AudioCodes Converged VoIP and Data Networking Products

SEM

Session Experience Manager

SEM User's Manual

Version 7.0





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Notice

This User's Manual describes AudioCodes' Session Experience Manager (SEM).

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Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used.



Related Documentation

Manual Name
Mediant 9000 SBC User's Manual
Mediant 4000 SBC User's Manual
Mediant 2600 E-SBC User's Manual
Mediant SE SBC User's Manual
Mediant SE-H SBC User's Manual
Mediant VE SBC User's Manual
Mediant VE-H SBC User's Manual
Mediant 3000 Media Gateway User's Manual
Mediant 2000 Media Gateways User's Manual
Mediant 1000B Gateway and E-SBC and Mediant 1000B MSBR User's Manual
Mediant 800B Gateway and E-SBC and Mediant 800B MSBR User's Manual
Mediant 500 E-SBC User's Manual
Mediant 500L MSBR and Mediant 500 MSBR User's Manual
MediaPack 11x (MP-11x) Media Gateway User's Manual
SEM Cloud Service Configuration Note
EMS Server IOM Manual
EMS User's Manual

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Document Revision Record

LTRT	Description
91061	September 2014. Beta version.
91062	February 2015. GA.
91064	Present. SEM over HTTPS, SNR, Search by Region, transferred and forwarded calls support, modified LDAP server(s) setup description, added 'Enable SEM Client Secured Connection', removed configuration of server security settings, adding an unpriviledged user

1 Overview

AudioCodes' Session Experience Manager (SEM) is a valuable tool that delivers important technical and business statistics based on AudioCodes methodologies developed over years of experience in VoIP.

The SEM provides real-time management of VoIP traffic, giving VoIP network administrators a network health monitoring functionality that includes alarms and diagnostics capability.

This document shows how to deploy and utilize the SEM to maximize the quality of experience of users in the VoIP network.



Note: Unless stated otherwise, the term 'user' or 'users' in this document refers to *end user* or *users*, not to users of the SEM.

1.1 Main Features

Following are the main SEM features:

- Modular tool featuring distinct views for Network, Statistics, Calls, Users, Alarms and Reports.
- Graphically represented managed devices/links in Map, Table and Regions view, featuring popup summaries of critical metrics.
- Voice quality diagnostics for devices/links and users in the VoIP network.
- Real-time, as well as historical monitoring, of VoIP network traffic health.
- Call quality rating metrics (MOS, jitter, packet loss, delay/latency and echo).
- Call trend statistics according to key metrics, traffic load, average call duration and call success.
- SEM alerts based on call success rate and quality thresholds defined by the network administrator.
- Active alarms and history alarms display.
- Monitoring of call quality of Microsoft Lync 2013.
- Filtering according to time range, devices and links.
- Reports

1.2 SEM Monitored Devices

The following devices can be monitored by the SEM:

- Mediant 9000 SBC
- Mediant 4000 SBC
- Mediant 2600 E-SBC
- Mediant SE/VE SBC
- Mediant 3000 Media Gateways
- Mediant 2000 Media Gateways

- Mediant 1000B Gateway and E-SBC and Mediant 1000B MSBR
- Mediant 800B Gateway and E-SBC and Mediant 800B MSBR
- Mediant 500 E-SBC
- Mediant 500L MSBR and Mediant 500 MSBR
- MediaPack 11x (MP-11x) Media Gateways

Note that SEM monitors devices that support software versions 6.6, 6.8 and 7.0.

1.3 Benefit to VoIP Network Administrators

The SEM enables VoIP network administrators to:

- Quickly identify the metric or metrics responsible for degradation in the quality of any VoIP call made over the network.
- Accurately diagnose voice quality problems in response to VoIP user criticism.
- Prevent VoIP quality degradation.
- Optimize quality of experience for VoIP users.
- Receive notifications ahead of time on quality degradation for proactive Nerve Operation Center (NOC) users.
- Receive CIO-level dynamic reports for future planning and over-time network quality assurance.

1.4 Measuring Voice Quality in a VoIP Network

The following important metrics are factorized into the equation when measuring voice quality of calls made over a VoIP network:

Mean Opinion Score (MOS) (specified by ITU-T recommendation P.800) is the average grade on a quality scale of Good to Failed, given by the SEM to voice calls made over a VoIP network, after testing.
 MOS-LQ = listening quality, i.e., the quality of audio for listening purposes; it doesn't take bi-directional effects, such as delay and echo into account.

MOS-CQ = conversational quality; it takes listening quality in both directions into account, as well as the bi-directional effects.

- Jitter, measured by the SEM, can result from uneven delays between received voice packets. To space evenly, the jitter buffer adds delay. The higher the measurement, the greater the impact of the jitter buffer's delay on audio quality.
- Packet Loss, measured by the SEM, can result in choppy voice transmission. Lost packets are RTP packets that aren't received by the voice endpoint for processing.
- Delay (or latency), calculated by the SEM, is the time it takes for information to travel from source to destination (round-trip time). Sources of delay include voice encoding / decoding, link bandwidth and jitter buffer depth.

1.5 Microsoft Lync Monitoring SQL Server

1.5.1 Minimum Requirements

Detailed minimum requirements for Microsoft Lync Monitoring SQL Server can be found at <u>http://technet.microsoft.com/en-us/library/gg412952.aspx</u>

1.5.2 **Prerequisites**

Following are the Microsoft Lync Monitoring SQL Server prerequisites:

- The server must be defined to accept login in 'Mix Authentication' mode.
- The server must be configured to collect calls before the SEM can connect to it and extract Lync calls for display.
- Call Detail Records (CDRs) and Quality of Experience (QoE) Data policies must be configured to capture data.
- Network administrators must be granted the correct database permissions (see below).
- Excel macros must be enabled so that the SQL queries and reports can be run. It was tested with Excel 2010 and 2013.
- Detailed minimum requirements for Microsoft Lync SQL Server can be found at <u>http://technet.microsoft.com/en-us/library/gg412952.aspx</u>

1.5.3 Adding an Unprivileged User

You can add an unprivileged user to the Microsoft Lync Monitoring SQL Server using the SQL Server Management Studio.

> To add an unprivileged user:

1. From the 'Security' folder, right-click **Logins** and from the popup menu, select **New Login**.

Figure 1-1: SQL Server Management Studio - Logins - New Login



2. Select the **General** page and enter the new user name and password. In this case, select the **SQL server authentication** option, as shown in Figure 1-2.

8	Login Properties	- LyncQuery	_ 🗆 X
Select a page	🔄 Script 👻 📑 Help		
General Server Roles Weer Mapping Status	Login name: O Windows authentication	LyncQuery	Search
	Password:	•••••	
	Confirm password:	•••••	
	Specify old password		
	Old password:		
	Enforce password policy	tion	
	User must change passv	vord at next login	
	O Mapped to certificate		¥
	 Mapped to asymmetric key 		Y
Connection	Map to Credential		✓ Add
Server: QA-SQL	Mapped Credentials	Credential Provider	
Connection: SA			
View connection properties			
Progress			Remove
Ready	🚽 Default database:	LcsCDR	~
, db.	Default language:	English	~
		(DK Cancel

Figure 1-2: General page – Login Name and Password

3. Select the Server Role page; public is selected by default.

Figure 1-3: Server Role page - Public

8	Login - New	
Select a page	Server roles: bulkadmin docreator diskadmin processadmin serveradmin setupadmin sysadmin	
Connection		
Server: QA-SQL Connection: SA P <u>View connection properties</u>		

4. Select the **User Mapping** page; the page shown in Figure 1-4 below opens.

8		Login	- New	_ □ ×
Select a page	Script 🔻 🔲 Help			
Server Roles	Users ma	pped to this login:		
Providence Status		Database LcsCDR master	User LyncQuery	Default Schema
		model msdb QoEMetrics	LyncQuery	
Connection				
Connection: SA Wew connection properties Progress Ready	db_a db_b db_d db_d db_d db_d db_d db_d	ccessadmin ackupoperator atareader atareader diadmin enydatareader enydatareader enydatawriter wner ecurityadmin c		
				OK Cancel

Figure 1-4: User Mapping page

- 5. Make sure both Lync databases are selected (in the uppermost pane).
- For <u>each</u> database, select roles (in the lowermost pane) db_datareader and public; the SQL server side is now ready.
- 7. On the SEM server side, under the **Network** tab, click the **Add Non-ACL device** icon ^(%); the following frame opens.

Figure 1-5: SEM - Network tab - Add Non-ACL De	vice
--	------

Network Device Definition	×
Generic Device MS Ly	ync Device
Device Type	Front End Server 👻
FQDN	Your MSSQL FQDN
IP	MSSQL IP
Name	Your MSSQL FQDN
SQL Server IP	MSSQL IP
SQL Port	1433
SQL Server User	User
SQL Server Password	******
Region	AutoDetection 👻
	Apply Close

- 8. Select the **MS Lync Device** option.
- 9. From the 'Device Type' dropdown, select **Front End Server**.
- **10.** Enter the other details about your MS SQL server.
- **11.** Enter the same user credentials you previously defined in the SQL server.

1.5.4 Synchronizing SEM Server, Microsoft Lync Server with the NTP Server

The SEM server and Microsoft Lync server must be synchronized with the *same* NTP server.



Figure 1-6: SEM Connected to Monitoring SQL Server dB and AD

1 = SEM connects to the monitoring SQL server database and to the enterprise AD

2 = Seamless integration using predefined usernames and passwords

The SEM server connects to the Microsoft Lync QoE server, retrieves call qualityrelated data, and then represents this information in the Microsoft Lync and AudioCodes device icons in the Network page, Map view.

In the Network map, SEM users can define Microsoft Lync-related components (Front End, Edge, SBA and Mediation servers) and their connecting links. Figure 4-7 shows this. The SEM displays all calls made via Microsoft Lync Server.



Figure 1-7: SEM for Lync, Network View

1= SBA 2= Edge

3= Front End

4=Mediation

1.6 Loading a License to the SEM Server

You need to purchase from AudioCodes a license that includes the SEM feature, save it on your PC, and then load it to the server using the EMS. The EMS lets you upload a new license and/or view the details of an existing license.



Note: To obtain your license, note the Server Machine ID, and then download the license activation form from AudioCodes' website's 'Services and Support' page: <u>http://www.audiocodes.com/services-and-support</u>.

> To load a license to the SEM server:

1. In the EMS, from the Application Maintenance menu, choose **SEM License Configuration** and then press Enter; the License Configuration Manager opens:

Figure 1-8: License Configuration Manager

	EMS Server 7.0.1166 Management
Main	Menu> Application Maintenance> License
	License Configuration Manager:
	Server Machine ID: 7201E1EDB28B
	License Status: ENABLED
	SEM Number Of Devices: 100
	SEM Number Of Sessions: 3000
	SEM Number Of Users: 50000
	EMS Number Of IP Phones: 5000
	>1.Load License
	b.Back
	q.Quit to main Menu

- 2. To load a new SEM Server License, choose option **1**. Note that the figure above shows the details of an existing license.
- 3. Enter the License File path and name.
- 4. Restart the EMS server.
- 5. For detailed information on loading the license to the server, see the *EMS Server IOM Manual.*

1.7 Applying QoE Thresholds



Note:

- Currently, QoE thresholds profiles determine call color for Lync devices/links only.
- Refer to a specific device's documentation for information on how call color is calculated for AudioCodes devices.

The QoE Thresholds page (accessed in the Utilities page from the **QoE Thresholds** tab) lets you apply QoE Threshold profiles for voice quality metrics (MOS, Delay, Packet Loss, Echo and Jitter).

A QoE Threshold profile consists of threshold values set for each of these metrics for the 'Poor', 'Fair' and 'Good' call quality categories.

The page displays three predefined QoE profiles:

Predefined Profile Name	Description
Low Sensitivity Threshold	Predefined threshold values representing recommended data for the 'Low' sensitivity level.
Medium Sensitivity Threshold	Predefined threshold values representing recommended data for the 'Medium' sensitivity level.
High Sensitivity Threshold	Predefined threshold values representing recommended data for the 'High' sensitivity level.

Table 1-1: Three Predefined QoE Profiles

1.7.1 Predefined QoE Thresholds And Values

This section describes predefined QoE thresholds and values.

You can optionally manually define your own custom profile of threshold values, and include or exclude specific metrics. For example, you can exclude defined threshold values for 'MOS', 'Delay' and 'Echo' metrics from the profile, but include defined threshold values for 'Packet Loss' and 'Jitter' metrics.

After defining a profile, you can

- Save and attach it to *specific* devices and/or links
- Save and attach it to *all* devices and links

> To apply QoE thresholds:

1. In the Utilities page, click the **QoE Thresholds** tab; the following page opens:

Session Experience Manager					* Network	Statist	ies C	sils List	AD Users	🔔 Alarms	Reports	Utilitie	s			
Ser	Server Storage QoE Thresholds													•		
	Refresh															
				MOS Fair- Poor TH	MOS Good- Fair TH	Delay Fair- Poor TH	Delay Good- Fair TH	P.Loss Fair- Poor TH	P.Loss Good-Fair TH	Jitter Fair- Poor TH	Jitter Good- Fair TH	Echo Fair- Poor TH	Echo Good- Fair TH			
☆	☆	yaniv		2.8	3.5	300	119	13	4	80	39	25	11	Devices / Links	0	8
습	☆	Low Sensitivity Thresho	9	2.7	3.4	1200	200	15	6	90	45	23	9	Devices / Links	\oslash	\otimes
☆	☆	Medium Sensitivity Thre		2.8	3.5	500	160	13	5	80	40	25	10	Devices / Links	\oslash	\otimes
☆	☆	High Sensitivity Thresho	a.	2.9	3.6	400	140	11	4	70	35	27	11	Devices / Links	\oslash	\otimes
Item	s 4/4									Mil Page	▼ of 1	Þ₽I				

Figure 1-9: QoE Thresholds

The page lets you

- view existing QoE thresholds profiles and the devices / links / endpoints to which they're attached
- view existing profiles' defined thresholds (columns MOS, Delay, Packet Loss, etc.)
- set existing QoE thresholds profiles as devices / endpoints default or links default.
- Update / Apply existing profiles
- Delete existing profiles

1.7.2 Defining a New QoE Thresholds Profile

> To define a new QoE Thresholds profile

1. In the page above, click the 🔜 Add Profile icon; this screen opens:

Quality Threshold	Profile X
Profile Name	
Poor	MOS Delay P. Loss Jitter Echo
E-i-	0 0 0 0
Fair	
Good	
Decription	
Attach All	
	Save & Attach Cancel

Figure 1-10: Quality Threshold Profile

- 2. Provide an intuitive name for the profile. Use the names of the three predefined QoE profiles, displayed in Table 1-1, as a reference.
- **3.** By default, **All** metrics are included in the profile. To *exclude* a metric, clear its check box. To define the MOS Fair-Poor threshold, for example, click the **0** under 'MOS', between Poor and Fair:

Quality Threshold	Profile	×
Profile Name		
Poor Fair Good All	MOS Delay P. Loss Jitter Echo MOS 0 0 0 0 0 Fair-Poor 0 0 0 0 0 Value ±0.1	
Decription		
Attach All		
	Save & Attach Cancel	

Figure 1-11: Quality Threshold Profile - MOS

- Click the + or the until the threshold value you require is displayed. Each click increments or decreases the threshold by 0.1 (MOS, Packet Loss), or by 1 (Delay, Jitter, Echo). Alternatively, enter the value you require.
- After defining the MOS Fair-Poor threshold, define the MOS Good-Fair threshold. Click the **0** under 'MOS', between Good and Fair. Enter the value you require. Do the same for the other metrics thresholds. Figure 1-12 shows the predefined 'High Sensitivity Threshold' profile values as an example.

Figure 1-12: Quality Threshold Profile – High Sensitivity Threshold (Predefined)

Quality Thresh	old Profile	×
Profile Name	High Sensitivity Threshold	
Poo Fai Alle	MOS Delay P.Loss Jitter Echo 2.9 400 11 70 27 3.6 140 4 35 11 u u u u u	
Decription	High Sensitivity Threshold	
Attached to	Devices All Selected Links None Selected Endpoints All Selected	
	Save & Att	ach Cancel

AudioCodes

- 6. Click the Attach button; the profile is displayed in the QoE Thresholds screen.
- 7. In the QoE Thresholds screen:
- Set as devices default (in the profile's row, click the star icon)
- Set as links default (in the profile's row, click the star icon)
- Delete a profile (click the 10 icon adjacent in the profile row)
- Update / apply a profile (click the Ø icon in the profile row)
- Select Devices / Links / Endpoints for the profile

1.7.3 Attaching a Profile to All Devices/Links Except to a Specific Device/Link

You may require attaching a profile to all devices/links except to one specific device/link.

- > To attach a profile to all devices / links except to a specific device/link:
- 1. In the Utilities page under the QoE Thresholds tab
- click the star adjacent to the profile you want to set as devices default
- click the star adjacent to the profile you want to set as links default

For example, set 'High Sensitivity Threshold' predefined profile as default for all devices and links; the orange star shown below indicates that this profile is set as default for all devices; the blue star indicates it's set as default for all links.

😭 🏫 High Eensavity Threshold 📓 2.9 3.6 400 140 11 4 70 35 27 11 Devices / Links 🧭 🧭

2.	Click	Devices;	the	following	g is	displ	ayed:

Device Name	
10.3.101.104	
10.3.110.152	
10.3.151.236	
10.3.151.245	
10.3.151.246	
10.3.181.1_963234	
10.3.181.2	
10.3.181.50	
10.3.181.51	
10.3.181.53	
10.3.181.55	
10.3.181.57	
10.3.181.62	Ŧ
<u> ۲</u>	

The profile is attached to all these devices.

3. Click Links; the following is displayed:

Link Name	
FE -> Dallas Branch	
FE -> HK Branch	
FE -> RTP Branch	
FE <-> ACL Med	
HK Med -> GW	
NJ FE -> Edge	
NJ Med -> GW	

The profile is attached to all these links.

- 4. Open the Network page and click the specific device to which to attach a different profile than 'High Sensitivity Threshold'; the Actions icon is displayed.
- Click the Actions icon and in the Quality Threshold Profile screen that opens, select from the 'Profile Name' dropdown the 'Low Sensitivity Threshold' profile (for example) – to replace 'High Sensitivity Threshold' profile – and then click Attach, as shown below.

Quality Thresh	hold F	Profile	-	_	-	-	_	_	_	×
Profile Name		Low Se	nsitivity ⁻	Threshold		-	New	Edit		9
Pc	oor _	MOS	Delay	P. Loss	Jitter	Echo				
Fa	air [2.7	1200	15	90	23				
G	ood	3.4	200	6	45	9				
Decription										
Selected Device	E RT	P SBA								
Attach All										
								Attach	Са	ncel

- 6. Do the same for the specific link whose profile you want to change; both **Devices** and **Links** will now be enabled, as shown below.
- 😰 🥸 Low Sensitivity Treeshold 🍙 2.7 3.4 1200 200 16 6 90 45 23 9 Devices / Links 🧭 🥸
 - 7. Click **Devices**; you'll view the specific device whose profile is now different to the devices default profile:

AudioCodes

Device Name	
RTP SBA	

8. Click Links; you'll view the specific link whose profile is now different to the links default profile:

Link Name
ACL Med <-> GW

1.7.4 Understanding the 3 Sensitivity-Level Profiles

The table below shows the monitored parameters MOS, Delay, Packet Loss and Jitter, each associated with each of the 3 sensitivity-level profiles: Low, Default and High. Each parameter's Green-Yellow Threshold and Yellow-Red Threshold differ in association with the configured Profile.

For each monitored parameter, administrators can use the thresholds in the predefined profile, or define their own thresholds.

Parameter (units)	Sensitivity Level	Good-Fair (Green-Yellow) Threshold	Fair-Poor (<mark>Yellow-Red)</mark> Threshold
MOS	Low	3.4	2.7
	Medium	3.5	2.8
	High	3.6	2.9
Delay (msec)	Low	200	1200
	Medium	160	500
	High	140	400
Packet Loss (%)	Low	2.7	6.6
	Medium	2	5
	High	1.5	4.3
Jitter (msec)	Low	45	90
	Medium	40	80
	High	35	70

Table 1-2: Voice Quality Profile Parameters

Parameter (units)	Sensitivity Level	Good-Fair (Green-Yellow) Threshold	Fair-Poor (<mark>Yellow-Red)</mark> Threshold
Echo (dB)	Low	23	9
	Medium	25	10
	High	27	11

1.7.5 Understanding How Call Color is Determined

This section helps you understand how Lync call color is determined. As shown in the previous section, a default profile is assigned to each Front End server, which you can change. (No profile is attached to the Mediation Server or Edge Server).

A default profile is also assigned to each Link, which you can change and apply to each Link as shown in the previous section.

1.7.5.1 Link Profile as Determinant

Each call comprises one or more legs. Each leg is assigned a color, determined by its associated Link profile. If a call leg passes over few Links and each has a different profile, each Link has its own color (displayed in the Summary Panes) corresponding to its profile. However, the call leg's color is set as the worst color received from all the Links profile; the Call Details screen shows what profile caused the leg color. If a call leg does not match any of the Links, its color is defined based on the FE profile. The color representing worst quality among all the legs will be the call color. (If a call comprises only from one leg, the color of the leg will be the call color).

1.7.5.2 MOS Metric as Determinant

Each profile can be configured with a set of quality metrics (MOS / Packet Loss / Jitter / Delay / Echo) as shown in the previous section. Each call leg's color is determined at the end of the call using its reported metrics. If MOS is reported, the leg will be determined by the MOS' color; if not, the color representing worst quality will be the leg's color. If any of the call leg's reported metrics are excluded from the profile, color calculations will ignore this metric.



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2

Configuring Devices to Report to the SEM

This section shows how configure devices to report to the SEM. Before you can use the SEM to monitor a device you need to:

1. Load a license that includes the SEM feature, to the SEM server (see Section 0)



Note: It's no longer necessary to install a SEM SLK on the device. It was only necessary up to version 6.6.241.

- 2. Configure the SEM server address on the device (see Section 2.1 below)
- 3. Configure QoE Profile Rules (see Section 2.2 below)

2.1 Configuring the SEM Server Address on the Device

You need to configure the SEM's server address on the device so that the device will report to the SEM.



Note: The instructions below apply to device version 7.0. For earlier device versions, see the version-specific device manual.

> To configure the SEM's server address on the device:

 In the Web interface, open the Session Experience Manager page (select the Advanced option > VoIP > Quality of Experience > Session Experience Manager):

figuration Maintenance Status & Diagnostics	Session Experience Manager Server		
Search	- Carsian Evaprimers Managar Senier		
Basic Advanced	Server IP	0.0.00	
System	Redundant Server IP	0.0.0.0	
VoIP	Port	5001	
• Network	Interface Name	OAMP	
Gescunty Gescunty Gescunty Gescunty Gescunty Gescunty Gescunty Gescunt Gescun			

Figure 2-1: Session Experience Manager Server

2. For detailed information on configuring the SEM's server address (if necessary), see the device's *User's Manual*.

2.2 Configuring a Quality of Experience Profile

You need to configure a Quality of Experience Profile on the device.



