipe
EDOM	error	Math argument out of domain of func
ERANGE	error	Math result not representable
EDEADLK	error	Resource deadlock would occur
ENAMETOOLONG	error	File name too long
ENOLCK	error	No record locks available
ENOSYS	error	Function not implemented
ENOTEMPTY	error	Directory not empty
ELOOP	error	Too many symbolic links encountered
ENOMSG	error	No message of desired type
EIDRM	error	Identifier removed
ECHRNG	error	Channel number out of range
EL2NSYNC	error	Level 2 not synchronized
EL3HLT	error	Level 3 halted
EL3RST	error	Level 3 reset
ELNRNG	error	Link number out of range
EUNATCH	error	Protocol driver not attached
ENOCSI	error	No CSI structure available
EL2HLT	error	Level 2 halted

EBADE	error	Invalid exchange
EBADR	error	Invalid request descriptor
EXFULL	error	Exchange full
ENOANO	error	No anode
EBADRQC	error	Invalid request code
EBADSLT	error	Invalid slot
EBFONT	error	Bad font file format
ENOSTR	error	Device not a stream
ENODATA	error	No data available
ETIME	error	Timer expired
ENOSR	error	Out of streams resources
ENONET	error	Machine is not on the network
ENOPKG	error	Package not installed
EREMOTE	error	Object is remote
ENOLINK	error	Link has been severed
EADV	error	Advertise error
ESRMNT	error	Srmount error
ECOMM	error	Communication error on send
EPROTO	error	Protocol error
EMULTIHOP	error	Multihop attempted
EDOTDOT	error	RFS specific error
EBADMSG	error	Not a data message
EOVERFLOW	error	Value too large for defined data type
ENOTUNIQ	error	Name not unique on network
EBADFD	error	File descriptor in bad state
EREMCHG	error	Remote address changed
ELIBACC	error	Can not access a needed shared library
ELIBBAD	error	Accessing a corrupted shared library
ELIBSCN	error	.lib section in a.out corrupted
ELIBMAX	error	Attempting to link in too many shared libraries
ELIBEXEC	error	Cannot exec a shared library directly
EILSEQ	error	Illegal byte sequence
ERESTART	error	Interrupted system call should be restarted
ESTRPIPE	error	Streams pipe error
EUSERS	error	Too many users
ENOTSOCK	error	Socket operation on non-socket
EDESTADDRREQ	error	Destination address required
EMSGSIZE	error	Message too long
EPROTOTYPE	error	Protocol wrong type for socket
ENOPROTOOPT	error	Protocol not available
EPROTONOSUPPORT	error	Protocol not supported
ESOCKTNOSUPPORT	error	Socket type not supported
EOPNOTSUPP	error	Operation not supported on transport endpoint
EPFNOSUPPORT	error	Protocol family not supported

EAFNOSUPPORT	error	Address family not supported by protocol
EADDRINUSE	error	Address already in use
ENETDOWN	error	Network is down
ENETUNREACH	error	Network is unreachable
ENETRESET	error	Network dropped connection because of reset
ECONNABORTED	error	Software caused connection abort
ECONNRESET	error	Connection reset by peer
ENOBUFS	error	No buffer space available
EISCONN	error	Transport endpoint is already connected
ENOTCONN	error	Transport endpoint is not connected
ESHUTDOWN	error	Cannot send after transport endpoint shutdown
ETOOMANYREFS	error	Too many references: cannot splice
ETIMEDOUT	error	Connection timed out
ECONNREFUSED	error	Connection refused
EHOSTDOWN	error	Host is down
EHOSTUNREACH	error	No route to host
EALREADY	error	Operation already in progress
EINPROGRESS	error	Operation now in progress
ESTALE	error	Stale NFS file handle
EUCLEAN	error	Structure needs cleaning
ENOTNAM	error	Not a XENIX named type file
ENAVAIL	error	No XENIX semaphores available
EISNAM	error	Is a named type file
EREMOTEIO	error	Remote I/O error
EDQUOT	error	Quota exceeded
ENOMEDIUM	error	No medium found
EMEDIUMTYPE	error	Wrong medium type
EBADHD	error	Bad kernel handle returned
EBADINTF	error	Bad interface device ifindex
ECONNFAIL	error	Cannot connect to database because database is not accessible or configuration for database has been disabled
found	info	found
notfound	info	not found
remove	info	remove
add	info	add
alter	info	alter
searching	info	searching
continue	info	continue
baddevice	info	Invalid device
badformatdevice	info	Invalid device for formatting
done	info	operation completed
notready	info	not ready
coldrestart	info	Changes will take effect at the next cold restart