Note: See the device user manual for version-specific instructions. The procedure differs between versions 6.6, 6.8 and 7.0.

> To configure a Quality of Experience Profile on the device:

 In the Web interface, open the Quality of Experience Profile page (Advanced > Configuration tab > VoIP > Quality of Experience):

	 Quality of Experience Profile 			
iic Advanced	Add +			
stem IP	Index -	Profile Name	Sensitivity Level	
Network PTDM Psecurity			No Records	
Pestn PMedia		click	here to add new row	
Session Experience Manager		te te Page 1	d 1 → → Show 10 ♥ records per page	No Records
Quality of Experience Profile Bandwidth Profile				
Hedia Enhancement Profile				
Applications Enabling VoIP Network				
SIP Definitions Coders and Profiles				
GW and IP to IP SBC				
B				

Figure 2-2: Quality of Experience Profile

2. For detailed information on configuring a Quality of Experience Profile (if necessary), see the device's User's Manual.

2.3 Synchronizing Clocks

2.3.1 Synchronizing SEM Server Time with Device Time

For the SEM server to monitor the device, the device and SEM server clocks must be synchronized. Date and time must be identical on both.

If the SEM server is unsynchronized with a device in the network, an alarm is sent. Associated with the unsynchronized device, the alarm has two severity levels: Critical / Clear. If the difference between the Server Time and the Device Time is less than one minute, no alarm is sent. If there's a problem, connection with the device is disallowed.

You'll receive the following message if one of the device NTPs is either EMS IP or EMS NTP IP:

"NTP configuration is correct, please check your network conditions (Firewalls, Ports, etc.) and make sure that NTP sync of SEM Server and/or Devices is performed correctly."

You'll receive the following message if the EMS IP or the EMS NTP IP are not present as one of the device NTPs:

"Please make sure that the time in the SEM server and the device is properly synchronized."

3 Starting the SEM Tool

After installing the EMS (see the *EMS Server IOM Manual*), click the **SEM** button on the Desktop toolbar of the EMS main screen. The tool opens in your browser in the Network page, Map view (default).

Note: If you did not purchase the EMS, i.e., if you're a SEM-only customer, you can directly access the SEM by pointing your web browser to its location on the internet, for example:



http://10.3.180.8:8400/EMS-VQ/Main.html#

You can then log in with your Username and Password that are defined in the EMS, for example, the default login and password are: acladmin and pass_1234

By default, all VoIP devices managed in the network are displayed. By default, data on calls made in the Time Range of the past 3 hours are displayed. You can then view the calls success / failure rate, and the call quality statistics distribution over all components.

3.1 Running the SEM over HTTPS

This section shows how to run the SEM over HTTPS. By default, the SEM client communicates with the server over HTTP, but HTTPS is also supported. The URL pointing to port 8400 shown in the note above, opens an HTTP connection, but you can optionally run the SEM client over HTTPS.

> To run the SEM client over HTTPS

In the EMS Server Manager, use the menu option 'Enable SEM Client Secured Connection' (10) to secure and automatically forward all SEM clients communications to port 9400. When this option is enabled, the connection between the SEM client browser and the Tomcat server is secured via HTTPS port 9400 instead of HTTP port 8400.

Note:



- To avoid browser errors, it's strongly recommended to sign the certificate using an official authority. See the *EMS Server IOM Manual* for details on how to replace the default certificate with the customer certificates.
- The steps below show how to accept different browsers' warnings, to proceed working with the self-signed certificate released by default, and where to place the certificate after it is signed.
- In the Internet Explorer browser, select the option **Continue to this website**, as shown in Figure 3-1.

Figure 3-1: Starting the SEM in Internet Explorer



• In the Mozilla Firefox browser, select I Understand the Risks and then click Add Exception and then Confirm Security Exception, as shown in the figure below.

💧 Untrusted Connection × \ + ☆ 自 A https://10.4.2.60:9400/EMS-VQ/Main.html# л • = This Connection is Untrusted You have asked Firefox to connect securely to 10.4.2.60:9400, but we can't confirm that your connection is secure. Normally, when you try to connect securely, sites will present trusted identification to prove that you are going to the right place. However, this site's identity can't be verified. × Add Security Exception What Should I Do? You are about to override how Firefox identifies this site. If you usually connect to this site without problems, the T impersonate the site, and you shouldn't continue. Legitimate banks, stores, and other public sites will not ask you to do this. Get me out of here! Server Get Certificate Location: Technical Details Certificate Status I Understand the Risks This site attempts to identify itself with invalid information. <u>V</u>iew... If you understand what's going on, you can tell Firefox you trust the site, this error could mean that someo Wrong Site The certificate belongs to a different site, which could mean that someone is trying to Don't add an exception unless you know there's a goo impersonate this site identification. Unknown Identity Add Exception... The certificate is not trusted because it hasn't been verified as issued by a trusted authority using a secure signature Permanently store this exception Confirm Security Exception Cancel

Figure 3-2: Starting the SEM in Mozilla Firefox

• In the Google Chrome browser, click **Advanced** and then **Proceed to <Server IP> (unsafe)**, as shown in Figure 3-3.

Privacy er	or ×	
$\ \ \leftrightarrow \ \ \mathbf{G}$	😰 منطقة://10.1.8.23:9400/EMS-VQ/Main.html#	☆ =
	×	
	Your connection is not private	
	Attackers might be trying to steal your information from 10.1.8.23 (for example, passwords, messages, or credit cards).	
	Hide advanced Back to safety	
	This server could not prove that it is 10.1.8.23 ; its security certificate is not trusted by your computer's operating system. This may be caused by a misconfiguration or an attacker intercepting your connection.	
	Proceed to 10.1.8.23 (unsafe)	
	NET::ERR_CERT_AUTHORITY_INVALID	

Figure 3-3: Starting the SEM in Google Chrome

3.2 Synchronizing SEM Client Time with SEM Server Time

The same feature applies if SEM client-server are unsynchronized. The SEM client notifies you if it's unsynchronized with the NTP server. Client-server time difference should not exceed three minutes (currently) for correct GUI display. When times are unsynchronized, a message pops up notifying you of the server/client times; a red icon appears near the dates filter; position your mouse over it to view the tooltip.

Synchronization status is checked every client-server refresh (same as other stats/calls refresh) but the popup message appears when an unsynchronized status is first encountered. The red icon is cleared when times are resynchronized.

When selecting a dates range, incorrect results may be received if there's a clientserver synchronization issue, because the dates selected in the GUI (client clock) are not the same as the server-related dates (server clock). In this case, after login (or when clocks become unsynchronized), the indications below are displayed.

Figure 3-4: Client and Server Clocks Not Synchronized



3.3 Getting Acquainted with the SEM GUI

This section familiarizes you with the SEM GUI. See the figure below and Table 3-1 below it.



Figure 3-5: SEM GUI Areas

After logging in for the first time, you can change the password by selecting **Change password** from the User menu:

	Change password for user gal	×
User: gal (Administration) Change password	Change password for user gal Old password New password Repeat new password	×
	OK Cancel	

GUI Area	Description
Toolbar	Toolbar icons let you navigate to the following SEM pages: Network (default), Statistics, Calls List, Users, Alarms, Reports and Utilities.
	Username (read-only); Logout; About (click to display the SEM version)
Filters	Time Range, Devices, Links
Actions Bar	 Map view / Table view Add Non ACL Device Add Link
4 Refresh	● [Start/Stop Auto Refresh] Switches on/off automatic page refresh.
Functionalities and Change	[Refresh Now] Refreshes the page
Password /	🔎 Connected or 🔎 Disconnected (read-only).
Logour	User / admin name menu, to change password or log out.
Search	Lets you locate specific information in Network view, Calls List and Alarms view.
6 Main Screen	Each SEM view's main working area. In Network view, for example, the main screen displays devices configured on the EMS server.
	Zoom
_	Save devices locations
Summary Panes	Network view displays these summary panes: • Devices • Successful/Failed Calls • Calls Quality • Alarms • Links • Successful/Failed Streams • Streams Quality • Alarms Statistics view displays these summary panes: • Devices (Calls Total #, Successful %, Fail %, Max Concurrent) • Quality % and Color • Quality Cause
	GUI Area Toolbar Filters Actions Bar Refresh Functionalities and Change Password / Logout Search Main Screen Summary Panes

Table 3-1: SEM GUI Areas



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4 Building your Network Topology

You can build your network topology in the SEM, including:

- Microsoft Lync (see under Section 1.5 above)
- AudioCodes devices (see Section 4.1 below)
- ^{3rd} party devices and links (see Section 4.2 below)

4.1 AudioCodes Devices and Links

Links are logical VoIP communication paths between devices that measure and display key metrics on calls made on them. Links are defined according to IP Group, Trunk Group, Phone Number or SIP IP address.

The 'source' device on which key metrics monitoring is based must be an AudioCodes device or Lync device. The second device can be an AudioCodes device, Lync device or a non-AudioCodes device defined by administrators. Administrators can define one or more links between devices. The links are displayed in Network Map and Table Links views. Each device and link status is displayed as 'Red' or 'Green'. If red, then:

- Failed Calls threshold is reached (default = 30%)
 -OR-
- Poor Calls Quality threshold is reached (default = 15%)

4.2 Generic Devices

You can view generic (non-AudioCodes) devices in the SEM if they're supported. You can define third-party devices in Network Map and Table Links views. The SEM doesn't directly monitor them but enables you to view all relevant devices in the VoIP network and to monitor links with AudioCodes devices.

> To add a generic device to the SEM:

1. Click the he icon on the actions bar; this screen opens:

Network Device Defin	ition ×
Generic Device	MS Lync Device
	192.3
IP	
Name	
Region	ACL-Hong-K
	Apply Close

Figure 4-1: Adding a Generic Device

- 2. Make sure the default Generic Device option is selected.
- **3.** Define the device's IP address, Name, and Region, and then click **Apply**; the device is added and displayed in the SEM.

4.3 Microsoft Lync Devices

Most commonly used generic devices are Microsoft Lync Server 2010, IP PBX, ITSP and routers. The SEM can calculate, for example, call quality for the link defined between AudioCodes devices and Microsoft Lync Server 2010 devices. Generic devices are defined by name and IP address.

> To add a Microsoft Lync device to the SEM:

1. Click the he icon on the actions bar; this screen opens:

Network Device Definition	×
🔘 Generic Device 💿 MS L	ync Device
Device Type	Front End Server 👻
FQDN	
IP	
Name	
SQL Server IP	
SQL Server User	
SQL Server Password	
Region	yaniv 👻
	Apply Close

Figure 4-2: Adding a Microsoft Lync Device

2. Use the table below as reference when configuring the parameters.

Table 4-1: Adding a Microsoft Lync Device

Parameter	Description						
Device Type	From the 'Device Type' dropdown, select either						
	• Front End Server is the core server running many basic Lync Server functions:						
	 User authentication and registration 						
	 Presence information and contact card exchange 						
	 Address book services and distribution list expansion 						
	Mediation Server						
	 Implements enterprise voice and dial-in conferencing 						
	 Translates signaling and media (in some configurations) between your internal Lync Server infrastructure and a public switched telephone network (PSTN) gateway, IP- PBX, or a Session Initiation Protocol (SIP) trunk 						
	(Lync) Edge Server						
	 Deployed in a DMZ 						
	 Provides access to the Lync system from the Internet 						
	 Lets your users communicate and collaborate with users 						

Parameter	Description				
	outside the enterprise's firewalls				
	SBA (Survivable Branch Appliance)				
	 Ensures access to data and voice services in the event of a WAN outage 				
Reporting Device	[Only applies to Mediation, Edge and SBA servers] Select the Front End associated with the defined server.				
FQDN	Enter the Microsoft Lync device's Fully Qualified Domain Name.				
IP	Define the Microsoft Lync device's IP address.				
Name	Enter the name of the Microsoft Lync device.				
SQL Server IP	[Applies to Front End Server and centralized Lync database] Define the IP address of the SQL Server.				
SQL Server Port	[Applies to Front End Server and centralized Lync database] Define the port number of the SQL Server.				
SQL Server User	[Applies to Front End Server and centralized Lync database] Enter the user of the SQL Server.				
SQL Server Password	[Applies to Front End Server and centralized Lync database] Define the Password of the SQL Server.				
Region	Define the Region in which the Microsoft Lync device is located.				

3. Click **Apply**; the device is added and displayed in the SEM.

4.4 Defining User Security Levels

You can define different user security levels:

- Administrator Super User (highest level; can view all operations on devices, manage operator security, and manipulate Administrators, i.e., add and remove administrators)
- Administrator (can view all system provisioning operations on devices, and manage operator security)
- Operator (can view and manage all system provisioning operations on devices)
- Monitor (can only view)

See the EMS User's Manual for details.

You can view links in the SEM. To view a link, you must first add it.

- > To add a link to the SEM:
- 1. Click the \mathbb{I} icon on the actions bar; this screen opens:

Figure 4-3: Adding a Link

Link Definition	×
Name	
Src Device	Dest Device
📸 Search	🛗 Search
	→
Based On:	
IP Group	
O Media Realm	
O Remote Media Subnet	
O Trunk Group	
O Phone/URI Prefix	
O Control IP Address	
O Media IP Address	
	Apply Close

2. After you select the **Src Device**, the screen below opens, showing the available options retrieved from the device.



Link Definition	_		×
Name]	
Src Device	_	Dest Device	
🛗 Search		🛗 Search	
10.3.101.104	\rightarrow		•
Based On:			
• IP Group			
🔘 Media Realm			
O Remote Media Subnet			
🔘 Trunk Group			
O Phone/URI Prefix			
O Control IP Address			
O Media IP Address			
Src FQDN			
Dest FQDN			
		Apply	Close

3. Select the **IP Group** option from the device's configured IP-Groups:

Link Definition	×
Name	
Src Device	Dest Device ☐ Search ▼
Based On:	
IP Group	IP Groups
🔘 Media Realm	IP Group#1
Remote Media Subnet	IP Group#2
	IP Group#3
O Trunk Group	IP Group#4
O Phone/URI Prefix	
Control IP Address	
O Media IP Address	
Src FQDN	
Dest FQDN	
	Apply Close

Figure 4-5: Selecting IP Group

If there's no SNMP connection to the device, no options will be available and the error message shown in the figure below will be displayed. Enter the value manually.

Figure 4-6: No SNMP Connection to Device, No Options Available

Link Definition ×	:
Name	
Src Device Dest Device	
📸 Search 🛗 Search	
10.3.3.214 🗸 🛶	
Couldnt establish connection with the device!	
Based On:	
IP Group	
O Media Realm	
O Remote Media Subnet	
O Media IP Address	
Src FQDN	
DESTIMUM	
Apply Close	



4. If a Lync device is configured for **Src Device**, the screen below is displayed.



Figure 4-7: Lync Device Configured as Src Device

5. Use the table below as reference when configuring the parameters.

Table 4-2: Adding a Link

Parameter	Description			
Name	Enter an intuitive name for the link.			
Src Device	From the dropdown list, select the source device <i>from which</i> to link to the destination device. You can alternatively search for it.			
Dest Device	From the dropdown list, select the destination device <i>to which</i> to link from the source device. You can alternatively search for it.			
The link counts and computes statistics on all calls that originate in the source device, based on of the following filter options:				
IP Group	Defines the source device IP-Group index (a list of options may be available).			
Media Realm	Defines the source device Media Realm index (a list of options may be available).			
Remote Media Subnet	Defines the source device Media Realm subnet index (a list of options may be available; Media Realm must also be defined).			
Trunk Group	Defines the source device Trunk Group index (a list of options may be available).			
Phone/URI Prefix	Defines the prefix text of a phone number or SIP URI string.			

Parameter	Description
Control IP Address	Defines a valid IP-Address on which SIP control messages are originated.
Media IP Address	Defines a valid IP-Address on which SIP media messages (voice/fax) are originated.
Src/Dest FQDN	Available only when the source device is a Lync device. The FQDN of the selected src and dest devices.

6. Click Apply; the link is added and displayed in the SEM.



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5 Filtering to Display Specific Info

Filters let you exclude unwanted information from the Network, Statistics, Calls List, Users and Alarms pages. Filters let you display only information you require:

Figure 5-1: Filters

From: Last 3 hours	To: Now	=	19 Devices	All Selected	•	16 Links	All Selected	•	All / None

Table 5-1: Filters

Filter	Description			
Time Range	Lets you display time range-specific information.			
Devices	Lets you display device-specific information.			
Links	Lets you display information on specific communication paths (links) between devices.			

Filters can help you speed access to required information.



Note:

- To filter a device, select **None** in the Links filter and then select the device in the Devices filter. Alternatively, select **Select Just Me** from devices' Actions menu.
- After defining a filter, it remains unchanged in all views until the next time you set a new filter. You can filter again in any view, any time.
- The Calls List page and the Reports page display their own filter bar with pagespecific options.

This section shows how to filter by time range.

5.1.1 Quick Filters

You can filter by time range using use quick filters.

- > To use a quick filter:
- 1. On the filters bar, click the 'From' or 'To' field:

From: L	ast 24 hours	📰 Та	: Now	
Quick OL OL OL	Dates: ast 3 hours ast 6 hours ast 12 hours ast 24 hours			08
O Cu	stom Dates			
From: To:	11/08/2014	4 ♥ : 16 ♥ :	3 - 0 3 - 0	

Figure 5-2: Time Filter

2. Under 'Quick Dates', select a time range and click ^Q; filtering is performed; the filter bar shows this:

Figure 5-3: F	Filter Bar	Showing	Quick Date
---------------	------------	---------	-------------------

From: Last 12 hours	To: Now	
---------------------	---------	--

5.1.2 Custom Filters

This section describes how to custom filters.

- > To customize a time range filter:
- On the Filter bar, click the 'From' field or the 'To' field and select the Custom Dates option:



Figure 5-4: Time Range Filter - Custom

2. Under **Custom Dates**, define the **From** date and then **To** date using the adendar icon:

Quick OL OL OL	Dates: ast 3 hours ast 6 hours ast 12 hours ast 24 hours stom Dates							0	8
From:	07/07/2014			July	Y	20)14		
To:	07/07/2014	s	м	т	w	т	F	s	
				1	2	з	4	5	
		6	7	8	9	10	11	12	
		13	14	15	16	17	18	19	
		20	21	22	23	24	25	26	
		27	28	29	30	31			

Figure 5-5: Time Range Filter – Custom Dates

- 3. Define the time of day/night, if you require; click $\blacktriangle \nabla$.
- 4. Click the cicon to accept; the filtering process is performed and the Filter bar shows the following:

Figure 5-6: Filter Bar - From Date-To Date

Time Range: From: 09/Jul/2014 17:24 II To: 15/Jul/2014 17:24



Note: Seven days is the maximum time you can define. If you exceed it, you are notified.

AudioCodes

5.2 Filtering by Device

You can filter from a list of devices currently connected to the SEM server.

- > To filter by device:
- 1. On the Filter bar, click the 'Devices' drop-down list.

Figure 5-7: Devices Filter

🗄 🗄 🛗 Search 🔗
HK-MSBR
E-SBC
VMAS-Demo
PSTN-GW
New-Jersey
Mobility-ESBC
VMAS

- **2.** Do one of the following:
- Click the Select All icon to automatically select all devices (save the time of manual selection) -OR-
- Click the Select None icon to clear all selections (save the time of manually clearing) -OR-
- Individually select each device for the SEM to display
- Search for devices to filter: In the 'Search....' field, enter the name of a device, for example, **sbc**, as shown in the figure below; the list is filtered to display only those devices.





3. Click C; only devices that you selected are displayed in blue; unselected devices are displayed in light gray. If calls were made on a device, a counter bar is displayed showing percentage share of total calls made. Point your mouse over the bar to display the number of calls made on the device:

Figure 5-9: Filter Results



5.3 Filtering by Links

You can also filter by links.

- > To filter by links:
- 1. On the Filter bar, click the 'Links' drop-down list; the links are displayed.

Figure	5-10:	Links	Filter
--------	-------	-------	--------

🗄 🔛 🛗 Search	\oslash
Bezeq SIP trunk	
Biz+ to Cell	\square
BIZ+ to SIP Trunk	
Cellcom TDM Trunk	
Client Access	
HK SIP trunk (local)	
HK to Lync	
Local M+	•

- 2. Either:
- Click Select All to automatically select all links and save the time of manually selecting -OR-
- Click Select None to clear all selections and save the time of manually deselecting -OR-
- Individually select each link for the SEM to display.

After selecting, click *(in blue)*; only links you selected are displayed (in blue); unselected devices are displayed in light gray.



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6

Viewi

Viewing VoIP Network Entities

The SEM opens by default on the Network page which you can choose to view in:

- Map view (default): shows devices and links located on a map
- Table view: shows devices and links in a table

Note:



- AudioCodes devices must be defined in the EMS for them to be displayed in the SEM.
- Generic (non-AudioCodes) devices are defined only in the SEM (not in the EMS) for them to be displayed in the SEM
- Map view can display up to 100 devices. The display automatically changes to Table view if more than 100 devices are defined.

6.1 Map View

On the Actions bar, click the **Map** icon $\stackrel{\sim}{\mapsto}$; VoIP network entities and their links are graphically displayed as icons.



Figure 6-1: Map View

About Map view:

- AudioCodes devices are colored light blue (see 1, for example)
- Lync devices are colored blue (see 2, for example)
- Non-AudioCodes' devices have gray background color (see **3**, for example)
- Filtered-out entities are displayed without background color
- Devices can be searched for according to region, product type, name, IP, version, name, etc.

AudioCodes

- Devices that are found using the search filter are framed in yellow.
- Selected entities are surrounded with light blue.
- If an entity displays it indicates that the percentage of failed calls > 30% or that the percentage of poor quality calls > 15%.
 If an entity displays it indicates that the percentage of failed calls < 30% and that the percentage of poor quality calls < 15%.
- Entities can be positioned / repositioned in the map. After dragging an entity and dropping it in a different location, click **Topology changed! Save devices locations** at the top of the zoom bar. The map supports topology view *per operator*. Administrators whose security level is non admin/superadmin can change entity locations and save the modified topology in their local browser for later viewing. By contrast, the SEM user whose security level is admin/superadmin can modify entity locations but when the changed topology is saved, it's saved in the database, and the last save determines the topology view for all SEM users.
- Three summary panes (to the right) enable quick assessment of
 (1) successful/failed calls/streams (2) calls/streams quality and (3) alarms (see 4)

6.1.1 Viewing Device / Link Information

In Map view, click a device or a link and then click the now-displayed (1); the Device/Link Info popup opens:



Figure 6-2: Device Info / Link Info

See Section 1.4 on page 14 for quality metrics descriptions.

6.1.2 Performing Device / Link Actions

In Map view, click a device / link and then click the now-displayed . ; the Device/Link Actions popup opens:

Figure 6-3: Device Actions / Link Actions



Device/Link	Actions
AudioCodes Device	Select Device, Select Just Me, Add Link.
Lync Device	Select Device, Select Just Me, Add Link, Edit Device, Update Device QoE Profile, Remove Device.
Non-AudioCodes Device	Edit Device, Remove Device.
Link	Select Link, Select Just Me, Edit Link, Edit Link QoE Profile, Remove Link.

6.2 Table View

In addition to viewing the network in map view, you can also view the network as a table. Table view features two options: Devices -or- Links

Click the **Table** icon on the Actions bar; the table displays devices by default:

				*	FUE	b ates Cr	Sec. 1	AD. Users	Alarma			(2)	
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Name	PAttern	Product Type	N.Com	SuccessFal	Max Concurre	et Guilty	Mos	Jar	Delay	Packet Los	sa Versiot	Report	
ACL IIIndiation		D Mediator Servar			0				0	0		yaw	Successful Failed Streams
10.3.151,236	10.3.151.230	23 Mediart 3000 0410	C	W	0		0	0.	0	0	6.804.233.805	regna	24
11.200.50.1	11,200,50,1	23 Mediant SOOL MSBR	C 05	C	0			0	0	0	6.804.026.005	Anan.	g ==
10.3.80.16	10.3.80.16	23 MPICH		n	0		0	0	0	0	6.00A 015 002	leonid	00 to
10.3.151.248	10.3.151.248	23 SW SEC	B	C 215	8		0		8	0	6.80A.231.987	regna	10 III III III III III III III III III I
10.3.181.55	10.3 181.55	23 MP116FX0			0		0	0	0	0	6.004.028	leorid	7.0
10.4.102.35	10.4 100.35	23 Mediant 2000			0				0	0	6.804.225	leonid	
ACL Edge		D 2000 Server	1000		8.	-	3.7	*	149.2	0		yanv	10:45 11:05 11:25 11:45 12:05 12:25 12:45 13:05 13:25 13:45
Al Edge New Jersey		ED EDGE Server	()0%		0				0	0		yanv.	All Bounnetti Frint - Frint fan
Federate users		~										yanv .	Total Streams Gastly
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Dates SBA	10.133.10.11	() 58A			0				0	0		yanv	
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					147								Autor Isani Time Decid Nere Ethernet Leit 2012 201001 100 100 Tomore Leit Decid Nere To 2012 201001 100 100 Tomore 1010 2010 100 Tomore 1010 2010 100
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													O Topology Lpdate 11 42 53 07 06:14 10.1 101 35
													OW Backup Event 10.06.54.07.06.14 10.3.181.348
													OW/Basike Event 10.0112/010614 10.1101.01
													AND Crisce(2) Major(1) & Major(2)

Figure 6-4: Table View - Devices

Columns show each device's share of calls as a percentage, ASR (average success rate), Quality distribution, MOS, Jitter, Delay and Packet Loss, allowing you access to specific information and consequently enhancing management efficiency.

To display links in the table, click the **Links** button **Devices** Links; the **Links** button turns navy blue:



Figure 6-5: Table View – Links

Columns show each link's Source, Name, Destination, %Streams, ASR, Quality, MOS, Jitter, Delay, Packet Loss, Version, and Region, allowing you access to specific information and consequently enhancing management efficiency.

6.2.1 Sorting by Column

Table view features sorting by column, enabling administrators to quickly compare across devices/links for enhanced comparative analysis capability.



Tip: [To optimize SEM GUI performance] Before sorting columns, in the Refresh Page, stop Auto Refresh () and Start it again () after the sorting results have been displayed.

For example:

- > To sort columns according to %Calls:
- Click the column header and click again if necessary until ▼ is displayed; entities whose percentage share of calls is highest are listed highest, and those whose percentage share of calls is lowest are listed lowest.
- Click the header again; ▲ is displayed; entities whose percentage share of calls is highest are listed lowermost, and those whose percentage share of calls is lowest are listed uppermost.

6.3 Network Health Overview Panes

Map and Table views feature three overview panes, enabling at-a-glance assessment of the overall health of the VoIP network.



Figure 6-6: Network Health Overview Panes

Network health overview panes (top to bottom):

- Successful/Failed Calls lets you quickly assess how the successful / failed calls rate distributes over time.
- Calls Quality pie chart lets you quickly assess % and # of calls whose voice quality was measured as Good (green), Fair (yellow) or Poor (red).
- Total # of calls made, % of successful and failed calls, and the % of Good, Fair or Poor quality calls.
- Alarms lists the names of the most recently active alarms, each alarm's Severity level (color-coded), the Time it was received, and the Name of the device triggering it. Sorting by column enhances information accessibility.

The uppermost 'Successful/Failed Calls' chart lets you quickly access detailed information on calls performance. You can see at a glance the rate of successful versus failed calls distributed over time.

To view information:

- Point your cursor over a green-coded bar segment; a popup shows the # of successful calls made in that interval out of the total # of calls made, the % of successful calls made relative to the total # of calls made in the interval.
- Point your cursor over a red-coded bar segment; a popup shows the # of failed calls made in that interval out of the total # of calls made, the % of failed calls made relative to the total # of calls made in the interval.
- Point your cursor over the red-coded line chart; a popup shows the rate of calls that failed during that interval (i.e., Failed Rate) and the end time of the interval.
- Click the Successful (n) link below the pie; the Calls List page opens showing information on *all* successful calls in the network (see Section 8 on page 69).
- Click the Failed (n) link below the pie; the Calls List page opens showing information on *all* failed calls in the network (see Section 8 on page 69).
- Click a green-coded bar segment; the Calls List page opens showing information on calls that failed in that interval (see Section 8 on page 69).
- Click a red-coded bar segment; the Calls List page opens showing information on calls that failed in that specific time interval (see Section 8 on page 69).

6.3.2 Calls Quality Pie

The pie chart lets you quickly access information related to calls' voice quality. You can see at a glance the % and # of calls whose voice quality was good relative to the % and # of calls whose voice quality was fair, for example.

- > To view information:
- Point your cursor over a green / yellow / red pie segment; the % and # of calls whose voice quality was graded good / fair / poor pops up.
- > To view detailed information:
- Click a green / yellow / red pie segment; the Calls List page opens showing detailed information on calls whose voice quality was graded good / fair / poor (see Section 8 on page 69).

6.3.3 Alarms

- The lowermost 'Alarms' pane lets you quickly access alarms-related information.
- You can see at a glance the # of alarms currently active, for example, All(265), as shown in Figure 6-6, and the # of alarms of each severity level currently active (Critical, Major, Minor).
- > To view detailed information:
- Click All (n); the Alarms page opens showing alarms of all Severity levels and detailed information on them (see Table 10-1).
- Click Critical (n) / Major (n) / Minor (n); the Alarms page opens showing alarms of that specific Severity level and detailed information on them (see Table 10-1).

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7 **Displaying Statistics**

The Statistics page opens by default in Comparative View, displaying four charts (top to bottom) according to the same filters as defined for the Network and Table views:

- Successful / Failed Calls (by default always displayed) (see Section 7.1)
- Max Concurrent Calls (see Section 7.3)
- Calls Quality (Good, Fair, Poor or Unknown) (see Section 7.5)
- Utilization Distribution (Rx/Tx Rate Kbit/sec) (see Section 7.6)

Figure 7-1: Statistics – Comparative View (Default)



You can compare other statistics charts.

From the Compare bar you can select or deselect Call Quality, Utilization, MOS, Packet Loss, Jitter, Delay, Echo, and/or SNR (Signal to Noise Ratio):

Figure 7-2: Compare Options

Compare:

Success/Fail _ Avg Call Duration _ Failed Rate
Max Concurrent
Call Quality
Utilization _ MOS _ Packet Loss _ Jitter _ Delay _ Echo _ SNR

AudioCodes

Clear all compare options except the **Utilization** option; the Statistics page displays this:

Session Experience Manager	*	e	S 😃	4	R	ø		the reads	(Adversionalise) - About
Time Ranget From: Last 3 hours To: Now	20 Devices All Selected + 26 Lb	as Al Brennet + All	Mone			0.00000			0 1 4
Desten								Devices	
Compare: Success/Fal Avg Cal Duration Faled Rate Max Concurre	ent Call Quality @ UMization C MOS C Par	sket Loos 🗋 Jitler 🗋 Delay	C Echo				Summary Vew	Total Calls	Avg Mor
	Usi	Ization Distribution					I Tx (Vbps)	1,341 Success Fat	3.9 Avg Jitter
100							Rx (fars)	94.9% 5.1%	Avg Delay
	I II was II.		-					Max Concurrent Calls	19.1 Avp Piloss
								51	0.1
	120 10 25 10 30 10 30 10 46 10 46 10 50	3.53 14.00 H-05 14.10 H	15 1420 1421 1430 1435 1	40 1440 1450 1452 15	00 12:00 10:10 12:13	10.20 10.20 10.00 10		Good Fat Poor 87.7% 7.5% 4.7%	
								Quality Color Statistics	
								* archite - franzie - franzie Barytes America - franzie Barytes America - franzie	
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								Bala	
								Plan	
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								20x	
								Also,	
								0% 1% 2% 2%	N 0N 0N

Figure 7-3: Utilization Distribution

- You can hide/display any chart.
- The feature lets you easily identify correlations.

7.1 Successful/Failed Calls Chart

The chart shows successful / failed calls distributed over time. The chart can be displayed as a bar chart or linear chart.

To display a bar chart, select 💷 🕶

To display a linear chart, select









The chart lets you assess calls performance at a glance. The chart shows *when successful calls peaked* compared to *when failed calls peaked*. You can compare this to Average Call Duration, Failed Rate, Maximum Concurrent, Calls Quality, Utilization Distribution, MOS, Packet Loss, Jitter, Delay, or Echo charts, to identify correlation and make a diagnosis.

7.2 Average Call Duration (ACD) Chart

This chart shows the average duration of calls, distributed over time.

Figure 7-6: Average Call Duration



The chart helps you assess calls performance at a glance. The chart shows when the ACDs were longest compared to when shortest. You can compare this to Successful/Failed Calls, Failed Rate, Call Quality, Utilization, MOS, Packet Loss, Jitter, Delay or Echo charts, to identify correlation and make a diagnosis.

7.3 Failed Rate Chart

The chart below shows the Failed Rate distributed over time.

Figure 7-7: Failed Rate

100															Fai	led Rat	le																		Faled Ra
50 60 40														F	ailed R 5:10 1	ate																			
0	1400 5	4 05 14	10 14-1	14:20	14-74	14.10	14:16	14.41	-	16.50	12.55	15.00	14.08	14-10	16.16	15-20	16.74	16.32	14.14	15-40	18-26	18.40	16.64	58-00	18-05	16.10	10.15	18-20	14.75	18-10	10.14	16.40	10.45	18-50	

The chart helps you assess calls performance at a glance. The chart shows the failure rate at a point on the time axis. You can compare this to Successful/Failed Calls, ACD, Maximum Concurrent, Call Quality, Utilization, MOS, Packet Loss, Jitter, Delay and/or Echo charts, to identify correlation and make a diagnosis.

7.4 Maximum Concurrent Calls Chart

The chart below shows the maximum concurrent calls distributed over time.

Figure 7-8: Maximum Concurrent Calls Chart



The chart helps you assess calls performance at a glance. The chart shows when the maximum concurrent calls *peaked* compared to when they *dipped*. You can compare this to Successful/Failed Calls, Average Call Duration, Failed Rate, Call Quality, Utilization, MOS, Packet Loss, Jitter, Delay and/or Echo charts, to identify correlation and make a diagnosis.

7.5 Calls Quality Chart

The Calls Quality bar chart shows the distribution of voice quality of calls over time. A glance at the chart shows when, and in what measure, voice quality of calls scored 'Good' (green), 'Fair' (yellow) and 'Poor' (red). Gray indicates 'Unknown' voice quality. The Calls Quality chart is only displayed as a bar chart.

Figure 7-9: Calls Quality Chart



Point the cursor over a color-coded bar segment in any time period; a popup (see below) shows the time the period ended, the number and percentage of calls made whose quality scored in the category represented by the color-coded bar segment, and the total number of calls made in the period.

Figure 7-10: Calls Quality Chart - Popup



- To view detailed information on calls scoring 'Good', 'Fair' or 'Poor' in any time interval; click the relevant color-coded segment of the bar; the Calls List page opens (see Section 8 on page 69).
- To view information on *all* calls whose voice quality scored:
- 'Poor' click the **Poor** link; the Calls List page opens
- 'Fair' click the **Fair** link; the Calls List page opens
- 'Good' click the Good link; the Calls List page opens (see Section 8 on page 69).

Compare Calls Quality to Utilization Distribution, MOS, Packet Loss, Jitter, Delay and/or Echo. Use the **Compare** check boxes located below the Success/Fail Calls chart to select a measurement for which to compare.

If for example, you identify a correlation over time between 'Failed' quality calls, and Jitter, then this metric is the reason for the quality failure.

7.6 Utilization Distribution Chart

The Utilization Distribution chart shows distribution of the media packets network utilization over time. A glance at the chart shows when a high rate (in Kbps) was received or transmitted. The chart thus indicates when a network is congested or uncongested, i.e., when voice quality scores may be lower.

The chart is displayed as a bar chart.

Figure 7-11: Utilization Distribution Chart



To view information on a specific time period, position the cursor over the bar representing the time period; a popup (see below) pops up showing the time at which the period ended, the Rx / Tx rate in Kbps, and the kilobits consumed per second during the time period.

Figure 7-12: Utilization Distribution Chart – Popup



7.7 Summary View

In addition to viewing the Statistics page in the (default) Comparative View, you can also view it in Summary View: Click the **Summary View** link located above and to the right of the chart displayed topmost:



Figure 7-13: Statistics Page - Summary View - 'Call Quality' Selected as Primary Chart

The figure above shows the Statistics page in Summary View. (To revert to Comparative View, click the **Comparative View** link located above and to the right of the chart displayed topmost). Instead of **Compare** options, **Primary Chart** options are now displayed. By default, the Calls Quality chart is displayed as the Primary Chart (displayed topmost), but you can select any of the other Primary Chart options.

Summary View displays all metrics charts. All charts are identical to the bar charts displayed in Comparative View, only condensed. The Primary Chart is not condensed.

In the figure above you can see:

- Calls Quality (Primary Chart). Point your mouse over a bar to determine the # and % of calls whose quality was good (green), fair (yellow), or poor (red) in that time interval.
- Successful/Failed Calls. Point your mouse over a bar to determine the # and % of calls that were successful (green) or failures (red) in that time interval.
- Average Call Duration (ACD). Point your mouse over a bar to determine average call duration in that time interval.
- Maximum Concurrent Calls. Point your mouse over a bar to determine the maximum concurrent calls measured in that time interval.
- Utilization Distribution. Point your mouse over a bar to determine the transmitted (Tx) or received (Rx) kbps at that time. Click the link Tx (Kbps) or Rx (Kbps) to view either.
- Average MOS. Point your mouse over a bar to determine the average MOS scored in that time interval.
- Average Jitter. Point your mouse over the time axis to determine the average

jitter measured at that time, in milliseconds.

- Average Delay. Point your mouse over a bar to determine the average delay measured in that time interval, in milliseconds.
- Average Packet Loss. Point your mouse over the time axis to determine the average packet loss, as a percentage of the total number of packets sent, measured at that time.
- Average Echo. Point your mouse over the time axis to determine the precise average echo measured at that time, in DB.

If **Utilization** is selected as **Primary Chart**, then **Call Quality** is included in Summary View, as shown in the figure below.

Figure 7-14: Statistics Page - Summary View - 'Utilization' Selected as Primary Chart



Call Quality. Identical to Comparative View, only condensed. See Section 7.2 for a detailed information.



7.8 Network Health Overview Panes

The Statistics page displays three panes to the right of the charts, letting you assess at a glance the VoIP network's overall health statistics (top to bottom):

- Total Calls
- Quality Color Statistics
- Quality Cause Statistics



Figure 7-15: Network Health Overview Panes

7.8.1 Total Calls Pane

This pane shows:

- the total number of calls made
- % successful/failed calls
- Maximum concurrent calls
- the percentage of calls in each voice quality category
 - each voice quality metric's score

7.8.2 Quality Color Statistics

This pane displays a color-coded pie showing the percentage of calls whose voice quality was measured as good (green), fair (yellow), or poor (red). The pane also displays the # and % of Busy / No Answer.

- > To view information:
- Point your cursor over a segment of the pie; a popup indicates % and # of calls classified in this voice quality category.
- > To view detailed information:
- Click a segment in the pie; the Calls List page opens letting you view detailed information on calls in this voice quality category (see Section 8 on page 69).

7.8.3 Quality Cause Statistics

This pane shows which of the five voice quality metrics (Echo, Packet Loss, Delay, Jitter, MOS) impacted voice quality the most, and which least.

> To view detailed information:

Point your cursor over a bar to view the precise % and # of calls impacted by the metric.

8 Displaying the Calls List

The Calls List page lists and shows details on all calls made in the network. The page features advanced filtering capabilities to facilitate obtaining precise information on calls quickly and efficiently.

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	Call Status	Cas Quality			Call			alter			Call Duration (14c)	меди Турн	Monitoring Endpoint	Lience Name	LINK Name			Termination Reason	
Þ	Successful	•	1	0	Aliza Scott	sion/es	e -313663	131124@###	le: 13:33:47 Aug 13	14.14.19 Aug 13	2418	Voice	MS Lyne	IL Lyno FE	4, FE to Media	200 DH			
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6	Successful			0	Ofr Artan	ofeavor	n Tomer	Sharahi efe	14.12.40 Aug 13	14:12:57 Aug 13	10	Volce	MS Lyno	IL Lyro FE	IL FE to Edge	200 OH			
£	Successful				Guy Talle	puy yatte	C Arye Be	n Zrihem +	6' 14:11:25 Aug 13	14:12:55 Aug 13	7	Volae	MS Lyno	IL LINS FE	E, Mediation b	200 DK			
	Successful	•		0	Meir Purks	e merpi	ri +972000	171473/@aud	le 14,03,28 Aug 13	14:12:02 Aug 13	027	Volce	MS Lyna	IL Lyna FE	K, Nedetion 8	200 OH			
	Successful	0		0	Ofir Avitan	ofravta	n Tomer	Sharabi efit	N 14:12:19 Aug 13	14.12.28 Aug 13		Volae	MS Lyno	IL LUNS PE	IL FE to Boge	200 DK			
	Successful.			0	Ad Gutter	9 -872387	8 0727440	540@acip+0	1, 14 12 13 Aug 13	141224 Aug 13		Voice	1HC	6.68C	HO LINLEF T	User Buny			
	Successful	0			0545669633	010.9.9.9	3876474	8 39764748 -	8 14/12/07 Aug 13	14.12.2K Aug 13		Value	880	8-88C	HQ Lyns SiP 1	No Answer			
1	Successful.				Markyley	y maky h	n Anir K	what any h	e 14 10 33 Aug 13	14 12 17 Aug 13	121	Voice	MS Lyma	IL Line FE		200 OH			
1	Successful				Abon Brizer	sion ros	e trez Ga	bbey erez o	14/11/50 Aug 13	14 12 13 Aug 13	2	Voice	Arts Lyma	R.Lone FE		200 GK			
2	Incount			0	Ofer Austan	atravla	+ Terrar	Distator after	\$1.11.11.10 Aug 13	14.12.09 Aug 13	-1	Value	ME Lyne	1. Lyna FE	C. FE to Expansion	200 OK			
		1														1			

Figure 8-1: Calls List

The icon in the 'Call Source' column indicates whether the source of the call is from Microsoft Lync or from an AudioCodes device.

Click the **Save As** icon to download calls information (numbers and text) in a comaseparated *calls.csv* file format that can later be easily opened and read in any text editor, as well as sent as an attachment in an email to others.

Go to a page using the pager:

Figure 8-2: Pager

Items 2587/2587	101 () type1 = state () 104	22 - Tens per sage

- Select the number of calls to display per page from the 'Items per page' dropdown list: 10, 25, 30, 40, 50, 100 or 1000.
- Click the Page 1 link; a popup menu listing page numbers and a ▼ scroll enables direct access to a specific page.
- Page forwards or backwards, one page at a time.
- Use the Go to last page or Go to first page icons, in combination with the previous paging capability.

8.1 Filtering to Display Required Information Only

Filtering options on the Calls List page let SEM users exclude irrelevant information and display only required information. Filtering is an essential feature in the management of call sessions, thereby facilitating enhanced call session experiences.

- > To filter the Calls List:
- 1. Click the **Get Calls** button; this screen opens:

			>
Time Range:			
From: Last 3 hours	To: Now		
Devices All Select	ted 👻 🗌 Links	All Selected 👻	
Status	Quality	Cause	
Failed(0)	Poor(0)	✓ None(606)	
✓ Successful(606)	🖌 😑 Fair(0)	✓ MOS (0)	
	✔ ● Good(606)	Jitter(0)	
	🖌 🔾 Unknown(0)	✓ Delay(0)	
		✓ P. Loss(0)	
		Echo(0)	
Caller	Callee		
Media Type	All Selecte	ed ▼	
End Point	All Selecte	d 👻	
SEM Termination Reason	All Selecte	ed 👻	
MS Lync Termination Rea	ason All Selecte	d 👻	
Clear	ок	Cancel	

Figure 8-3: Calls List

2. Filter for 'Time Range', and/or 'Devices', and/or 'Links'. These filters are identical to those on the Network page. See Section 5.

3. Filter for

- a. Status Failed or Successful
- b. Quality Poor, Fair, Good or Unknown
- c. Cause None, MOS, Jitter, Delay, P. Loss or Echo.