warmrestart	info	Changes will take effect at the next restart
continuerestart	info	The restart is still running
raidbusy	info	RAID missing device or busy
alreadyactive	notice	Requested version is already active
rescueactive	notice	A restore-stick-create operation is currently running
cpusupgrade	notice	Multiprocessor upgrade will take effect at the next cold restart
nolicenses	notice	This system does not have a valid license file.\nYou will have limited functionality until a valid license is applied.
restart	warning	Acme Packet NNOS-E is restarting...
processunavailable	warning	The process is unavailable
devicemounted	warning	Device is mounted
deviceunmounted	warning	Device is unmounted
rootdevice	warning	Unable to perform operation on root device
nobootfile	warning	No operating system files
nodatalocationconfig	warning	No data-locations configured
nonicintffound	warning	No NIC interfaces found
nopcimapfound	warning	No PCI map file found for this model
nicunsupported	warning	Install NIC not supported on this platform
badpcimap	warning	Invalid PCI map file
baddevicefilesystemtype	warning	Unsupported file-system type on this device
EADDRNOTAVAIL	warning	Cannot assign requested address
ERULEXIST	warning	Attempt to add existing rule
ENODELETE	warning	Attempt to delete non-deletable rule

telnet

Result	**Severity**	**Displayed Text**
toomanysessions	error	Too many sessions

tftp

Result	**Severity**	**Displayed Text**
error	error	TFTP error
timeout	error	TFTP timeout
badsequence	error	TFTP message out of sequence
filenotfound	error	File not found
accessviolation	error	Access violation
diskfull	error	Disk full
illegaloperation	error	Illegal operation
unknownid	error	Unknown ID

filealreadyexists	error	File already exists
nosuchuser	error	No such user
unrequestedoption	error	Unrequested option

tivoli

Result	Severity	Displayed Text
badhandle	error	invalid Tivoli handle
badwrite	error	error while writing to the Tivoli socket
badrx	error	unexpected RX on the Tivoli socket
badstream	error	error while opening a Tivoli stream
dropped	error	Tivoli socket is paused...dropping an object

tls

Result	Severity	Displayed Text
notsupported	error	Specified feature not yet supported
nottls	error	Specified socket is not an TLS socket
resources	error	Failed to allocate TLS resource
nocontext	error	Failed to allocate TLS context
noconnect	error	Failed to allocate TLS connection object
nobio	error	Failed to allocate TLS BIO object
nossl	error	The specified socket has no SSL object
connect_fail	error	failed to connect TCP
handshake_fail	error	TLS handshake failure
handshake_timeout	error	TLS handshake timeout
already_set	error	TLS options are already set for this socket
reset	error	Underlying TCP connection reset by peer
received_shutdown	error	Received TLS shutdown from peer
clean_shutdown	error	The TLS connection was shut down cleanly
missing_config	error	The specified TLS configuration object could not be found
client_reject	error	TLS connection rejected by the client
accel_hw	error	TLS acceleration hardware is not installed
accel_kernel_drivers	error	Kernel drivers for TLS acceleration hardware not installed
accel_dynamic	error	Failed to load OpenSSL 'dynamic' engine