Select, for example, the **Poor** quality option, and deselect the other three quality options. The figure below shows the result:

Figure 8-4:	Poor	Quality	Calls	Only
-------------	------	---------	-------	------

Session	Experience	Manag	Jer				*	Statistics	Calls List		D Ocers	Alare		Reports	oblem.	Chief activity (Supervise) Lagrad Ale
I Sear	(h									Get Calls		Refresh Cal				6
Call Source	Call Stutus	Call Quality							Call Duration (sec)	Nedia Trae	Monitoring Endpoint	Device Name	Line Name			
()	Successful.		WOS	0	Monte Dershani	ex Tomer Stewmetz	-0.134334.0414	13.45.05 Jul 14	85	Volue .	MS Line	ACL FE		200 DK		
B >	Seconstat		1405		Toya Shoham Iova	at theytel Pater +972	90 11.87 88 241 14	11.58.08 Jul 14		Volce	MS Lyne	ACL FE		200 OK		
1	Boccessful		MOS	0	Tova lhohan tova	ant Meytal Patel +972	87 11:57:34 Jul 14	11.57.48 Jul 14	1	Volce	MD Lyne	ACLIFE		200 OK		
0	Successful		W05		Meytal Patel +972	197 Tovs Shoham tove	al 11.57.82 Jul 14	11:57:18 34.14	- 10	Volce	MS Lyne	ACLIFE		200 OK		
1	Seccentul		WOS		Toya lhohan toya	a at Meytal Patel +972	107 11 00 10 Jul 14	11:50:54 Jul 14	1	Volce	MD Lyne	ACL FE		200 OK		
0	Burressful		uos.		Terva Shoftants Boya	al Goby Takar +9725	6 11.51.38 Jul 14	11.04.12 Jul 14	140	Volum	All Lyne	ACL PE		200 OK		
0	Successful		HOS	0	Trya Disham 10ya	and Mouthe Misrahi +1	2 11.51.00 Jul 14	11.61.28 Jul 14		Voice	MB Lyne	ACL FE		200 OK		
1	Burnandad		800		Shirty Galan +9721	107 Town Distance Neve	at 11.44.82.34114	11-49-11-34-14	283	Volum	ARE LIPPE	ACL PE		200 OK		
0	Beconstul		NO9	0	Tova liboham tova	a si +972411@audiocodi	11.42.00 Jul 14	11:42:20 Jul 14	2	Volce	NS Lyne	ADLIFE		200 OK		
1	Seccessful		MOS.		Tova Shoham tova	st +972411@audiocode	s.4 11:43:26 Jul 14	11:43:30 Jul 14	2	Voice	MS Lync	ADL FE		200 OK		
10	Beccessful		1005		THORE THE YVDE	e 1 Talia Huss -972546	11 11 30 50 Jul 14	11:37:44 Jul 14	(41)	Volom	MELINE.	ACL FE		200 CH		
	Successful		1005		Aviv Shioush +972	54 Exam Dattat eran b	na 10.30 01.Jul 14	10.39.51 Jul 14	228	Volue.	MS LINE	ACL PE		200 QK		
0	Successful.		W09	0	Tova Shoham and	. st +872505782205@m	fm 10 24:39 Jul 14	10 25 00 Jul 14	- 12.1	Volom	MS Lyne -	ACL FE		200 CH		
10	Beccessful		WOS		Toya lhoham toya	a - 97239768513@aud	bc 10.02.41 Jul 14	10.03.21 Jul 14	20	Volce	MS Lyna	AGL FE		200 OK		
D >	Buccessful		WOS	0	Yoran Shashen y	ere Alfa Lai daochang	09-12-47 Jul 14	09.14.15 Jul 14	- 10	Unknown	NS Lyne -	ACL FE		200 CH		
1	Becceshi		NOS		Boria Vadurability	tor -14093053366@aud	ne 22.87.20 Jul 13	22-58-38 Jul 13	73	Volce	All Lyne	ACL FE		200 OK		
db.	Successful .		1008	0	Born Valuetory	ber +14003653366@aud	DC 223931 AV 18	22-45 53 34 13	377	Volue .	MS Lyne	ACL FE		200 OK		
0	Successful		605		Shoul Latert she	ulta +10546821543@aud	15.12.51 Jul 13	15:49:57 Jul 13	2336	Voice	MELINE	ALL FE		290 OK		
0	Buccessiul		1609		RenePenant +972	44 Dorse Flett dorse.	14.45.11.24.12	14:52:47 Jul 13	329	Voice	HS Lyne	ACLIFE		200 OK		
1	Beconstal		W08	0	Dariel Danker dat	iel. Avi Bachum: +9721	14 44 50 Jul 13	14:50:45 Jul 13	331	Volce	MS Lyne :	AGLITE		200 OK		
1	Reconstal		HOS .	0	Yanuta Ashash y	ahu +972503400055@au	te 14.47.28 Jul 13	14:50:39 Jul 13	174	Voice	MS Lyne	ACL PE		200 OK		
1	Beccenter		WOS		Avillagun avillagu	ng Amir Kielen +97235	16 14 45 54 Jul 13	14.60-16.3413	125	Volue	MS Lyne	ACL FE		200 OK		
D 2.	Baccessful		1005		Yacos Taadharr 38	aco +87239764444@mud	DC 14 47 81 Jul 13	14 49 50 Jul 13	118	Volum	MS Lyne	ACL FE		200 OK		
8	Successful		WOS		+972722201124@82	de Sari Ashkenazy a	14.42.41.04.13	14:45:38 34:13	.47	Volum	MS Lyne	ACL FE		200 OK		
U P	Seconstat	•	WOS	0	Gilad Hoyal glada	toy +972506285296@au	60 14.48.22 Jul 13	14.40.30 Jul 13	-	Volce	MS Lyne	ACL FE		200 OK		
Dema 34/	34	-							NI	4 - 1001	- 112 1	H				2. + Terra per page

Only calls of poor quality are displayed. The causes can be Packet Loss, Jitter, Delay and MOS.

- 4. Filter these poor quality calls for those whose poor quality was caused *only* by **Delay**, for example. Deselect every cause except **Delay**.
- 5. Filter for 'Caller' and/or 'Callee'. The fields are case-sensitive.
- 6. Filter for 'Media Type'.
 - a. Click its All Selected link. By default, all media types are selected. The dialog below opens.



- b. Click the Select None icon and then select the media type for which to filter.
- **c.** Click the \checkmark and then click **OK**.
- 7. Filter for 'End Point'.
 - a. Click its **All Selected** link. By default, all end points types are selected. The dialog below opens.

🗄 🔛 🛗 Search	\oslash				
FXS Analog					
FXO Analog					
E & M Analog					
ISDN Digital					
CAS Digital					
DAA					
IPMedia					
NETANN	v				

- **b.** Click the **Select None** icon and then scroll down if necessary and select the end point for which to filter.
- **c.** Click the \checkmark and then click **OK**.
- 8. Filter for 'SEM Termination Reason'.
 - a. Click its All Selected link. By default, all termination reasons are selected. The dialog below opens.



- **b.** Click the **Select None** icon and then scroll down if necessary and select the end point for which to filter.
- c. Click the ✓ and then click OK.
- 9. Filter for 'MS Lync Termination Reason'.
 - a. Click its All Selected link. By default, all termination reasons are selected. The dialog below opens.

5 1	
註 註 蕭 Search	\oslash
OK.Indicates the request was successful.	
Accepted Indicates that the request has been accepted for processing, but the processing has not been completed.	
No Notification.Indicates the request was successful, but the corresponding response will not be received.	
I Multiple Choices. The address resolved to one of several options for the user or client to choose between, which are listed in the message body or the message's Contact fields.	
Moved Permanently. The original Request-URI is no longer valid, the new address is given in the Contact header field, and the client should update any records of the original Request-URI with the new value	e.
Moved Temporarily. The client should try at the address in the Contact field. If an Expires field is present, the client may cache the result for that period of time.	
Use Proxy. The Contact field details a proxy that must be used to access the requested destination.	
Atternative Service. The call failed, but atternatives are detailed in the message body.	Ŧ

- **b.** Click the **Select None** icon and then scroll down if necessary and select the end point for which to filter.
- c. Click the ✓ and then click OK.
8.1.1 Sorting Calls in the Calls List



Tip: To optimize SEM GUI performance: Before sorting calls in the list, in the Refresh Page, stop Auto Refresh () and Start it again () after the sorting results have been displayed.

Sort calls in the list by clicking a column header; calls are sorted in the order of that column. Click another column header's sort arrow; calls already sorted are now further sorted in the order of *this* column. Therefore, the Calls List enables you to set multiple sort keys to determine correlations between the information displayed in the different columns. This capability facilitates quick and easy access to those calls on which information is most required. Calls on which information is less critical is listed lower.

Below is an intuitive example of how to perform multiple columns sorting.

> To sort the calls in the list:

- Click the column header 'Call Status'; the sort arrow points down ▼ indicating that successful calls are displayed first, followed by failed calls. If you then click the sort arrow, it points up ▲ indicating that failed calls are displayed first followed by successful calls; indicated by 1 in the column header.
- Position your cursor over another column and click its now-displayed sort arrow, for example, 'Call Quality'; calls are now sorted successful-failed *and* in order of quality (Good > Fair > Poor > Unknown), indicated by 2 in the column header.
- Click a third column header's sort arrow, for example, 'Cause'; calls are now sorted (1) successful-failed (2) in order of quality *and* (3) in order of cause (Delay, Echo, Jitter, MOS, Packet Loss and None, in *alphabetic order*), indicated by 3 in the Cause column header.

Calls have now been sorted in three separate columns each in the respective desired sort order. You can now visually draw correlations between the data displayed in each respective sorted column, whilst at the same time, the integrity of each record is maintained.



Note: To reset column sort ordering, click any column header; a new column sort order begins.

Column		Description					
Call Status	Successful of	Successful or Failed					
Call Quality	●= Good ●= Fair ●= Poor ○= Unknown						
Cause	Delay (msec)	Delay (or latency) - the time it takes for information to travel from source to destination (round-trip time). Sources of delay include voice encoding / decoding, link bandwidth and jitter buffer depth. Two Delay values are shown, one value for the caller side and one value for the callee side.					
	Echo	The level difference (measured in dB) between the signal transmitted to the listener and the residual echo of this signal.					
	Jitter (msec)	Jitter can result from uneven delays between received voice packets. To space packets evenly, the jitter buffer adds delay. The higher the measurement, the greater the impact of the jitter buffer's delay on audio quality. Two Jitter values are shown, one value for the caller side and one value for the callee side.					
	MOS	MOS - Mean Opinion Score (specified by ITU-T recommendation P.800) - the average grade on quality scales of Good to Failed, given by the SEM to voice calls made over a VoIP network at the conclusion of the testing.					
	Packet Loss (%)	Lost packets - RTP packets that aren't received by the voice endpoint for processing, resulting in distorted voice transmission. Two Packet Loss % values are shown, one value for the caller side and one value for the callee side.					
	None	Indeterminate cause					
Caller	The phone nu	umber or address of the person who initiated the call.					
Callee	The phone nu	umber or address of the person who answered the call.					
Call Start Time	The precise t when the call	ime (hour, minutes and seconds) and date (month, day and year) was started.					
Call End Time	The precise t when the call	ime (hour, minutes and seconds) and date (month, day and year) was terminated.					
Call Duration (sec)	The duration	of the call, in seconds.					
Media Type	Voice or Fax.						
Monitoring Endpoint	SBC (sessior	n board controller), ISDN Digital, or IP2IP.					
Device Name	The name of	the device on which the call was made.					
Termination Reason	The reason w	why the call was terminated, e.g., No Answer.					

Table 8-1: Calls List Columns

8.1.2 Filtering Using the 'Search' Field

Use the 'Search' field as a quick alternative to other filtering methods, or use it combined with other methods as a supplement.

The 'Search' option is a single filter; it cannot filter calls already filtered by a previous filter, or order calls already ordered, as the other methods can do. But you can perform an initial quick filter and then use another method to narrow the results. Enter an employee's name, e.g., Alan, in the 'Search' field (see the figure below); only calls made and answered by Alan are listed.

Figure 8-5: Results after Searching for an Employee's Name

Session	Experienc	e Manag	er.			ņ	*	Statutics	Calls List		ADITATES	Alarra	n.	Reports	teatras.		the entropy (specific) tagent Also
(B) 41.4	u									Out Cals		Betrah Cal					8
Call Source	Call Status	Call Gualty	Cause		Caler	Callee	Call Start Time	Call End Time	Call Duration (sec)	Veda Tipe	Monitoring Endpoint	Device Name	Link Name			Termination Reason	
1	Successful.	0		0	Alan Roberta - alan.m	1 -17296306025@audo	10 13 34 43 Jul 14	1334.45.34.14		Volue	MS Lpre	AGLIFE		486 Bury Hara			
0	Successful				Alen Roberts alan.re	(-\$7256306025@mudo	13:33:10 Jul 14	13:33:12 Jul 14	0	Voice	NS Lyne	ACL FE		400 Bury Here			
1	Buccessful	•		0	Alan Roberts alan re	-17299587000@audo	13.09.40.3.014	13.10.04 Jul 14	17	Volue	MS-Lpro	ACL FE		200 CH			
0	Successful			0	Aten Roberts alan ro	4 -97296306025@audo	19 28 42 Jul 13	19:45:06 Jul 13	487	Volce	NS Lyne	ACLIFE		200 CH			
1	Soccessful			0	Alen Roberts alan re	t Callres galevez@s	17:58:17 Jul 13	17.66.42 Jul 13	4	Volce	NS Lync	ACL FE		200 CK			
6	Successful		MO5	0	Aten Roberts alan ro	Anat Cohen +97238	7 17:32:04 Jul 13	17:36:28 Jul 13	200	Voloe	NS Lyne	AGL PE		200 CH			
1	Berresshi	•		0	Alen Roberts alet.rs	Asaf Cuture +97238	10.34-43-44 13	10.54 87 34 13	10	Voice	MS-Lone	ACL FE		200 CH			
0	Bussessful	•		0	Alan Roberts alan.rt	Asal Cohen 497239	n 18.22,23 Jul 13	10 22 00 Jul 13	2	Volue	MS Lyne	ACL PE		298 OK			

After the search results are displayed, click the 'x' in the Search field to undo the filter, or narrow the search using another filter method.

Access a call's details by clicking its row; the Call Details page opens (see Section 8.2 following).

8.2 Displaying Call Details

You can view the details of a call listed in the Calls List, by clicking its row. The Call Details screen displays information corresponding to whether the call was over Microsoft Lync or over an AudioCodes entity.

8.2.1 Displaying Details of a Call over an AudioCodes Device

You can display the details of calls made/received over an AudioCodes device (Gateway / SBC / MSBR).

The Call Details page displays detailed diagnostic information on a call, in graphic and textual format, facilitating effective management, precise diagnosis and targeted remedial action to prevent recurrence of unsuccessful call performance or poor call quality. The figure below shows the details of a call made over an AudioCodes VoIP networking device (Gateway / SBC / MSBR).

Figure 8-6: Details of a Call over a VoIP Networking Device (Gateway/SBC/MSBR)

Cal	I Details						⇒ ×			
Ca Ca Ca Ca	Il Status: Successful Il Quality: • use: P. Loss use Desc: Red%: 100	Device Name: Device Mgmt IP Monitoring End Media Type:	Cloud.Mobili : 172.17.240.6 point: SBC Voice	Call Call Call Call Call Call Call Call	Start Time: 17:44:00 Feb 26 20' Connect Time: 17:44:30 Feb 26 20' End Time: 17:50:00 Feb 26 20' Duration (sec): 333	4 Termination Initiator 4 Termination Reason 4 Termination Exact Re Debug Details	Hide Caller (SIP) 7 eason: Normal Call Clear			
	Caller 4225 4225@scm.c C: 220.249.162.135.480 M: 127.0.0.1:16394	Links M+ local users; 167	Cioud.Mol C: 195.189.192.26:5071 M: 195.189.192.26:8190	De bility.SIP.	vice Trunk (172.17.240.8) C: 172.17.240.8:5080 M: 172.17.240.8:6190	Links Local M+;	C: 10.82.0.9251:5060 M: 10.82.0.90:8240			
	Call Quality Signaling Info	Media Info Trend Caller Leg	Alarms		Callee Leg					
		Caller <- Device	Caller -> Device			Device <- Callee	Device -> Callee			
1	all Quality	Poor	Poor		Call Quality	Good	Good			
N	10S				MOS					
Ji	itter (msec)	34	147 9.77		Jitter (msec)	4	0			
P	acket Loss (%)	21.48			Packet Loss (%)	0	0			
R	ound Trip Delay (msec)		707		Round Trip Delay (msec)	7				
E	icho (dB)				Echo (dB)					
s	ignal Level (dBm)				Signal Level (dBm)					
N	loise Level (dBm)				Noise Level (dBm)					
s	NR (dB)				SNR (dB)					
В	urst Duration (%)				Burst Duration (%)					

The table below describes the page's subdivisions.

Table 8-2: Call Details Page Subdivisions

Page Subdivision	Description
(Uppermost) Call summary	Displays parameters and values identical to those displayed in the Calls List rows. See Section 8 on page 69.
(Middle) Graphic illustration	Displays a graphical illustration of voice quality on each leg of the call, on both the caller and callee side.

Page Subdivision	Description			
	Each leg is:			
	 Connected via the VoIP cloud to the device 			
	 Color-coded to indicate quality (green = good, yellow = fair, red = poor, grey = unknown) 			
	 Tagged by C and M 			
	C = Control summary (point the cursor to view as tooltip) M = Media IP address and Port (point cursor to view tooltip)			
(Lowermost) Five tabs	Each opens a page displaying detailed information:			
	 Call Quality (see Section 8.2.1.1 on page 77 below) 			
	 Signaling Info (see Section 8.2.1.3 on page 80 below) 			
	 Media Info (see Section 8.2.1.4 on page 82 below) 			
	 Trend (see Section 8.2.1.5 on page 83 below) 			
	 Alarms (see Section 8.2.1.6 on page 85 below) 			
	 Device Info (applies only to calls over Microsoft Lync) 			
	(see Section 8.2.2.1 on page 88 below)			

8.2.1.1 Call Quality

The Call Quality tab centralizes all parameters associated with the quality of an individual call, including Round Trip Delay, Signal Level, Noise Level, SNR, RERL and Burst Duration, in a central location for SEM users to comprehensively assess voice quality, perform precise diagnosis and effectively troubleshoot and manage session experience.

Figure 8-7: Call Quality

•	Call Details								L2 ×
	Call Status: Successful Call Quality: Cause: Delay Cause Desc: Red%: 100	Device Name: Device Mgmt IP Monitoring Endy Media Type:	Cloud.Mobili : 172.17.240.6 point: SBC Voice	Call S Call C Call E Call E	Start Time: 15:48:00 Feb 26 20' Connect Time: 15:48:02 Feb 26 20' ind Time: 15:48:00 Feb 26 20' Juration (sec): 10	14 14 14	Termination Initiator Termination Reason Termination Exact Re Debug Details	: Caller : (SIP) 7 eason: Normal Call Clear	Hide
	Caller Golan Buznak +9 C: 10.62.0.42:5060 M: 10.62.0.56:7320	Links	Dev ility.SIP.T	vice frunk (172.17.240.8) C: 195.189.192.28.5071 M: 195.189.192.28.5300		Links	C: 62.216.234.87:5081)	
	Call Quality Signaling Info	Media Info Trend Caller Leg	Alarms				Callee Leg	1	
		Caller <- Device	Device Caller -> Device			Dev	ice <- Callee	Device -> Callee	
	Call Quality	Good	Good		Call Quality	Poor		Good	1
	MOS				MOS				
	Jitter (msec)	0	1		Jitter (msec)	3		3	
	Packet Loss (%)	0	0		Packet Loss (%)	0.39		0	
	Round Trip Delay (msec)		6		Round Trip Delay (msec)	518			
	Echo (dB)				Echo (dB)				
	Signal Level (dBm)				Signal Level (dBm)				
	Noise Level (dBm)				Noise Level (dBm)				
	SNR (dB)				SNR (dB)				
	Burst Duration (%)				Burst Duration (%)				

Table	8-3:	Call	Quality	Parameters
IUNIO	•••	oun	addity	i aramotoro

Parameter	Description
Call Quality	Good (green), Fair (yellow), Poor (red), Unknown (grey). Indicates call quality grades scored by caller <i>and</i> device side, on both caller <i>and</i> callee legs.
MOS LQ / CQ	MOS = Mean Opinion Score (specified by ITU-T recommendation P.800). Defines the average grade, on a quality scale of Good to Poor, determined by the SEM after testing calls made over a VoIP network.
	MOS-LQ = listening quality, i.e., the quality of audio for listening purposes. Doesn't account for bi-directional effects such as delay and echo. Two values are shown: (1) for the device side on the caller leg (2) for the device side on the callee leg.
	MOS-CQ = conversational quality; it takes listening quality in both directions into account, as well as the bi-directional effects. Two values are shown: (1) for the device side on the caller leg (2) for the device side on the callee leg.
Jitter	Jitter can result from uneven delays between received voice packets. To space evenly, the jitter buffer adds delay. The higher the measurement, the greater the impact of the jitter buffer's delay on audio quality. Two Jitter values are shown, one value for the caller side and one value for the callee side.
Packet Loss	Lost packets = RTP packets that aren't received by the voice endpoint for processing, resulting in distorted voice transmission. Two Packet Loss % values are shown, for the caller and for the callee side.
Round Trip Delay (msec)	The round trip delay is the estimated time (in milliseconds) that it takes to transmit a packet between two RTP stations. Sources of delay include voice encoding / decoding, link bandwidth and jitter buffer depth. Two values are shown, one caller side and another for the callee side.
Echo	The residual echo return loss is the level difference (measured in dB) between the signal transmitted to the listener and the residual echo of that signal.
Signal Level (mW)	The ratio of the voice signal level to a 0 dBm0 reference. Signal level = 10 Log10 (RMS talk spurt power (mW)). A value of 127 indicates that this parameter is unavailable.
Noise Level (mW)	The ratio of the level of silent-period background noise level to a 0 dBm0 reference. Noise level = 10 Log10 (Power Level (RMS), in mW, during periods of silence). A value of 127 indicates that this parameter is unavailable.
SNR (mW)	The ratio of the signal level to the noise level (Signal-Noise Ratio). SNR = Signal level – Noise level.
Burst Duration (msec)	The mean duration (in milliseconds), of the burst periods that have occurred since the initial call reception.
Discard Rate	The fraction of RTP data packets from the source, discarded since initial call receipt due to late/early arrival, under-run, or overflow at the receiving jitter buffer.

For detailed information, see:

- RFC-3611 RTCP-XR protocol (go to <u>http://tools.ietf.org/rfc/rfc3611.txt</u>)
- RFC-3350 RTP protocol (go to http://tools.ietf.org/html/rfc3550)

8.2.1.2 Call Quality – PSTN Leg

Quality can also apply to voice over PSTN (not only to VoIP). The figure below shows the Call Details screen of an IP to PSTN call whose callee leg is over PSTN.



Figure 8-8: Call Quality - PSTN Leg

Table 8-4: Call Quality	Parameters – PSTN Leg
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Parameter	Description				
Dest Phone Number (Callee)	Called (destination) phone number				
Source Phone Number (Caller)	Caller's (source) phone number				
Dest Before Map (Callee) Source Before Map (Caller)	Called (destination) number before manipulation (if any) was done on it				
	Caller's number before manipulation (if any) was done on it				
Number Type	Applies only to IP to Tel calls. Options are: Unknown, Level 2 Regional, Level 1 Regional, PISN Specific, Level 0 Regional (Local), International, National, Network Specific, Subscriber or Abbreviated.				
Number Plan	Applies only to IP to Tel calls. Options are:				
	Unknown, Private, E.164 Public, Value Received from PSTN/IP				
Trunk Group Number	Defines the Trunk Group number provisioned by the SEM user.				
Metering Pulses	Applies only to gateways. Number of 12/16 KHz metering pulses generated toward the Tel side, e.g., for connection to a pay phone or private meter.				

Parameter	Description
Trunk Number	Applies only to gateways. Defines the physical trunk number, where 0 is the first trunk.
B-Channel Number	Applies only to gateways. Defines the selected B (bearer) channel, i.e., the channel in which primary voice communication is carried).

8.2.1.3 Signaling Info

The Signaling Info tab shows a call's control protocol (SIP) parameter settings that SEM users can refer to for diagnostic, troubleshooting and session experience management issues.

The same parameters apply to both the Caller and Callee legs. These parameters are explained in the table below.

C	all Details									🖸 🖓	¢
	Call Status: Failed Call Quality: • Cause: Jitter Cause Desc: Red%: 77.83	3	Device Name: C Device Mgmt IP: 1 Monitoring Endpoint: S Media Type: V	Cloud.Mobili 72.17.240.6 BC /oice	Call St Call Co Call Er Call Du	tart Time: 1 onnect Time: 1 nd Time: 1 uration (sec): 2	0:19:00 Fe 0:19:26 Fe 0:22:00 Fe 212	b 26 2014 b 26 2014 b 26 2014	Termination Initiator: Termination Reason: Termination Exact Reason: Debug Details	Hid Unknown (SIP) 408 Recovery O	le
	Caller 2002 2002@som.c C: 37.119.20 M: 192.191.1 Call Quality Signe	M+ 3.196:7075 100:18384 aling Info Media Info	Device Links Cloud Mobility SIP.Trunk (172.17 240.8) Local M+: 43 195.189.192.268.4071 C: 172.17 240.6:5080 C: 10.62.0.251.50 M: 172.17 240.6:6440 M: 10.62.0.30.62					Callee 4358@acm.com			
[Calle	er Leg		Callee Leg					1	
		Caller <- Device	Caller -> Device	Redirect		Device <- Ca		Device <- Callee	e Device -> Callee	Redirect	
ſ	SIP IP	37.119.203.195	195.189.192.26			SIP IP		172.17.240.6	10.62.0.251		
	SIP Port	7075	5071			SIP Port		5060	5060		1
	URI	2002@acm.com	4358@acm.com			URI		2002@acm.com	4358@acm.com		
	URI Before Map	2002@acm.com	4358@acm.com			URI Before Map		2002@acm.com	4358@acm.com		
	SRD Name: IP Group: SIP Interface: Proxy Set ID: IP Profile ID:	WAN_SRD 2 2 0 2	Transport Type: Signalling Diff Serv:	TLS 40		SRD Name: IP Group: SIP Interface Proxy Set ID: IP Profile ID:	:	LAN_SRD 1 1 1 1	Transport Type: Signalling Diff Serv:	UDP 40	

Figure 8-9: Signaling Info

Parameter	Description
SIP IP	IP address (source and destination) of the SIP call
SIP Port	Port number used for the SIP call
Host	The URI (Uniform Resource Identifier) of the host. The SIP URI is the user's SIP phone number (after manipulation, if any). The SIP URI resembles an e-mail address and is written in the following format: sip:x@y:Port, where x=Username and y=host (domain or IP).
Host Before Map	SIP URI address before manipulation (if any) was done on the URI.
Phone number	Caller's phone number after manipulation (if any) was performed on it.
Number Before Map	Caller's phone number before manipulation (if any) was performed on it.
SRD Name	The unique name configured for the signaling routing domain (SRD).
IP Group	The ID of the IP Group with which call is associated.
SIP Interface	The ID of the SIP Interface with which the call is associated.
Proxy Set ID	The ID of the Proxy Set to which the call is associated. A Proxy Set is a group of Proxy servers defined by IP address. Typically, for IP-to-IP call routing, at least two Proxy Sets are defined for call destination – one for each leg (IP Group) of the call (i.e., both directions). For example, one Proxy Set for the Internet Telephony Service provider (ITSP) interfacing with one 'leg' of the device and another Proxy Set for the second SIP entity (e.g., ITSP) interfacing with the other 'leg' of the device.
IP Profile ID	The ID of the IP Profile assigned to this IP destination call. The IP Profile assigns numerous configuration attributes (e.g., voice codes) per routing rule.

Table 8-5: Signaling Info Parameters Descriptions

8.2.1.4 Media Info

The Media Info tab displays a call's media parameter settings that SEM users can refer to for diagnostics, troubleshooting and session experience management issues.

The same parameters apply to both the Caller and Callee legs. These parameters are described in the table below.



Figure 8-10: Media Info

Table 8-6: Media Info Parameters

Parameter	Description
Coder	Up to 10 coders (per group) are supported. See the device manual for a list of supported coders.
PTime (msec)	Packetization time, i.e., how many coder payloads are combined into a single RTP packet.
Silence Compression	Method for conserving bandwidth on VoIP calls by not sending packets when silence is detected. True = Enabled (On), False = Disabled (Off).
Rx Rate (Kbps)	Shows the call's reception rate, in Kbps.
Tx Rate (Kbps)	Shows the call's transmission rate, in Kbps.
Media IF	Media Realm name.
Network IF	Network Interface Name.
RTP Dir	RTP Directional Control. Controlled internally by the device according to the selected coder.
RTCP Dir	RTCP Directional Control. Controlled internally by the device according to

Parameter	Description
	the selected coder.
Media Caller Side IP	The device's source IP address in the operations, administration, maintenance, and provisioning (OAMP) network.
Media Caller Side Port	The device's source port in the operations, administration, maintenance, and provisioning (OAMP) network.
Media Device Side IP	IP address of the destination host / media network.
Media Device Side Port	Port of the destination host / media network.

8.2.1.5 Trend

The Trend tab shows the quality trend of a call that SEM users can refer to for diagnostic, troubleshooting and session management experience issues.

Call Details							🗔 ×
Call Status: Call Quality: Cause: Cause Desc:	Failed Jitter Red%: 77.83	Device Name: Device Mgmt IP: Monitoring Endpoint: Media Type:	Cloud.Mobili 172.17.240.6 SBC Voice	Call Start Time: Call Connect Time: Call End Time: Call Duration (sec):	10:19:00 Feb 26 2014 10:19:26 Feb 26 2014 10:22:00 Feb 26 2014 212	Termination Initiator: Termination Reason: Termination Exact Reason: Debug Details	Hide Unknown (SIP) 408 Recovery 0
Call 2002 2002(ler @aom.c	Links I+ local users;	Cioud.Mc	Device ibility.SIP.Trunk (172.17.240.8) C: 172. M: 172.	17.240.8:5080 17.240.8:8440	Links Local M+: C: 10 M: 1	Callee 4358@acm.com
Call Qua	Ity Signaling Info Media Info	Trend	Alarms I Caller -> Device	Caller → Device	Device <- Callee	De	vice -> Callee
Poor Qua	lity: 77.83%, Fair Quality: 16.51%, Go	od Quality: 5.66%					
1600 1200 800 400 0				Jitter (msec)			Delay Echo
				MOS			
4							MOS Jitter P. Loss Delay Echo

Figure 8-11: Trend

Quality applies to two legs of the call:

- Caller leg
- caller side (of cloud)
- device side (of cloud)
- Callee leg
- callee side (of cloud)
- device side (of cloud)

> To assess call quality:

- 1. Select one of the four leg options (uppermost row of check boxes).
- 2. Point the cursor over the color bar; a popup shows data at that point:

Figure 8-12: Call Quality Color Bar

10/19/26	10:21:12		10:22:18	Color
Poor Quality: 77.83%, Fair Quality: 16.51%, Good Quality: 5.66%				
	Quality	: Poor		
	Duratio	n (sec): 17		
	Start: 1	0:21:12		
	End: 10	0:21:29		

The popup in Figure 8-12 indicates the quality measurement that the call scored in this segment (good = green, fair = yellow, poor = red), how long the segment lasted, and the time the segment started and ended.

Each quality category's percentage of the total length of the call is textually indicated below the color bar.



Note: Legs over PSTN are not measured for quality, only legs over IP. Check box options are disabled for legs over PSTN.

- > To compare one call quality metric with another:
- 1. Select one of the four leg options (uppermost row of check boxes).
- Adjacent to the two lower panes, select MOS, Jitter, Packet Loss, Delay or Echo check boxes; you can immediately visually compare one metric with another (see Figure 8-11 above).
- 3. Optionally select another of the four leg check box options; you can immediately compare the same metrics across this leg, or, optionally, select different metrics to compare.

8.2.1.6 Alarms

The Alarms tab lists alarms (if any) issued by the device associated with the call. SEM users can refer to the data displayed to quickly assess a call's alarm/s and consequently effectively diagnose, troubleshoot and manage session experience issues.

Call Quality	/ Signaling Info	Me	dia Info Trend	Alarms		
Severity	Time		MG Name	Source	Alarm Name	Description
Info	11:49:28 Jan 06 2014		SEM	SEM		Call Details Storage Level changed from {0} to {1}.

Figure 8-13: Alarms

Table 8-7: Alarms Columns*

Column	Description
Severity	For detailed information, see Section 9 below.
Time	The precise time (hour, minutes and seconds) and date (month, day and year) at which the alarm was received.
MG Name	The name of the device on which the individual call's alarm/s were issued.
Source	The entity that triggered the alarm.
Alarm Name	The name of the alarm.
Description	A textual description of the alarm.

* Extracted from ITU X.733

8.2.2 Displaying Details of a Call over Microsoft Lync

You can display the details of a call made/received over Microsoft Lync.

The Call Details page displays detailed diagnostic information on the call, in textual format, facilitating effective management, precise diagnosis and targeted remedial action to prevent recurrence of unsuccessful call performance or poor call quality.





The table below describes the page's subdivisions.

Table 8-8: MS Lync	Call Details Pag	ge Subdivisions
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Page Subdivision	Description
(Uppermost) Call summary	Displays parameters and values identical to those displayed in the Calls List rows. See Section 8 on page 69.
(Middle) Call Legs Table	 Displays the call flow. Each leg represents a section between two devices (Microsoft Lync, AudioCodes, or generic) in the call flow. Select a leg to display its details. Each leg displays: Quality - Color-coded (green = good, yellow = fair, red = poor, grey = unknown) From/To - Devices in the leg Caller/Callee - Endpoint users of the leg Leg Links - The links on which this leg passed

Page Subdivision	Description
Four tabs:	Similar to the tabs for calls over a VoIP networking device (Gateway /
Call Quality	SBC / MSBR).
Signaling Info	 For the Call Quality tab, see Section 8.2.1.1.
Media Info	 For the Signaling Info tab, see Section 8.2.1.3.
Device Info	For the Media Info tab, see Section 8.2.1.4.
	 For the Device Info tab, see Section 8.2.2.4

This section describes the Call Quality tab screen (see Figure 8-14). Use the table below as a reference.

Parameter	Description
Overall Avg Network MOS	MOS = Mean Opinion Score (specified by ITU-T recommendation P.800). Defines the average grade, on a quality scale of Good to Poor, determined by the SEM after testing calls made over a VoIP network. Comprises:
	MOS-LQ = listening quality, i.e., the quality of audio for listening purposes. Doesn't account for bi-directional effects such as delay and echo. Two values are shown: (1) for the device side on the caller leg (2) for the device side on the callee leg.
	MOS-CQ = conversational quality; it takes listening quality in both directions into account, as well as the bi-directional effects. Two values are shown: (1) for the device side on the caller leg (2) for the device side on the callee leg.
Jitter Inter Arrival (msec)	Jitter can result from uneven delays between received voice packets. To space evenly, the jitter buffer adds delay. The higher the measurement, the greater the impact of the jitter buffer's delay on audio quality. Two Jitter values are shown, one value for the caller side and one value for the callee side.
Packet Loss %	Lost packets = RTP packets that aren't received by the voice endpoint for processing, resulting in distorted voice transmission. Two Packet Loss % values are shown, for the caller and for the callee side.
Round Trip Delay (msec)	The round trip delay is the estimated time (in milliseconds) that it takes to transmit a packet between two RTP stations. Sources of delay include voice encoding / decoding, link bandwidth and jitter buffer depth. Two values are shown, one caller side and another for the callee side.
Echo Return (dB)	The residual echo return loss is the level difference (measured in dB) between the signal transmitted to the listener and the residual echo of that signal.
Recv Signal Level (mW)	The ratio of the voice signal level to a 0 dBm0 reference. Signal level = 10 Log10 (RMS talk spurt power (mW)). A value of 127 indicates that this parameter is unavailable.
Recv Noise Level (mW)	The ratio of the level of silent-period background noise level to a 0 dBm0 reference. Noise level = 10 Log10 (Power Level (RMS), in mW, during periods of silence). A value of 127 indicates that this parameter is unavailable.
SNR (dB)	The ratio of the signal level to the noise level (Signal-Noise Ratio). SNR = Signal level – Noise level.
Burst Duration (msec)	The mean duration (in milliseconds), of the burst periods that have occurred since the initial call reception.
BandwidthEst	Estimated bandwidth.

Table 8-9: Call Quality Parameter Description

8.2.2.2 Signaling Info

This section describes the Signaling Info tab screen.

Figure 8-15: Ca	II Details – I	Microsoft Lync	- Signaling	Info tab
-----------------	----------------	----------------	-------------	----------

Call Details		🕞 ×
Caller: Yariv Golan-Atir yariv.golan-atir@audiocodes.com	Callee: Arye Ben Zrihem	Hide
Call Status: Successful Device Name: ACL FE	Call Start Time: 12:16:50 Aug 12 2014	Termination Initiator: Caller
Call Quality: O Device Mgmt IP: 10.1.1.64	Call Connect Time: 12:17:13 Aug 12 2014	SIP/PSTN Term Cause: 200 OK
Cause: MOS Monitoring Endpoint: MS Lync	Call End Time: 12:19:52 Aug 12 2014	Termination Reason: Indicates the request was successful
Cause Desc: Yellow%: 0 Media Type: Voice	Call Duration (sec): 158	Debug Details
Select Name Quality From To	Caller	Callee Leg Links
Leg 1 OC MediationServer	sip:yariv.golan-atir@audiocodes.com	sip:+972544394133@audiocodes.com;user=phone
C Leg 2 • MediationServer Gateway	sip:+97239764069@audiocodes.com;user=phone	sip:+972544394133@aclgw01.corp.audiocodes.com; _4773977571_
Call Quality Signaling Info Media Info Device Info		
Caller Leg		Callee Leg
URI yariv.golan-atir@audiocodes.com	URI	+972544394133@audiocodes.com;user=phone
Phone Number +97239764069	Phone Number	+972544394133
Tenant 0000000-0000-0000-00000000000	Tenant	0000000-0000-0000-0000000000000
Front End acllync01.corp.audiocodes.com	Front End	acllync01.corp.audiocodes.com
Pool aclpool2013.corp.audiocodes.com	Pool	adpool2013.corp.audiocodes.com
Edge Server acllynoedge.corp.audiocodes.com	Edge Server	
Is Internal false	Is Internal	true
Call Priority Normal	Call Priority	Normal
Mediation Server	Mediation Server	acllync01.corp.audiocodes.com
Gateway	Gateway	adgw01.corp.audiocodes.com

Table 8-10: Signaling Info Parameter Descriptions

Parameter	Description
URI	URI of the user who started (caller) / joined (callee) the session.
Phone Number	Phone URI of the user who started (caller) / joined (callee) the session.
Tenant	Tenant of the user who started (caller) / joined (callee) the session. The Tenant can be: 00000000-0000-0000-0000-000000000000 – Enterprise 00000000-0000-0000-0000-0000000000000
Front End	FQDN of the Front End server that captured the data for the session.
Pool	FQDN of the pool that captured the data for the session.
Edge Server	FQDN of the Edge server used by the user who started (caller) / joined (callee) the session.
Is Internal	Indicates whether the user who started (caller) / joined (callee) the session logged on from the internal network.
Call Priority	Call priority of the session.
Mediation Server	The Mediation Server of the user who started (caller) / joined (callee) the



Parameter	Description
	session.
Gateway	The Gateway of the user who started (caller) / joined (callee) the session.

8.2.2.3 Media Info

This section describes the Media Info tab screen.

Call Details					L ×
Caller: Yariv Golan-Atir yariv golan-at Call Status: Successful Call Quality: Cause: MOS	Ir@audiocodes.com Device Name: ACL FE Device Mgmt IP: 10.1.1.64 Monitoring Endpoint: MS Lync	Callee: Arye Ben +9725443 Call Start Time: Call Connect Time Call End Time:	Zrihem 94133@audiocodes.com:user=phoh 12:16:50 Aug 12 2014 e: 12:17:13 Aug 12 2014 12:19:52 Aug 12 2014	e Termination Initiator: Caller SIP/PSTN Term Cause: 200 OK Termination Reason: Indicates the request w	Hide /as successful
Select Name Quality From	To	Caller): 158	Callee	Lealinks
Leg 1 OC	MediationServer	sip:yariv.golan-ati	r@audiocodes.com	sip:+972544394133@audiocodes.com;user=phone	
🔾 Leg 2 🕚 Mediation	nServer Gateway	sip:+97239764069	@audiocodes.com;user=phone	sip:+972544394133@aclgw01.corp.audiocodes.co	m; _4773977571_
Call Quality Signaling Info	Media Info Device Info				
	Caller Leg			Callee Leg	
Dialog Category	Lync Server to Mediation Server		Dialog Category	Lync Server to Mediation Server	
Mediation Server Bypass	false		Mediation Server Bypass	false	
Pool	adpool2013.corp.audiocodes.com		Pool	adpool2013.corp.audiocodes.com	
PAI	sip:yariv.golan-atir@audiocodes.com		PAI	sip:+972544394133@audiocodes.com;user=ph	ione
End Point	ISR1338-34304		End Point	ACLLYNC01	
User Agent	UCCAPI/15.0.4623.1000 OC/15.0.4623.1000 (N	Microsoft Lync)	User Agent	RTCC/5.0.0.0 MediationServer/5.0.8308.291	
URI	sip:yariv.golan-atir@audiocodes.com		URI	sip:+972544394133@audiocodes.com;user=ph	ione
Call Priority			Call Priority		

Figure 8-16: Call Details – Microsoft Lync - Media Info tab

Table 8-11: Media Info Parameter Descriptions

Parameter	Description
Dialog Category	Dialog category: 0 is the Lync Server to Mediation Server leg 1 is the Mediation Server to PSTN gateway leg
Pool	Pool FQDN of the user who started (caller) / joined (callee) the session.
PAI	Indicates direction of the p-asserted identify information:1 means the stream direction is from the caller to the callee0 means the stream direction is from the callee to the caller
End Point	Endpoint name of the user who started (caller) / joined (callee) the session.
User Agent	User agent string of the user who started (caller) / joined (callee) the session.
URI	URI of the user who started (caller) / joined (callee) the session.
Call Priority	Priority of the call.

8.2.2.4 Device Info

This section describes the Device Info tab screen. The Device Info tab applies only to calls made over Microsoft Lync.

0	all Details								×
-	Caller: Alan	Roberts alan.r	oberts@	Daudiocodes-affiliate.co	m	Callee: +9729830	06028@audiocodes-affiliate.com;use	er=phone	Hide
•	Call Status:	Successful		Device Name:	ACL FE	Call Start Time:	19:36:42 Jul 13 2014	Termination Initiator:	Caller
	Call Quality:	•		Device Mgmt IP:	10.1.1.64	Call Connect Tim	e: 19:36:58 Jul 13 2014	SIP/PSTN Term Cause	200 OK
•	Cause:	None		Monitoring Endpo	oint: MS Lync	Call End Time:	19:45:06 Jul 13 2014	Termination Reason:	Indicates the request was successful
1	Cause Desc:			Media Type:	Voice	Call Duration (see	:): 487	Debug Details	
	Select Nar	ne Quality	From	1	То	Caller		Callee	Leg Links
	 Leg 	1 🔍	AUD	C-IPPhone-430HD_UC_2	MediationServer	sip:alan.roberts@	audiocodes-affiliate.com	sip:+97298306028@audi	ocodes-affiliate.com;user=pł
	🔘 Leg	2 🔵	Media	ationServer	Gateway	sip:+9723976426	3@audiocodes-affiliate.com;user=pt	sip:+97298306028@aclg	w01.corp.audiocodes.com;u
	Call Quali	ity Signali	ng Info	Media Info	evice Info				
				Caller Leg	3			Callee Leg	
	OS						OS	Windows 6.2.9200 S	SP: 0.0 Type: 3 (Server) Suite: 00000000000011(
	CPU Name						CPU Name	Intel(R) Xeon(R) CP	U E7- 4850 @ 2.00GHz
	Transport			UDP			Transport	UDP	
	IP Address			10.22.13.113			IP Address	10.1.1.158	
	Port			5364			Port	49836	
	Inside						Inside	Inside the enterprise	network
	User Site						User Site	Israel_Lod	
	Region						Region	Israel	
	Network Conne	ection Type					Network Connection Type	Wireless	
	VPN						VPN	non-VPN	
	Link Speed (b	ps)		0			Link Speed (bps)	4294967296	

Table 8-12: Call Details – Microsoft Lync – Device Info tab

Column	Description
OS	The operating system (OS) of the endpoint of the user who started (caller) / joined (callee) the session.
CPU Name	CPU name of the endpoint of the user who started (caller) / joined (callee) the session.
Transport	Transport type: • UDP • TCP
IP Address	IP address of the user who started (caller) / joined (callee) the session. This may be either an IPv4 or an IPv6 address.
Port	Port used by the user who started (caller) / joined (callee) the session.
Inside	Indicates whether the caller/callee is inside the interval network:Caller is inside the enterprise networkCaller is outside the network
User Site	Name of the caller/callee's site.
Region	Name of the country/region of the caller/callee's site.



Column	Description
Network Connection Type	Caller / callee's network connection type: Wired Wireless
VPN	Indicates whether the caller/callee connected over a virtual private network:Virtual Private Network (VPN)Non-VPN
Link Speed (bps)	Network link speed for the caller / callee's endpoint, in bps.

9

Managing Users Experience

The Users page lets you manage the telephony experience of employees listed in the enterprise's Active Directory. You can click the **Users** tab from any SEM page.