accel_stub	error	Failed to load OpenSSL accelerator stub driver
accel_vendor	error	User-mode drivers for TLS acceleration hardware not installed
accel_error	error	An error was encountered attempting to enable TLS acceleration
no_peer_cert	error	Required peer certificate name was specified, but peer did not present a certificate
no_peer_name	error	Could not find DNS name or common name in peer's certificate
wrong_peer_name	error	DNS/common name in peer's certificate did not match the required name

tm

Result	Severity	Displayed Text
nopkt	error	No packet specified

tmr

Result	Severity	Displayed Text
badhandle	error	Invalid timer handle
badstate	error	Timer state is invalid for this operation
baddomainhandle	error	Invalid domain handle
invalidduration	error	Invalid duration

trace

Result	Severity	Displayed Text
notfound	error	Trace target not found
badcreate	error	Could not create trace target
badstop	error	Trace target not active

tree

Result	Severity	Displayed Text
badcount	error	Tree count is incorrect
baddepth	error	Tree depth is incorrect
badbalance	error	Tree is unbalanced
badorder	error	Tree is unordered
scandone	info	Tree scan complete
nomatch	info	No match

uri

Result	Severity	Displayed Text
unknown_type	error	Specified URI type is not known or valid
no_type	error	Could not find URI type text
no_body	error	Could not find URI body after type and colon
convert_from	error	Cannot convert from the specified URI type
convert_to	error	Cannot convert to the specified URI type
no_resolve	error	Cannot resolve the specified host name
not_sip	error	Invalid operation for non-SIP URI

url

Result	Severity	Displayed Text
error	error	Generic error
invalid	error	Invalid URL
timeout	error	URL filtering request timeout
badserver	error	Cannot access URL filtering server
badresponse	error	URL filtering invalid response
block	error	URL block
pending	info	URL filtering request is pending
disabled	warning	URL filtering is disabled

wav

Result	Severity	Displayed Text
bad_file_chunk_id	error	Invalid File Chunk id
bad_file_chunk_length	error	Invalid File Chunk Length
bad_riff_id	error	Invalid RIFF id
read_error	error	Error reading from file
seek_error	error	Error seeking in file
bad_comp	error	Unsupported Compression Code
bad_channels	error	Invalid channel count
bad_rate	error	Unsupported rate

web

Result	Severity	Displayed Text
nullaction	error	The action is null
timeout	error	The operation timed out
nomarshaller	error	There is not marshaller available for this content

invalidrequest	error	Invalid request
invalidclass	error	Invalid class
internalerror	error	Internal error
null_object	error	Invalid empty object
invalidkeyfile	error	Wrong password or invalid file format (acceptable formats PKCS#12, PEM and X509)
invalidImportStorekeyfile	error	Wrong password or invalid file format (acceptable formats PKCS#12 and PEM)
statusError	error	Could not retrieve status. Try status in CLI on box
no_db_connnection	error	Cannot establish database connection. Check that \\master-services\\database on services tab is configured and that box running database service is up
invalidDate	error	Invalid date.
invalidFileFormat	error	File is incorrect format
cannot_findtemp	error	Cannot find temp directory on box.
parsingerror	error	Cannot read XML file.
cannot_readFile	error	Cannot read file.
invalidFileName	error	Invalid file name. Please make sure that file name ends with tar.gz.
fileNameMissing	error	File name is missing. Please specify.
archiveInvalid	error	Invalid Archive.
installInProgress	info	Installing Software.
statusTimeout	warning	Timed out waiting for status. Try status on CLI on box

webServices

Result	Severity	Displayed Text
service_not_configured	error	External Service Not Configured
service_unavailable	error	External Service Unavailable
soap_fault	error	External Service returned a soap fault
io_error	error	IO Error while talking to External Service
other_error	error	Other error

xml

Result	Severity	Displayed Text
invalid	error	The XML file is not valid
nonexist_empty	error	The XML file does not exist or is empty.

invalidXMLFileName	error	Invalid XML file name. Please make sure that file name ends with xml.
valid_with_warnings	warning	The XML file has warnings

xsl

Result	**Severity**	**Displayed Text**
bad_transformer	error	The XSL template appears invalid