Databa Calif. Calif.<	nager	* Statistes	Calls List		sers.	Alarmi		Reports	Contrast Con	n (Administration)
Statu Call Call Call C Accords C C	Filer Robert From: Last 2 To: Now									1
C) Assessed C C)	May Cause Caller Callee		Call Duration (sec)	Media Type	Vontoring Endpoint	Device Name	Unik Name			
C) Nacestrik ····· C) Nacestrik ····· <td></td> <td>le 18 49 27 Jun 10 15 49 45 Jun 12</td> <td>2</td> <td>Volue</td> <td>MS Lyne</td> <td>ACL FE</td> <td></td> <td>Normal Call Clear</td> <td></td> <td></td>		le 18 49 27 Jun 10 15 49 45 Jun 12	2	Volue	MS Lyne	ACL FE		Normal Call Clear		
07 Namestadi 0 10 Namestadi 0 11 Namestadi 0 12 Namestadi 0 13 Namestadi 0 14 Namestadi 0 15 Namestadi 0 16 Namestadi 0 17 Namestadi 0 18 Namestadi 0 19 Namestadi 0	elezer davis@sudiccol am ahav@sudiccode	s. 1549.21 Jun 10 1549.38 Jun 10		Volue	NRS Lyne	ACL FE		Normal Cell Clear		
D Nacestel O 0 Nacestel 0 0 12 Nacestel 0 0 13 Nacestel 0 0 14 Nacestel 0 0 15 Nacestel 0 0 <	 el carcente@sudocodi eran feldman@sudoc 	oc 15:47:06 Jun 10 15:48:31 Jun 10	545	Volae	MS Lync	ACL FE		Normal Call Clear		
D Management D 21 Accessition O 22 Accessition O 23 Accessition O 24 Accessition O 25 Accessition O 26 Accessition O 27 Accessition O 28 Accessition O 29 Accessition O 20 Accessition O 27 Accessition O 28 Accessition O 29 Accessition O 29 Accessition O 29 Accessition O 20 Accessition O 21 Accessition O 22 Accessition O 29 Accessition O 20 Accessition O 20 Accessition O 20 Accessition O 20 Acce	0 @ kpr.maler@sudecodes 4261@sudecodes.co	m 18-47-19 Jun 10 18-49-29 Jun 10	120	Voice	MS Lyno	AGL FE		Normal Call Clear		
D Nacestele Image: Second sec	-97254283659@audo yoran nam@audoco	15 45 17 Jun 10 15 49 19 Jun 13	240	Volati	MS Lyne.	ACL FE		Normal Call Clear		
10. Namestale Image: Second s	yacov Xouris@autiococ +97248774083@audi	ig 18:47:01 Jun 10 18:48:18 Jun 10	128	Voice	MS Lyno	ACL FE		Normal Call Clear		
C Assessed of C O	G +97239296995@audioc toner afr@audiocod	a 15.47.52 Jun 10 15.48.18 Jun 10	81	Volce	MS Lync	ACLIFE		Normal Call Clear		
C) Assessed O	roam.binenbaum@audit anonymous@audioco	5e 18 33 23 Jun 10 18 48 12 Jun 10	340	Volce	ME Lymp	ACL FE		Normal Cell Clear		
C Assessed Assessessed Assessed Assessed Assessed Assessed Assessed Assessed Ass	 ten medale@audiocode helt befornasvi@aud 	ts 15.45.41 Jun 10 15.49.11 Jun 15	28	Voice	MB Lphi	ACL FE		Normal Call Clear		
C Assessed: C	 MOS @ +972545246067@sudio shachak.bendor@su 	to 15.48.34 Jun 10 15.49.06 Jun 10	10	Volce	MS Lyne	ACL FE		Normal Call Clear		
C Assessed of the second of the	 menachen horsp@aude +972544394000@aut 	te 15.40 14 Jun 10 15.42 53 Jun 10	8	Voice	MS LINE	ACL FE		Normal Call Clear		
C Assessed (C) Second (C) Second (C) <td> yat mendels witschi@si, elezer.davla@audor </td> <td>or 15.48.29 Jun 10 15.48.48 Jun 10</td> <td>3.</td> <td>Voloe</td> <td>MB Lyre</td> <td>ACL FE</td> <td></td> <td>Normal Call Clear</td> <td></td> <td></td>	 yat mendels witschi@si, elezer.davla@audor 	or 15.48.29 Jun 10 15.48.48 Jun 10	3.	Voloe	MB Lyre	ACL FE		Normal Call Clear		
1 Secondaria 0 M2 1 Secondaria 0 M2 1 Secondaria 0 M2 1 Secondaria 0 1	 meste invie@audiocode dorit.mar@audiocode 	15:40:29 Jun 10 15:48:21 Jun 10	909	Voice	MS Lync	AGLIFE		Nomei Call Citer		
C) Assessed O MO C) Assessed O O	 moste sharaban@audi avi.rosh@audocodes 	c 15.44.06 Jun 10 15.48.11 Jun 10	242	Voice	MS Lyna	ACL FE		Normal Call Clear		
C Secondard O D Secondard O C Secondard O D Secondard O	MOS	et 15 47 48 Jun 10 15 48 09 Jun 10	2	Voice	MS Lyne	AGLIFE		Nomei Call Clear		
C Assessed C	moste sruch@audiocol +97237291267@audi	ic 15:47:30 Jun 10 15:47:60 Jun 19	14	Voice	MS Lync	ACL FE		Normal Call Clear		
D Secretal O	amit natan@audiocodes +97297411042@audi	ig 18.30.83 Jun 10 16.47.42 Jun 10	1001	Voice	MS Lyne	AGL FE		Normal Call Clear		
Image: Second	oren peleg@audocoder gadi holdengreber@a	id 15 40 03 Jun 10 15 47 32 Jun 10	445	Voice	MS Lyne	ACL FE		Normal Call Clear		
10 Noncestid	· · · · · · · · · · · · · · · · · · ·	8 18-44 17 Jun 10 18-47 11 Jun 12	171	Value	MS Lyna	ACL FE		Normal Call Clear		
Image: state	dror moser@audecode +972544300050@aut	io 15.40.31 Jun 10 15.47.11 Jun 10	390	Volue	MS Lyne	ACL FE		Normal Call Clear		
D Successful D Successful D Successful D Successful D Successful	moste aruch@autocol +87237291287@auto	ic 18 48 30 Jun 10 15 47 10 Jun 10	22	Varioe	MS Lyna	ACL FE		Normal Call Clear		
D Recentle • D Seccentle • D Recentle •	eleen voltrer@audoco +5215523226194@a	d 15 45 56 Jun 10 15 47 10 Jun 10		Noise	MS Lyne	ACL FE		Normal Call Clear		
Constant Con	(iii) +97239295353@audioc_shachak.bendor@aut	to 15.40.48 Jun 10 15.47.07 Jun 12	3	Value	MS Lyna	ACL FE		Normal Call Clear		
C Recentle C	-972525002840@audic elyesat.barhain@audic	o 15.45.48 Jun 10 15.47.06 Jun 10	2	Volce	MS Lync	ACL FE		Normal Call Clear		
	 el carciente@audeccdi ick halafur@audecci 	ok 15.40.54 Jun 10 15.47.03 Jun 10		Volce	MS Lyrc	AGL FE		Normal Call Okar		
			844	4		- IN				

The page provides you telephony statistics on the employees in the enterprise during a defined time period. To define the time period filter, see Section 5.15.1.

- Calls Count the number of calls the employee made during the time period
- Total Duration the total amount of time the employee spoke on their phone during the time period
- Average Success Rate (ASR) Point your mouse over the bar to see in the tooltip what percentage of that employee's calls succeeded and what percentage failed during the time period
- Calls Quality Point your mouse over the bar to see from the tooltip what percentage of that employee's calls' quality was good, fair, and poor during the time period.
- Utilization shows the employee's network utilization during the time period, in Kb, possibly indicating when call quality may be lower. The figure below shows a user whose high utilization may be correlated with a call quality score of 75% Fair (yellow color) and relatively high MOS, Jitter and Delay scores.

Calls Count	Total Duration	ASR	Calls Quality	Utilization(Kb)	MOS	Jitter	Delay	Packet Loss
4	54s			2636095488000	3.4	1.5	1.5	0
1	1m 16s		Poor:0% F		0	0	0	0
1	1m 4s			U	0	0	0	0

 MOS, Jitter, Delay, Packet Loss – the scores of metrics impacting that employee's calls quality Description - User role as described in the enterprise's Active Directory

9.1 Managing a Single User's Experience

You can manage a single user's experience.

- > To manage a single user's experience:
- In the Users page, click the Show user details icon in the row of the user whose experience you want to manage; the User Details screen opens displaying the Experience tab by default.



Figure 9-3: User Details – Experience tab



Note: You can directly contact the user from here, via Microsoft Lync. Click Solution Solu The pie charts show

- The ratio of successful calls to failed calls
- The successful and failed calls % and # when pointing your mouse over the pie
- The ratio of calls whose voice quality was Good, to those whose voice quality was Fair, Poor and Unknown
- The % and # of calls which scored Good, Fair, Poor and Unknown when pointing your mouse over the pie

The upper pane indicates user Calls Statistics:

- Total Calls
- Total Duration
- Average Call Duration (ACD)
- Utilization, Rx and Tx, in Kb
- Calls Quality

The lower pane indicates user Calls Quality:

- MOS, Jitter, Delay, Packet Loss MAX score, AVG score and MIN score
- Click any pie chart segment; the Calls List view opens, filtered accordingly.

9.2 Managing a User's Details

You can view the details of every user listed in an Active Directory.

- > To view a user's details:
- In the User Details screen, click the **Contact** tab:

Figure 9-4: User Details – Contact tab

er Details		:
All Sys	ex Rodikov tem Engineer	\ \ \ \ \
Experience	e Contact MS Lync Details Member Of	
Departmen	t R&D - QA	
Home	+97289713833	
Mobile	+972545742484	
Office	+97239764185	
Mail	Alex.Rodikov@audiocodes.com	
Country	Israel	

AudioCodes

9.3 Viewing a User's MS Lync Details

You can view a user's MS Lync details.

- > To view a user's MS Lync Details:
- In the User Details screen, click the **MS Lync Details** tab:

Figure 9-5: User Details – MS Lync Details

IS Lync Server	ACL-AD	
IS Lync Enable	TRUE	
IS Lync SIP Address	sip:Alex.Rodikov@audiocodes.com	
IS Lync Line URI	tel:+97239764185	
IS Lync Registered Pool		
Create Date	Mon Aug 27 14:19:32 GMT+0300 2001	
ast Update Date	Mon Jun 8 07:22:05 GMT+0300 2015	

9.4 Viewing the Groups of which the User is a Member

You can view the groups of which a user is a member.

- > To view the groups of which the user is a member:
- In the User Details screen, click the **Member Of** tab:

Figure 9-6: User Details – Member Of

er Details				
Alex Rod System Eng	likov ineer	604		
Experience	Contact MS Lync Details Member Of			
Member Of Groups	# All Friday	A		
	# All Orange			
	Agile users			
	# All Cellular			
	Linuxusers			
	AudioCodes_VPN			
	# All 012 voip			
	# All Cars			
	cc_sys_users			
	cc_api			
	# All R&D			
	System_Software			
	QA Group			
		V		

AudioCodes

9.5 Viewing Users Details

You can view users details.

- > To view users details:
- In the AD Users page, click the **Users Details** tab:

				*	e	6	<u></u>	A Alterna		
e Range: From: Last 3	hours	Ter New	27 Devices All Selecte	S SLinks	AX Selected -	ALL / Mainten	HEP OF MY	10000	intern undern	0.5
Users Experience	sers Orto	Active Directories								
ft fearch		Refrect Filter								
Liner Name		Description	Department	Clice	Mobile	Hartie	MSLyncLine	Fmail	Sature	Daven
							UR			
Jou	-								AGLIAD	
CUPUCATE-2300	111	This user account is used by Terminel Se							ACLAD	
65	63							200@kubicatides.com	ACLIAD	
100	121	Shabbai Printere							AGLAD	
11	- 10	a						B11rel@audiocodes.aim	ACLIAD	
BACUS-5000-NEV/B	133								ACLAD	
8AC/55000-85	ED								AGL-AD	
OFAXBRVS	83								AOLIAD	
SL-Admin	80	Administration						ACL-Admin@audiocodes.com	AGL-AD	
CLA09018	131								ACL AD	
CLADSO45	(5)								ACLAD	
CLAGILEAPPOIS	133								ADL AD	
CLAGLED0015	EEL								ACL-AD	
CLASILETESTOIS	613								AGL-AD	
CLAGILEWEBOTS	103								ACL-AD	
CLALARS	101								ACL-AD	
CLALM025	111								ACLAD	
CLALMOAS	60								AOL-AD	
CLALM WHOPS	75								AQUAD	
CLAVOTS .	-								ACL AD	
CLEACKD15	100								AGLAD	
CLBACK033	m								ACLAD	
OLEACKEAS	100								AGLAD	
CLOTENCERS.	172								ACLAD	
CLETENDER TESTS	170								40.40	
	-									
						100	4	N 101		

Click the Show user details icon in the row of the users whose experience you want to view; the User Details screen opens displaying the Experience tab by default.

SEM

9.6 Managing Active Directories

You can manage the Active Directories.

What is the purpose of this? What is the spec? What should be the guidelines before configuring the AD? When is it synced?

> To manage the Active Directories:

In the Users page, click the **Active Directories** tab.

Figure 9-8: Users – Active Directories

Session E	xperience Manager		*	c Stat	-	Callebat	AD USOTS	A	Z		Over a	andreas (Supervisor) — Longout,Adv
Time Range:	Fran: Last 2 Adurs 🔛 Ter	Now 38 Devices	All Selected +	tit Links All Se	lected +	AB/Rons						0 .
Users Expe	riesce Users Details Active	Directories										
Status						Sync Interval/hours)			Fall Sync Interval days		Next Full Sync Time	Las Successful 8
*	(set server name)	O O 2222		0	Datifie	. 1		0	1	10.00.57 Aug 13	17.00 87 Aug 13	
	ACLIAD	🖉 🛞 adabû'i orry audiomites orri	369	3047	Distille	1		0		16 00 67 Aug 13	17.00 87 Aug 13	15 05 46 A
*	EMS AD GA EMS LOCAL	Ø Ø 10.3.160.11	263	162714	Crael/e	*		0	1	10.00.57 Aug 13	17.00 ST Aug 13	15.02.40 A

9.6.1 Viewing AD Server Details

The Users page shows you server details under columns. Use the table below as reference.

Column	Description
Status	= AD status not OK; connection refused with AD server
	2 = AD status is OK; connection established with AD server
Server name	The name of the server.
Host	The server host.
Port	The server port. Typically 389.
# of Users	The number of users listed.
SSL	Enabled or Disabled.
Sync Interval (hours)	The synchronization frequency. Range = 1-48, i.e., every hour (most frequent) to once every two days (most infrequent). A sync retrieves all new users and updates existing users.
Full Sync Time (minutes)	The time (hour and minute) at which a full synchronization starts. Range = 1-7, i.e., once a day (most frequent) to once a week (most infrequent). A full sync retrieves all users and deletes expired users.
Full Sync Interval (days)	The synchronization frequency. Range = 1-48, i.e., every hour (most frequent) to once every two days (most infrequent). A full sync retrieves all users and deletes expired users.
Next Sync Time	The time and the day in the month on which the next synchronization will occur.

Table 9-1: AD Server Details

Column	Description
Next Full Sync Time	The time and day in the month on which the next full synchronization will occur. A full sync retrieves all users and deletes expired users.
Last Successful Sync Time	The time and the day in the month on which the last synchronization occurred. A sync retrieves all new users and updates existing users.
Last Successful Full Sync Time	The time and day in the month on which the last full synchronization occurred. A full sync retrieves all users and deletes expired users.

9.6.2 Synchronizing AD Database with SEM Database

You can *manually* synchronize the SEM database with the Active Directory database *at any point in time*.

- > To manually synchronize the SEM database with the Active Directory database:
- In the AD Users page, click the **Sync** button.

Alternatively you can *schedule* synchronization. See the next section for more information.

9.6.3 Adding an AD Server

In the Users page you can add an AD server.

- > To add an AD server:
- 1. In the Users page, click the **Active Directories** icon :; the Active Directory Settings page opens.



Session Experience Manager	₩ Network S	e Balanca	Call List	Alarina	Reports	NUT Ves	Une	nan (Adresidator) — Aged
Time Rasge: From: 01/Mar/2013 14:02 To: 09/2es/2013 16:01								0 🔹 🖻
Users Experience Users Details Active Directories								
📾 Search 🔯 Richash. System								
Status Server name Ant AD server Host	Port Busers	532	Sync interval(hours)	Full Sync Time(mitt)	Full Sync Interval (days.)	Next Sync Time	Next Full Sync Time	Last Successful S

Active Directory Settings	×
General Settings	
Server name	
Host	
Port	0
DN	
Base Object	
Security Settings	
Password	
SSL	Disable 💌
Certificate File	Browse
Scheduler Settings	
Sync Time	Start Sync Each 1 Hours
Last Sync Time	
Full Sync Time	Start Full Sync At 00 🗸 : 00 🗸 Each 1 🛖 Days
Last Full Sync Time	
	OK Cancel

Figure 9-10: AD Users – Active Directory Settings

- 2. In the 'Server name' field under General Settings, enter a name for the server. Choose a name that is intuitive, friendly, and easy to remember.
- **3.** For the 'Host' field, consult with the IT manager responsible for the Active Directory in your enterprise.
- **4.** For the 'Port' field, the default is typically 389, but consult with the IT manager responsible for the Active Directory in your enterprise.

- 5. For the 'DN' (Domain Name) field, consult with the IT manager responsible for the Active Directory in your enterprise.
- 6. In the 'Base Object' field, consult with the IT manager responsible for the Active Directory in your enterprise.
- 7. Under Security Settings, configure 'Password'. Consult with the IT manager responsible for the Active Directory in your enterprise.
- 8. If you set SSL to **Enable**, add a 'Certificate File'.
- **9.** Under Scheduler Settings you can schedule synchronization of the SEM and the Active Directory databases. Use the table below as reference.

Table 9-2: Scheduler Settings

Parameter	Description
Sync Time	Sets the synchronization frequency. Select from the range of 1-48, i.e., every hour (most frequent) to once every two days (most infrequent).
Last Sync Time	Displays the last time the SEM and the Active Directory databases were synchronized.
Full Sync Time	Sets the time (hour and minute) at which to start a full synchronization. Also sets the frequency. You can select from a range of 1-7, i.e., once a day (most frequent) to once a week (most infrequent).
Last Full Sync Time	Displays the last time the SEM and the Active Directory databases were fully synchronized.

Alternatively, you can manually synchronize the databases whenever you require by clicking the **Sync** button in the Users page.

Sync - Retrieves all new users and updates existing users

Full Sync - Retrieves all users and deletes expired users



Note: Except for 'Server name', all parameters are AD connection parameters, required in order to establish a connection with the AD server.

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9.6.4 Updating an AD Server

In the AD Users page you can update an AD server.

- > To update an AD server:
- In the row of the AD server whose settings you want to update, click the Update Server Options icon (2); the Active Directory Settings dialog opens.

Figure 9-1	1: AD Users -	Active Directory	v Settinas
			,

General Settings		
Server name	Company-AD	
Host	ad01.corp.company.com	
Port	389	
DN	Idap_bind@CORP.COMPANY.COM	
Base Object	dc=corp,dc=company,dc=com	
Security Settings		
Password	*****	
SSL	Disable 👻	
Certificate File	Browse	
Scheduler Settings		
Scheduler Settings Sync Time	Start Sync Each 1 Hours	
Scheduler Settings Sync Time Last Sync Time	Start Sync Each 1 Hours	
Scheduler Settings Sync Time Last Sync Time Full Sync Time	Start Sync Each 1 + Hours 17:00:36 May 26 Start Full Sync At 00 + : 00 + Each 1 + Days	
Scheduler Settings Sync Time Last Sync Time Full Sync Time Last Full Sync Time	Start Sync Each 1 Hours 17:00:36 May 26	
Scheduler Settings Sync Time Last Sync Time Full Sync Time Last Full Sync Time	Start Sync Each 1 Hours 17:00:36 May 26 Each 1 Start Full Sync At 00 Each 1 18:00:18 May 24 Days	



Note: Except for 'Server name', all parameters are AD connection parameters, required in order to establish a connection with the AD server.

- 2. In the 'Server name' field under General Settings, enter a name for the server. Choose a name that is intuitive, friendly, and easy to remember.
- **3.** For the 'Host' field, consult with the IT manager responsible for the Active Directory in your enterprise.
- **4.** For the 'Port' field, the default is typically 389, as shown in the figure above, but consult with the IT manager responsible for the Active Directory in your enterprise.

- 5. For the 'DN' (Domain Name) field, consult with the IT manager responsible for the Active Directory in your enterprise.
- 6. In the 'Base Object' field, consult with the IT manager responsible for the Active Directory in your enterprise.
- 7. Under Security Settings, configure 'Password'. Consult with the IT manager responsible for the Active Directory in your enterprise.
- 8. If you set SSL to **Enable**, add a 'Certificate File'.
- **9.** Under Scheduler Settings you can schedule synchronization of the SEM and the Active Directory databases. Use the table below as reference.

Table 9-3: Scheduler Settings

Parameter	Description
Sync Time	Sets the synchronization frequency. Select from the range of 1-48, i.e., every hour (most frequent) to once every two days (most infrequent).
Last Sync Time	Displays the last time the SEM and the Active Directory databases were synchronized.
Full Sync Time	Sets the time (hour and minute) at which to start a full synchronization. Also sets the frequency. You can select from a range of 1-7, i.e., once a day (most frequent) to once a week (most infrequent).
Last Full Sync Time	Displays the last time the SEM and the Active Directory databases were fully synchronized.

Alternatively, you can manually synchronize the databases whenever you require by clicking the **Sync** button in the AD Users page.

Sync - Retrieves all new users and updates existing users

Full Sync - Retrieves all users and deletes expired users

9.6.5 Deleting AD Server Properties

You can delete AD server properties.

- > To delete AD server properties:
- 1. Click the **Delete Server** icon ⁽²⁾; the "Delete Server Properties Are you sure?" prompt pops up.
- 2. Select Yes.

10 Displaying Alarms

The Alarms page shows both SEM-related quality alerts and regular AudioCodes device alarms, e.g., bad fan tray.

The Alarms page features three distinct functionalities:

- Active Alarms
- Historical Alarms
- SEM Quality Alerts

Three tabs in the page enable quick access to each of these:

				* Vietnorit 5		AD Users A	A Reports	Ubliom		
ne Range: F	ten: Last 3 hours	all Tax News	28 Dev	ices 20 Selected + 3 Links AD	elected + AX/Nume			10-2010/02/2		0 🔊 /
Active Alarma	History Alarma	SEM Quality Alerta								
and territy										
and search			2000	Allow March					Titles	63
Savando	lime	Mis rearrie	Sourca	Alarm reame	-4.6		Description		All ADD	
	17170130152014	12.3 101.245	ENG Server	Botheare Replaced	Upprade Mic Version Alarmichang	ping software version			EL TOTAL	
3 1000	17 18 38 341 18 2014	10.3.181.01	EUS Savar	Differen Papierad	Cograde Mile Veloce Alam share	full sequere recents			Severity	
	17,10.30 341 10.2014	12.3.101.02	EVD Dever	Software Replaced	Upprece Mill Version Alarm sharp	ling solowing variation			Chear(0)	
) into	17 16 41 Jul 16 2014	10.3.151.246	EMS Server	Software Replaced	Upgrede Mib Version Alarm chang	ping software version			[e] ○ Info(405)	
- teat	1712.38 Jul 15 2034	12.2.181.21	ES/S Server	Software Replaced	Upprace Mits Version Alarm sharp	prog someware version			v (a Warning(0)	
C) sets	17.18.18.34.18.2014	10.3.101.82	EUG Server	Software Hapisoled	Upprede Milj Version Alarm shang	ping software version			a martin	
) into	1714-21 Jul 15 2014	10.3.151.248	EMS Server	Software Replaced	Upgrade Mid Vesion Alem chang	bud sogware version			(v) v mm(v)	
C) teto	17 13 58 34 15 2014	10.2 101.01	EVS Sever	Software Replaced	Upprade Mio Version Alarm chang	ping software version			() Major(0)	
O- Inda	17.13.55 Jul 15.2014	10.3.181.82	ENS Sever	Software Replaced	Upgrade Mib Vesion Alarm shang	ping software version			Citical(0)	
O into	1713.01.34 15 2014	15.3.151.246	EMS Server	Software Replaced	Upgrade Mib Vesion Alarm chang	ping software version				
() inte	1712:37 Jul 15 2014	10.2 151.01	EMS Sever	Software Replaced	Upprede Mit Vasion Alarm chang	ping software version				
C) tela	17 12 36 Jul 15 2014	10.3.181.82	EMS Sarver	Software Replaced	Upgrade Mib Vesion Alarm chang	ping anthrare version				
into into	17.11.40 Jul 15 2014	10.3 151 245	EMS Server	Software Replaced	Upgrade Mib Version Alarm chang	ping software version				
O inte	17:11:17 Jul 15:2514	10.2.181.01	ENIS Server	Software Replaced	Upgrade Mib Vesion Alarm chang	ping software version				
O tele	17:11:15 Jul 15:2014	10.3.181.02	EMD Server	Software Replaced	Upgrade Mil) Vesion Alam shang	ping software version				
C) Info (17 10 20 Jul 15 2014	10.3.151.246	EMS Server	Software Replaced	Upgrede Mib Vesion Alarm chang	ping software version				
i inte	17 09:57 Jul 15 2014	12.3.181.61	EMS Server	Software Replaced	Upprade Mib Vestion Alarm sharp	ping software version				
C) anda	1708.60 Jul 15 2014	10.3.101.62	EMD Server	Software Replaced	Upprede Mits Version Alarm shang	ping software version				
O. Infa	17 00-00 Jul 18 2014	10.2.181.248	EMD Derver	College Replaces	Upgrade Mile Vasian Alarm shang	ping tollware version				
C tels	17:08:37 Jul 15:2014	10.3 101.01	EMS Sener	Software Replaced	Upprade Mib Vesion Alarm chang	ping software version				
- 1rds	1708.35 Jul 15 2014	10.3 181.82	EMS Sever	Software Replaced	Opprade Mib Vesion Alarm shang	ping software version				
0.99	1707-40 Jul 15 2014	12.3.151.246	KIND Server	Software Replaced	Upprade Mit Venion Alarm shang	prig software version				
C) Info	17.07 17 Jul 15 2014	10.3 151.01	EMS Server	Software Replaced	Upprade Mib Vasion Alarm chang	ping software version				
C Infa	1707/18 Jul 15 2014	10.3.181.82	EMS Server	Software Replaced	Upgrade Mits Version Alarm chang	ping anthrare version				
O Infe	17:08:20 Jul 10:2014	10.3.151.248	ENS Sever	Software Replaced	Upprete Mit Vesion Alarm shang	ping software version				
					No. of a	The second second				

Figure 10-1: Alarms Page - Active Alarms

10.1 Displaying Active Alarms

The Active Alarms page lists all active alarms on devices selected in the 'Devices' filter and on links selected in the 'Links' filter, issued during the period defined in the 'Time Range' filter. Filtering using the 'Time Range', 'Devices' and the 'Links' filter is performed identically across all pages. For filtering information see under Section 0 on page 36.

10.1.1 Filtering Using the 'Search' Field

The 'Search' field is used to filter active alarms exactly as it's used on other pages to quickly find specific information. Enter a device name, e.g., PSTN-GW, in the 'Search' field; only active alarms made and answered on this device are listed. Click the 'x' to delete a search entry.

PSTN-GW	× ×					
Seventy	Time	MG Name	Source	Alarm Name	Description	Filter
Major	15:55:47 Mar 20 2014	PSTN-OW	SEMPSTN-OW/Cellcom TDM Trunk	SEM - Failed Calls Alarm	Failed 7% of calls, 40 of 530 calls.	✓ All(19)
Major	15.55.47 Mar 20 2014	PSTN-GW	SEMIPSTN-GWIOrange TDM Trunk	SEM - Failed Calls Alarm	Failed 7% of calls, 40 of 530 calls.	Severity
Critical	16.66.46 Mar 20 2014	PSTNOW	SEMPSTN-OWBIz+ to Call	SEM - Failed Calls Alarm	Failed 11% of calls, 22 of 191 calls.	🗹 🗢 Clear(0)
Critical	15:55:42 Mar 20 2014	PSTN-OW	SEM/PSTN-OW/Lync 2013 to SEM-OW	SEM - Failed Calls Alarm	Failed 10% of calls, 22 of 116 calls.	Vio toto(0)
Critical	18.55.41 Mar 20 2014	PSTN-ØW	SEMPSTNOW	SEM - Failed Calls Alarm	Failed 11% of calls, 22 of 198 calls.	✓ ● Warning(0)
						Minor(9)
						Major(6)
						Critical(4)

Figure 10-2: Alarms Page - Active Alarms – Search Filter

10.1.2 Sorting Listed Alarms

Alarms can be sorted in the same manner as calls in the Calls List (see Section 8.1.1 on page 73). Click the header of the Severity column for example; calls are sorted according to severity, in order of *most* to *least severe* ($\mathbf{\nabla}$). Most severe alarms are highest in the list. To sort from *least* to *most severe*, click the column header again; the sort order is reversed ($\mathbf{\Delta}$); less severe alarms are listed lower.

Click another column header, e.g., Time; calls already ordered by severity level are now also ordered in order of time. Multiple ordering is supported.

The feature of multiple sorting columns facilitates quick and easy access to required alarm information.

Severity	Description
•	Critical (red): Indicates that a service affecting condition has occurred and an immediate corrective action is required. Such a severity can be reported, for example, when a device becomes totally out of service and its capability must be restored.
•	Major (orange): Indicates that a service affecting condition has developed and an urgent corrective action is required. Such a severity can be reported, for example, when there is a severe degradation in the capability of the device and its full capability must be restored.
•	Minor (yellow): Indicates the existence of a non-service affecting fault condition and that corrective action should be taken to prevent a more serious (for example, service affecting) fault. Such a severity can be reported, for example, when the detected alarm condition is not currently degrading the capacity of the device.
•	Warning (blue): Indicates the detection of a potential or impending service affecting fault, before any significant effects occur. Action should be taken to further diagnose (if necessary) and correct the problem to prevent it from becoming a more serious service affecting fault.
\bigcirc	Info (grey): Indicates that the severity level cannot be determined.
•	Cleared (green): Indicates the clearing of one or more previously reported alarms. This alarm clears all alarms for this device that have the same Alarm type, Probable cause and Specific problems (if given).

Table 10-1: Severity in Ascending Order*

* Extracted from ITU X.733

10.1.3 Filtering Using a Severity Filter

The page can be filtered according to a severity level, where only required alarms are displayed. The figure below shows alarms filtered according to the 'Severity' filter (Critical). By contrast, the *sorting* feature displays all alarms; however, with the required alarm/s are listed highest.

Figure 10-3: Severity Filters - Critical

B Search							
Severity	Time	MG Name	Source	Alarm Name		Description	Filter
Critical	16.34-45 Feb 26 2014	Mobility-ESBC	SEMMobility-ESBC	SEM - Voice Quality Alarm	Poor Quality 11% of calls, 6 of 56 calls.		All(5)
Critical	18:05:33 Feb 23 2014	Hong-Kong-MSBR	EMS Server	GW Connection Alarm	Connection Lost		Severity
Critical	18:00:28 Feb 23:2014	Hong-Kong-MSBR	EMS Server (SBA)	GW Connection Alarm	Connection Lost		Clear(0)
							O Info(0)
							Warning(0)
							Minor(0)
							Major(2)
							Critical(3)

10.1.4 Displaying Alarm Details

Alarm Details can quickly and easily be accessed to determine the incidence of the severity across the network. Click any row page before or after filtering:

1	Alarm Details		×
	Severity Time	Critical	
	Alarm Name	GW Connection Alarm	
	MG Name	Hong-Kong-MSBR	
	Source	EMS Server (SBA)	
	Description	Connection Lost	
	Alarm Category	Communications Alarm	
◀	Probable Cause	Communications Subsystem Failure	
	Status	New	
	Туре	ALARM	
	GW IP	172.17.175.12	
	GW Port	162	
	SNMP OID	.1.3.6.1.4.1.5003.9.20.3.2.0.3	
	Additional Info		

Figure 10-4: Alarm Details

Click the \blacktriangleright or \blacktriangleleft handlebar to move to the next or previous. Refer to this table:

Parameter	Description
Alarm Category	The category in which the alarm is classified, according to ITU X.733. Five categories are specified: Communications: the procedures and/or processes required to convey information from one point to another. Quality of service: Degradation in the QoS. Processing error: Software or processing faults. Equipment: Equipment faults. Environmental: Conditions relating to an enclosure in which the equipment resides.
Probable Cause	The probable cause. See ITU X.733 for probable causes and descriptions.
Status	 Can be either one of the following: Active Alarms: New, Ack (acknowledged by the user). Historical Alarms: Cleared (manually cleared by the user), Automatically Cleared (by the device or EMS) or ColdStart Cleared (if system is reset, all alarms are cleared).
Туре	The alarm type. EVENT or ALARM. According to RFC 3877: EVENT = User Information, for example, a fault, a change in status, crossing a threshold, or an external input to the system. ALARM = Persistent indication of a fault (where fault = a lasting error or warning condition, and error = a deviation of a system from normal operation). An alarm is automatically cleared when the condition disappears; by contrast an event is not automatically cleared.
GW IP	The IP address of the device from which the alarm was sent.
GW Port	The port number of the device from which the alarm was sent.
SNMP OID	Identifier used to identify the alarm information available on a managed VoIP network entity, in the alarm management information base (MIB).
Additional Info	Possible corrective action, when applicable.

Table 10-2: Alarm Details – Parameters
10.2 Displaying History Alarms

The History Alarms page lists currently active alarms and already-cleared historical alarms on devices selected in the 'Devices' filter and on links selected in the 'Links' filter, issued in the period defined in the 'Time Range' filter. These filters are identical on all pages (see under Section 0 on page 36). The page shows retroactive diagnostic data informative when taking proactive steps to prevent future repetitions and improve future VoIP network functionality.

				* Vetwork 54	🕼 💊 🤐 🍂 📝 🥸 Nones Calle Lat. AD Dierrs Alarma Reports <u>Ubilities</u>	
ie Range: Fr	HAL 09/34/2014 17:24	Te: 15/34/2014 17:24	28 Devices	28 Selected - 3Links All Se	eded + At New	0 4
Active Alarma	Hatury Alarma	SEM Quality Alerta				
an Search			with the second	Contraction of the local division of the loc	and the second	E3
Savath	Time	MG Name	Source	Alarm Name	Decaptor	Pitters
Orical	12 83 36 34 15 2014	BEMMumber of Sessions	SEMMumber of Sessions	SEM License Key Alem	Current server load reached 100% of SEM License capacity	[] w(1000)
Major .	13 53 38 34 15 2014	SESSNumber of Sessions	SEMMUMber of Sessions	SEM License Key Alam	Current server load reached \$1% of SEM Litense separaty	Severity
Critical	10 33 41 Jul 10 2014	10.3 181.62	EVS Sever	OW Connection Alarm	Convertion List	Clear(101)
Major	01 12:01 Jul 15:2514	10.3.101.104	Chasta#0 PoverSupply#2	Power Supply Alarm	Power Supply Alerm. Power Supply is missing	C 1rfe(9710)
- Triajori	18 09 24 Jul 13 3014	10.3.151.248	Biard#1EtranatGroup#3	Ethernet Ortug Alarn	(Button) Ethernet Oroup alaim. Ethernet Oroup 3 to Down	Warring/01
Minur	18:09:24 Jul 13:2014	12.3.151.245	ExarcH1EthernatLini#3	Ethemat Link Down Alarm	(Suttom) Ethemat Tirk alarm. UAI port number 3 is down.	and a manufacture
Crical	18.05 57 Jul 13 2014	12 3 151 248	EN/S Server	Gill Connection Alarm	Convertion Lost	▲ 0 MN0(103)
5 Minor	17893234132014	10.3.151.248	Board#1EthamalLini#3	Etherinet Link Down Marm	(Bottom) Ethernet live atarm. LAN port number 3 is down.	✓ ● Major(21)
Major	17 68 32 341 13 2014	10.3.151.248	Board#1EthenetDroup#1	Ethernel Onjug Alaim	(Button) Ethernet Orace alarm. Ethernet Orace 3 is Down.	Citical(63)
Criscal	17:50:35 Jul 13:2014	10.3.151.246	EVS Sever	OW Connection Alarm	Connection Lost	
Mingr	17 54 28 Jul 13 2014	10.3.151.248	Board#1EthenetLiss#3	Ethernal Link Down Alarm	(Button) Ethamet Inn alarm. LAN port number 3 is down.	
Magor.	17542836 192014	10.3.161.248	Board#1EthernetOroup#3	Ethemet Group Alarm	(Button) Ethernet Desug alam. Ethernet Desug 3 is Down	
Official	17.01:10 Jul 13 2014	15.3 151 245	EMS Sever	OW Connection Alarm	Connection Lost	
Critical	104814Jul 132014	10.3.181.4_3220088	EMS Server	Old Connection Alarm	Conveiller Leef	
Contrast	1530:00 Jul 13 2014	10 4.100.35	Boardet	-Board Fatal Error	Road Falat End: Na	,
Onical	15 29 29 Jul 13 2514	10.4.100.35	Board#1	Board Fatal Brox	Board Fatal Error: No	
Ottayl	16.29.20 Jul 13 3014	10.4.100.55	Biardet	Board Fatal Error	Board Fatal Erst: No	
Crister	15 19 19 241 13 2014	10.4.100.35	Boardet	Board Fatal Error	Econd Fatal Error: No	
Crital	1518:39 Jul 13 2014	12.4.100.35	Board#1	Board Fatal Error	Rised Fatal Decr. No.	
Critical	151839Jul 132014	10.4.100.35	Boardent	Board Patel Error	Board Falat Erst: No	
Critical	101109-04122014	10.4.100.35	Board#1	Board Falat Error	Board Fatal Error No	
Oritcal	1511.18 Jul 12 2014	10.4.100.35	Board#1	Board Fatal Ertr	Goard Fatal Eiror: Na	
Otical	1811.18.34113.2014	12.4.100.25	Boardet	Board Fatal Ersi	Brand Fatal Error Na	
Ornael	1510.38.34113.2014	12.4,102.30	Boardert	Board Fatal Error	Brand Fatal Ero: No	
Critical	10 10 00 Jul 13 2014	10.4.100.35	Doard#1	Board Fatal Erts	Board Patal Eror Na	

Figure 10-5: Historical Alarms

- The 'Search' field operates identically to its counterpart in the Active Alarms page (see under Section 10.1.1 on page 105).
- Order alarms precisely as you order alarms in the Active Alarms page (see under Section 10.1.2 on page 106).
- Filter alarms using the 'Severity' filter precisely as alarms in the Active Alarms page are filtered with its counterpart filter (see under Section 10.1.3 on page 107).

10.3 Triggering Quality Alerts

Quality alerts optimize session experience management by providing VoIP network administrators *automatic quality analysis* capability, *automatically triggering alerts* if the quality of service analyzed falls below that defined in rules.

Alerts are triggered by rules defined by network administrators. Alerts, triggered after SEM data analysis, are displayed in the Alarms page as regular alarms and/or sent to administrators as mail, SMSs, SNMP traps or syslog message.

You can add a new rule for an alert to be triggered.

- > To add a rule:
- 1. Open the SEM Quality Alerts page (Alarms page>SEM Quality Alerts tab).

Figure 10-6: SEM Quality Alerts

Time Range:	ie Range: From: Last 7 days 🔠 To: Now 🔠 19 Devices All Selected 👻 16 Links All Selected 👻 All / None												
Active Alar	Active Alarms History Alarms SEIM Quality Alerts												
📸 Searc	search Example A freeh												
		Frequency											
Level				Calls #		Major		Major		Major			
Node	All	15	60	50	10	5	10	5	3	5	0	\oslash	\otimes
Link	SIP Trunk Lync	60	120	20	5	0	0	0	0	0	0	\oslash	\otimes
Link	Link Lync 2013 to SEM-GW,Biz+ to Cell,BIZ+ to SIP Trunk,outgoin:		60	50	10	5	10	5	3	5	0	\oslash	\otimes

2. Click the Add Alert icon 🚟; rule the Add New Alert Rule popup opens:

Add New Rule × **Global Alert Settings** Level to Monitor Node 👻 Entities to Monitor All Selected 👻 Monitoring Frequency (min) 15 👻 Analyze the Past (min) 60 👻 50 🗘 Minimum Calls to Analyze Failed Calls Alarm 5 🌲 Critical Threshold (Calls %) 10 🌲 Major Threshold (Calls %) \checkmark Poor Quality Calls Alarm 5 🌲 10 🌲 Major Threshold (Calls %) Critical Threshold (Calls %) \checkmark Avg Call Duration Alarm 5 🌲 Critical Threshold (sec) з 🌲 Major Threshold (sec) \checkmark **Bandwidth Alarm** Critical threshold (Kb/sec) 0 Major threshold (Kb/sec) \checkmark 0 Max Concurrent Calls Alarm Critical threshold (Calls #) 0 \checkmark Major threshold (Calls #) 0

110

Figure 10-7: Add New Alert Rule

3. Define the following settings:

Table 10-3: Add New Alert Rule

Setting	Definition				
Level to Monitor	Device or Link. Use this filter to select Link or Node.				
Entities to Monitor	Use this filter to select the entities to monitor. If you selected Link for 'Level to Monitor' (previous setting), the links selection popup opens: Bezeq SP trunk Biz+ to Cell Biz+ to SP Trunk Celicon TOM Tom Tom Tom Tom Tom Tom Tom To				
Monitoring Frequency (min)	Determines how frequently the SEM automatically performs data analysis. Defines every 15 (default), 30 or 60 minutes.				
Analyse the Past (min)	Determines the period up to the present for which the SEM will perform data analysis. Define 60 minutes (default), 90 minutes or 120 minutes.				
Minimum Calls to Analyze	Defines the number of calls to analyze. Default = 50 calls. Up to 1000 calls can be defined. If the number of calls made doesn't exceed the defined # of calls to analyze, the SEM won't perform data analysis.				
Failed Calls Alarm	 Critical Threshold: 5% of calls (default); if this threshold is exceeded, the alert is triggered. Major Threshold: 3% of calls (default); if this threshold is exceeded, the alert is triggered. 				
Poor Quality Calls Alarm	Critical Threshold: 10 % of calls (default); if this threshold is exceeded, the alert is triggered. Major Threshold: 8 % of calls (default); if this threshold is				

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Setting	Definition					
		exceeded, the alert is triggered.				
Avg Call Duration Alarm	Critical Threshold:	5 seconds (default), up to 100 seconds; if the average duration of calls is below this, the alert is triggered.				
	Major Threshold:	10 seconds (default), up to 100 seconds; if the average duration of calls is below this, the alert is triggered.				
Bandwidth Alarm	Major Threshold:	if the bandwidth falls below or exceeds the value you configure (minimum of 0 Kbps and a maximum of 1000000 Kbps), an alarm of Major severity is triggered.				
	Critical Threshold:	if the bandwidth falls below or exceeds the value you configure (minimum of 0 Kbps and a maximum of 1000000 Kbps), an alarm of Critical severity is triggered.				
	• You must configure a <i>higher</i> value for the <i>Critical</i> Threshold than for the Major Threshold.					
	 You can configue 1000000 Kbps for a start of the start of	ure a minimum of 0 Kbps and a maximum of for either the Critical or the Major Threshold, so re you configure for the <i>Critical</i> Threshold is value you configure for the Major Threshold.				
Max Concurrent Calls Alarm	Major Threshold:	if the the number of concurrent calls falls below, or exceeds, the value you configure (minimum of 0 and a maximum of 100000), an alarm of Major severity is triggered.				
	Critical Threshold:	if the number of concurrent calls falls below, or exceeds, the value you configure (minimum of 0 and a maximum of 100000), an alarm of Critical severity is triggered.				
	You must config than for the Maj	gure a <i>higher</i> value for the <i>Critical</i> Threshold or Threshold.				
	 You can configure for either the Critical value you configure value you configure 	ure a minimum of 0 and a maximum of 1000000 itical or the Major Threshold, so long as the gure for the <i>Critical</i> Threshold is higher than the gure for the Major Threshold.				

4. Click **OK**; see the alert listed now in the SEM Quality Alerts page.

10.3.2 Manually Activating an Alert Rule

You can manually activate an alert.

- > To manually activate an alert:
- 1. In the SEM Quality Alerts page (see Figure 10-6), click by to manually activate the rule.
- 2. Click U to manually deactivate the rule. The rule will continue to be automatically triggered.

10.3.3 Editing an Alert Rule

You can edit an alert rule.

- To edit an alert rule:
- In the SEM Quality Alerts page (see Figure 10-6), click Optimized Update Rule; the Add New Alert Rule dialog opens (see Figure 10-7).
- 2. Edit the settings. Use Table 10-3 as reference.

10.3.4 Defining a Rule to Trigger an Alert (Example)

This example shows how to define rule settings to determine monitoring. Using this example, you can intuitively determine how to define a rule to trigger an alert.

If you define in a rule with the following settings:

- 'Level to Monitor' = Device
- 'Monitored Devices' = All
- 'Monitoring Frequency' = 15 minutes
- 'For the Past' = 60 minutes
- 'Minimum # of Calls to Analyze' = 50
- 'Failed Calls Alarm' = defaults
- Poor Quality Calls Alarm' = defaults
- 'Avg Call Duration Alarm' = defaults

Then the SEM will perform the following:

- Check every 15 minutes the # of calls made on all devices in the past 60 minutes and for devices on which the # of calls is greater than 50:
- Compare failed / successful calls % to the defined settings
- Compare poor quality calls % (red-coded) to the defined settings
- Compare average call duration to the defined settings

10.4 Distributing Alarm Information

Alarms information displayed in the Active Alarms, History Alarms and Quality Alerts pages are easily downloaded and saved by clicking the **Save As** icon 🖬.

- Active Alarms information is saved in a plain-text ActiveAlarms.csv file.
- History Alarms information is saved in a plain-text *HistoryAlarms.csv* file.
- SEM Quality Alerts information is saved in a plain-text *SEMQualityAlerts.csv* file.

Open and read in any text editor, these files can be sent by the administrator by, for example, email or sms, to others to distribute the information. For more information on forwarding alarms, see *EMS User's Manual*.



Note: Two rules cannot be assigned to the same device/link even if the two refer to two different parameters.

11 Producing Reports

The SEM features essential reports-generation capability that administrators can utilize to distribute session experience data and comparative analyses quickly and effectively to responsible persons within the enterprise and to external authorities associated with the enterprise's VoIP network, for accurate diagnosis and correction of degraded sessions and for general network optimization.

Figure 11-1: SEM Reports Page

Session Experience Manager	* Netw	erk Statistics	Calls List	AD Users	Alarms	Reports	Utilities
SEM Reports Scheduled Reports							
Natural Control Description			Teo llacas Dea				
Call Statistics by Device	★ Call Statistics by Device	★ Calls C	ount	ons			
★ Call Statistics by Link	★ Call Statistics by Link	★ Calls D	uration				
* Call Quality by Device	★ Call Quality by Device	* Poor C	alls Quality				
* Call Quality by Link	* Call Quality by Link	* Poor G	uality by MOS				
* Call Utilization by Device	★ Call Utilization by Device	* Poor Q	uality by Jitter				
★ Call Utilization by Link	★ Call Utilization by Link	\star Poor G	uality by Delay				
		\star Poor G	uality by Packet Loss				
		* Poor G	uality by Echo				
		* Poor F	ax Quality				
		\star Utilizat	ion				

Three categories of reports help users to quickly and thoroughly analyze different aspects of calls made over the VoIP network:

- 1. Network Status Reports
- 2. Trend Reports
- **3.** Top Users Reports

Categories 1 and 2 are identical in terms of the information displayed (columns); however the *calculation* differs.

Category 1 is calculated as a *summary of calls made over the entire period* for specified entities (devices / links). The x axis represents the specified entities.

Category 2 is calculated *per time interval* specified, summarizing the same entity in the specified interval. The x axis represents the time interval (hour / day / week / month).

Table 11-1 shows the categories and the reports options in each.

Report Category	Explanation
 Network Status Reports Call Statistics by Device Call Statistics by Link Call Quality by Device Call Quality by Link Call Utilization by Device Call Utilization by Link 	Displays a summary of key call metrics during a specified time period with a separate row entry for each device/link. Purpose: To compare performance, quality and utilization across devices/links. For example, the 'Call Statistics by Device' report summarizes the % of successful and failed calls and the # of calls that scored in each quality, across specified devices/links. By contrast, a 'Call Quality by Device' report summarizes key metrics affecting voice quality (jitter, delay, packet loss).
 Trend Reports Call Statistics by Device Call Statistics by Link Call Quality by Device Call Quality by Link Call Utilization by Device Call Utilization by Link 	Displays a summary of key call metrics over specified time intervals of a specified device/link. For example, the 'Calls Trend by Device' report displays 'Number of Calls', 'ASR' and 'Total Duration' in hourly intervals.
 Top Users Reports Calls Count Calls Duration Poor Calls Quality Poor Quality by MOS Poor Quality by Jitter Poor Quality by Delay Poor Quality by Packet Loss Poor Quality by Echo Poor Fax Quality Utilization 	Displays users graded according to number of calls made, calls duration, and calls whose quality scored 'Poor' based on specified metrics.

11.1 Using Reports Features

The features below apply to all reports pages across all three reports categories unless stated otherwise:

Feature	Description
Save as CSV	Lets you save a report as a Comma-Separated Value (CSV) file which represents charts, data bars, sparklines, gauges, indicators, etc., in a standardized, plain-text format easily readable and exchangeable with many applications. You can open the file in a spreadsheet such as Microsoft Excel or use it as an import format for other programs.
Export to PDF	Lets you generate a PDF file of the report reflecting selected filters, columns, graphs, etc.
Filters	 Let you specify: The Time Range for the report to cover (in the Network Status Reports page) The Time Range <i>and</i> the Interval for the report to cover (in the Trend Report page; Hourly, Daily, Weekly or Monthly)
	 Devices / Links on which to produce the report Top 10/20/30 Users on which to produce the report (in the Top Users Report page)
SEM Reports	Click the button at any time to return to the Reports page displaying the three reports categories and the report options available under each. Click an option to produce a report.
Scheduled Reports	Click the button to schedule a report.
Create Report	Displayed after selecting a report to produce in the reports menu. First filter (see above) and then click it; the report is produced and displayed.
Charts view / Table view	Two views are displayed in every report produced: Charts (uppermost) and table (lowermost). Click 💷 to expand charts view; table view is eclipsed. Click 🔺 to revert to both views.
Switch to horizontal / Switch to vertical	Charts are by default displayed vertically, one below the other, in this order: Calls #, Calls %, ASR, Total Duration, AVG Duration and Calls Quality. Use the scrollbar to scroll down from one to the next.
	They can optionally be displayed horizontally to suit user preference. To display horizontally, click the link. Click next b or previous 4 to navigate from chart to chart.
🔟 Bar / 🚰 Linear	[Only applies to Network Status Reports] By default, charts are displayed as bar charts. Click the drop-down to choose linear charts if required.
	Click the icon; optional table view columns are displayed.
Add / Remove Columns	To add, if required, select an optional column and click ← or select all and click I. To remove a column, select it in the Columns List pane

Table 11-2: Reports Features



Feature	Description				
	and click \Rightarrow or select all and click \Rightarrow I .				
	Default metrics columns (left pane) and optional metrics columns (right pane) in the Summary/Trend category (except 'Call Quality by Device / Link') are as follows:				
	Add Remove Columns × Columns List Optional Columns List Calls% Report ID Successful Calls% Failed Calls% AVB Duration(sec) Failed Calls% Calls Quality Failed Calls# Vertice Calls# Valove Red% Grava% Grava% Grava% Grava% Update Cancel				
	Default metrics columns (left pane) and optional metrics columns (right pane) in a 'Call Quality by Device / Link' report in the Summary/Trend category are:				
	Add Remove Columns X				
	Columns List Optional Columns List Calls# Calls@ Calls@ Calls@ Delay Delay Packet Loss A Max Mos Max Mos Max Mos Max Jitter Max Delay Min Delay AVG PCKT Loss Max Port Loss Max Port Loss Max Port Loss				
	Default metrics columns (left pane) and optional metrics columns (right pane) in the Top Users reports category are:				
	Add Remove Columns ★ Columns List Optional Columns List Calls# Report ID Total Duration(sec) Very Calls# Outgoing Calls Fax Calls# Incoming Calls Incoming Calls Update Cancel				
	See under Section 0 on page 124 for variations across reports in the Top Users Reports category.				
Show Column Graphical Representation Display column as chart	Table column headers display this icon. Click one to display the metric as a chart. If the chart is already open, you're notified. After report generation, the table's ASR metric column is the only one displayed as a chart in Charts view.				
Table Bottom Line (Total)	 The table's bottom line shows column's total. For example: Calls # column's bottom line shows the total sum of all counts of all calls on all devices / links ASR column's bottom line shows the average success rate of the average success rates of all devices / links. 				

Feature	Description				
	'Total' is calculated according to the measured parameter. It can be SUM, AVG, MIN or MAX.				
Search 💼	Users can use the 'Search' option to search for and find precise information related to a query. When information related to the search query is found, the report exclusively displays only that information.				

11.1.1 **Producing a Network Status Report**

Network Status Reports show *the sum totals, over the entire period,* of calls performance scores, quality scores, #s, %s, total duration and average duration (default metrics). Reports in this category are identical in terms of metrics measured. Metrics columns can optionally be added / removed (see 'Add / Remove Columns' in Table 11-2).

> To produce a Network Status Report:

- 1. Click an option in the 'Network Status Reports' category, for example, click the first option, i.e., **Call Statistics by Device**; the **Create Report** page opens.
- 2. Filter for 'Time Range' and 'Devices' (see Section 0 on page 36 for details).
- 3. Click Create Report; the report is produced:

Figure 11-2: Network Status Reports – Call Statistics by Device

Spreaseshifteler Calls Distribution
Secretabilityle Calt Datributor.
a biology and a biology of the second of Cab
a 3 Bhum Bloder Out Namy St Tun except # roled Calls. # Secretified Calls
3 Braue Stology Out Matry 57 Stology Out Matry 57 Stology Having A
Fold Cab Bocressive Cab
Tanàn
10/ 5EX 33.12 97 56274 107 97 97 98 98
ADVI SEE SEE </td
ADP ADIA ADIA <th< td=""></th<>
NOT MOR D2 JJ MOR MOR MOR NO
400 400 513 100 401 ¹ 477 100<
NO BBA Dial BBA Dial BBA Dial
MOR BBB DDB BBB 4x0/h 147 BBB BBB ubblishiptiftus 146 3.2 100 600 60 100
Above 460 133 140 </td

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Following report generation, the ASR metric column is the only one displayed in charts view.

> To display a metric as a chart:

In the table, click in the metric's column header. For example, click in the ASR column header; the ASR chart is displayed:



Figure 11-3: Displaying the ASR Chart

In a Network Status Report you can:

- Click the Switch to horizontal link (see Table 11-2) to switch from vertical view (default) to horizontal view.
- Click location contract it.
- Click IIII to switch from bar charts (default) to linear charts. Select IIII from the drop-down (see 'Charts view / Table view' in Table 11-2).
- Click to add/remove a column to/from the table (see 'Add / Remove Columns' in Table 11-2).
- See in the chart which entities registered the highest failed / successful calls rate.
- See in the table on which entities most calls were made, what % of calls were made on each, on which entities most failed / successful calls were made, on which entities most call time was recorded, on which entities the average call duration was longest / shortest and on which entity voice quality scored highest (green = good, yellow = fair, red = poor, grey = unknown).
- See in the chart an entity's success / fail rate (%). Point your cursor over a color in a bar (green = successful, red = failed):

SEM

Cloud Mobility SIP Trunk

1643

52.5%

Successful/Failed Calls Distribution

See in the table an entity's success / fail rate (%). Point your cursor over the entity's row (green = successful, red = failed):

GW Name	Calls#	Ш	Calls%		ASR	ш
Cloud.Mobility.SIP.Trunk	1643		8.11	52.1% Failed:7.9%		
					Talled.7.5%	

See in the table quality scores by pointing your cursor over a color in the entity's Calls Quality row (green = good, yellow = fair, red = poor, grey = unknown):

Default and optional table columns in Network Status Reports are:

ш

8.11

Network Status Report Type	Default Columns	Optional Columns
Call Statistics by Device/Link	Calls #, Calls %, ASR, Total Duration, Average Duration, Calls Quality	Successful/Failed Calls % Successful/Failed Calls # Green/Yellow/Red/Gray % Green/Yellow/Red/Gray # Voice Calls # Fax Calls #
Call Quality by Device/Link	Calls #, Calls %, Calls Quality, MOS, Jitter, Delay, Packet Loss, Echo	MOS LQ AVG/Max/Min MOS/Jitter/Delay/Packet Loss/Echo AVG MOS LQ AVG Signal Level/SNR MOS/MOS LQ/Jitter/Delay/Packet Loss/Echo Remote AVG/Max/Min MOS R/Jitter R/Delay R/P. Loss R/Echo R Red #, Yellow #, Green #, Gray # Red %, Yellow %, Green %, Gray % MOS/MOS LQ/Jitter/Delay/Packet Loss/Echo Red % [Same for Yellow, Green and Gray] MOS Red Remote % [Same for Yellow, Green and Gray] MOS/Jitter/Delay/Packet Loss/Echo LQ Red Remote % [Same for Yellow, Green and Gray]
Call Utilization by Device/Link	AVG Total Kbps AVG Rx Kbps AVG Tx Kbps AVG Packet Loss	AVG Total Kbps Remote AVG Rx/Tx Kbps Remote AVG Packet Loss R

|--|

You can re-filter and re-run the report (see 'Filters' in Table 11-2).

You can generate another report. Click the **SEM Reports** button.

You can schedule a report. Click the Scheduled Reports button (for details see Section 11.2).

11.1.2 Producing Trend Reports

Trend reports show *general tendencies over intervals* of calls performance, quality, #s, %s, total duration and average duration (default metrics measured).

Reports in this category are identical in terms of metrics columns displayed. Columns can optionally be added / removed (see 'Add / Remove Columns' in Table 11-2).

> To produce a trend report:

- 1. Click an option in the 'Trend Reports' category, e.g., the first; the 'Run now' 🕑 page opens
- 2. Filter for 'Time Range' and 'Devices' (described under Section 0 on page 36). For the 'Interval' filter select Hourly, Daily, Weekly or Monthly.
- 3. Click the 'Run now' 🕑 icon; the report opens:

Party Trans Local & days	THE PROPERTY	10	Devines AV faloriest a	Interval terms of									
Home Last 7 Case	Juli Tec New	-	ALTER AN SCHOOL T									2020	
												Set	ch to he
						Calls#							x
800													
200													
			-		•)		_						
23 Peb 17 00 33 Peb 18	10 21 46 19 01 23 46 21 01	23 Mil 21 (00 23 Mil	4.32.00 23 No 23.00 24 No	24.00 24 No 01.00 24 No	eb 02.00 24 Page 03.00 24 P	No 24.00 24 PM 00.00 241	Peo 00.00 24 Peo 07.0	0 24 Peo 08:00 24 Peo 04:00 3	2+Pec 0.00 2+Pec	1.00 24 Peb (2.00 24 Peb (3.00 3	24 %6 14 00 24 %6 10 00 24 %	46 10:00 24 Peb 17:00 24 Peb 10:0	-
						Calls%							×
2											_	_	
1								_					
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12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1													
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arch		Calle		cans		лак		Total Ourston(14c)		AVG Duration().ec)			
12 2 4 0 0 0 0 0 0 0 0 0 0 0 0 0		Calue	475	Carn			2178	Total Duration(tec)	10	AVC Duration(Sec)			
12 8 9 9 12 15 15 15 15 15 15 15 15 15 15	110	Calue	4.79 11.33	Catth		ASR ASR	2178 2001	Total Disration(tiec)	101	AVC Duration() ect			
10 x x x x x x x x x x x x x x x x x x x	195	Caller	479 11.33 12.38	Cattern		ASR	2173	Total Duration(sec)	142 142 142	And Decasion(sec)		Call Outline	1
12	196 407 405	Cattor	4.78 4.78 11.33 31.88 11.28	CataN		ASR	2179 2995 4910 4927	Total Duration(Liec)	140 - 140 -	Aiv@ Duration(sec)			4
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10 10 10 10 10 10 10 10 10 10	198 497 498 406 306 309	Caller	478 1733 1235 1128 1128 747 552	Cate	0	ASR ASR BAR BAR BAR BAR BAR BAR	2179 2991 4879 4829 2422 2422	Total Ourstion(sec)	147 - 147 -	Av@ Daration(sec)		Call Oxidy Sile	
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10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	150 407 406 300 301 406 301 406 300 406 300 406 300 406 300 406 300 406 406 406 406 406 406 406 406 406 4	Calur	475 1133 1133 1135 1135 1135 1135 1135 11	CatteN		ASK 449 449 449 449 449 449 449 449 449 44	2179 2279 4837 4837 2432 4433 4433 6932 2339 1331	Total Duration(sec)	141 142 142 143 144 144 144 144 144 144 144 144 144	Avić Duratorsteri			

Figure 11-4: Trend Reports – Call Statistics by Device

In a Trend Report you can:

- See when most/least calls were made, how many, % of total, each period's success/fail rate and each period's quality scores.
- Click the Switch to horizontal link to switch from vertically viewed charts (default) to horizontally viewed charts (see Table 11-2).
- Click I to switch from bar (default) to linear charts. Select from the dropdown (see 'Charts view / Table view' in Table 11-2).
- Click III in a column header in the table to display that column as a chart (see 'Show Column Graphical Representation' in Table 11-2)
- Click to add a column to table view or remove a column from table view (see 'Add / Remove Columns' in Table 11-2). Default columns and optional columns are identical to the 'Call Statistics by Device/Link' and 'Call Quality by Device/Link' reports in the Network Status Reports category.

- Use the pager to navigate to a page if there are multiple pages (see under Figure 8-2)
- Re-filter and re-run the report (see 'Filters' in Table 11-2)
- Export the report to PDF. Click (see 'Export...' in Table 11-2)
- Save the report as a CSV file. Click 🔚 (see 'Save...' in Table 11-2)
- Choose to produce another report by clicking the **SEM Reports** button.

11.1.3 Producing Top Users Reports

Top Users reports display the *top 10, 20 or 30 users* in terms of # of calls made, total duration, average duration, outgoing calls and incoming calls (default metrics measured).

Reports in this report category are identical in terms of metrics columns displayed. Metrics columns can optionally be added / removed (see 'Add / Remove Columns' in Table 11-2).

> To produce a top users report:

- 1. Click an option in the 'Top Users Reports' category, for example, click the first report option, i.e., Calls Count; the 'Run now' 🕑 page opens.
- 2. Filter for 'Time Range' and 'Devices' (described under Section 5). For the 'Top Users' filter, select 10, 20 or 30.
- 3. Click the 'Run now' 🕑 icon; the report opens:

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The second secon	jali v									
				0						Switch to here
				Cals#						×
400 200 3 -4722014400	-#728794386	-8723076409	Celg(5335	****@0000	4000g10 85.5	72754146BAGEKEENIN oo	auflooodes com 71273414		###@172.17	2261
Search		ia M	Trifal Ducation (see)		800 Durative seri		Duissinn Calla	AT I	incomino Calita	50
Bearch Linas filoma Keegi Y2, 17 240 8	. Cri	15 # 11 0	Total Duration(sec)		ANG Duration(sec)	<u>8</u>	Dutgoing Calls	<u>an</u> 201	incoming Calls	, u
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Search User Kuns User Kuns User Kuns User User User User User User User Use	601 503 502 203 203 203 204 104 104 104 104	na Mj	Total Duratoruse) 6779 2040 799 799 900 1999 200 200 200 200 200 200 200 200 200	13 13 47 47 12 19 10 10 10 10 10 10 10 10 10 10 10 10 10	49G Duradoresarc)	€) 307 213 2 3 4 4 4 4 4 5 5 5 5 6 5 6 8 5 8 5 8 5 8 5 8 5 8 5 8	Culgining Calls	601 16 9 20 104 104 104 64	incoming Calls	1
Lostisme	611 512 213 213 213 213 213 217 101 104 104 105	ea AT	Total Duration and 2040 2040 2040 2040 2000 2000 2000 2000 2000 2000 2020 2020	10 13 47 47 40 40 40 40 40 40 40 40 40 40 40 40 40	410 Durationseg	0 337 253 4 4 4 44 45	Outpung Calls	60) 60) 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	econing Calls	T M

Figure 11-5: Top Users Report – Calls Count

In a Top Users Report you can:

- Save the report as a CSV file. Click 🔚 (see 'Save...' in Table 11-2)
- Export the report to PDF. Click (see 'Export...' in Table 11-2)
- Click the Switch to horizontal link to switch from vertically viewed charts (default) to horizontally viewed charts (see Table 11-2)
- Click III in a column header in the table to display that column as a chart (see 'Show Column Graphical Representation' in Table 11-2)
- Click to add a column to table view or remove a column from table view (see 'Add / Remove Columns' in Table 11-2).

Default and optional table columns in Top Users reports are:

Top Users Report Type	Default Columns	Optional Columns
Calls Count	Calls #, Total Duration, Average Duration, Outgoing Calls, Incoming Calls	Voice Calls #/Fax Calls #
Calls Duration	Total Duration, Calls #, Average Duration, Outgoing Calls, Incoming Calls	None
Poor Calls Quality	Poor Quality Calls, Calls #, Calls Quality	Gray/Green/Yellow/Red % Yellow/Red #
Poor Quality by MOS / Jitter / Delay / Packet Loss / Echo	AVG MOS / Jitter / Delay / Packet Loss / Echo, Calls #, Total Duration	None
Poor Fax Quality	Poor Quality Faxes, Poor Quality Pages, Total Faxes, Total Pages	None
Utilization	Total Bytes, RX Bytes, TX Bytes	None

Table 11-4: Table Columns in Top Users Reports

- User the pager to navigate if there are multiple report pages (see under Section 8 on page 69)
- Re-filter and re-run the report (see 'Filters' in Table 11-2)
- Choose to produce another report by clicking the **SEM Reports** button.

AudioCodes

11.2 Scheduling a Report

You can schedule the SEM to automatically produce a report periodically.

- > To schedule a report:
- 1. Click the **Reports** icon; the SEM Reports page opens (see Figure 11-1)
- 2. Click the **Scheduled Reports** button; this page opens:

Figure 11-6: Scheduled Reports

	Report Topic	Report Group flame	Scheduler Name	Scheduling Frequency		Num of Ron Times								
Detistics by Device	Network Status Rep	SEM Report	Call_State	Houty	1	1.4.1	Gatestal	•	00	0	owne -	21.20.00 Jan 23		anal Bang Gang Colorean Isla
Datistica by Device	National Distant Page	SEM Pageri	Tasi	Weekly		- 4	Densied	Θ	00	Ð	-	08.00.00 Peb 18	68.50.00 Mar 89	an again an an



Figure 11-7: Scheduler

Report Name	Call Statistics by Dev	vice	•
Scheduler Name			
Description			
Report Filter Settings			
Devices All Selected -			
Scheduler Settings			
O Hourly O D	aily 🔵 Weekly	O Monthl	У
Selected daily report generation	n, set day time		
Generate report at	0 Hours 0 A	Minutes	
Run Report			
No End			
○ Run 1 ★	times		
Aail Settings			
Forward to Mail			
Mail Addresses			

- 4. Under 'Schedule ID', select a report to schedule from the 'Report' drop-down list. All reports under all three report types are listed.
- 5. In the 'Schedule Name' field define a name that will let you easily identify the schedule.
- 6. In the 'Description' field, provide a description to help you distinguish this schedule from others.
- Under 'Report Filter' you can filter the devices on which the report which you're scheduling will be produced. By default, all devices will be included. Click All Selected to change the default. For detailed information on how to filter devices, see Section 5.2.
- Under 'Report Frequency', select either Hourly, Daily (default), Weekly or Monthly. If the frequency you select is Daily, set the 'Time'.
- **9.** Under 'Run Times', select **Unlimited** or **Limit** to limit the schedule to a limited number of report run times (you can limit to up to 100 run times).
- **10.** Under 'Forward Report', select the **Mail** option for the report to be automatically forwarded to your email address.
- **11.** In the 'Mail Addresses' field, define the email address/addresses to which to automatically forward the report.
- **12.** Click **OK**; the report is scheduled; you can expect the first to arrive in your mail according to schedule.

11.2.1 Viewing a Scheduler Generated Report

You can view a report generated by the scheduler.

- > To view a report generated by the scheduler:
- In the Scheduled Reports page under the Reports column (see Figure 11-6), click the Generated hyperlink in the row of the report generated by the scheduler; the Report Generated by Scheduler opens (see the figure below).

Figure 11-8: Report Generated by Scheduler

SEW Reports	Reports Reports Generated by Scheduler: Call. Stats							
	File Creation Date	File size	File Same					
	D 21 20 05 Jan 23	1000 byte	Haper_Call_Stat_Call_Statistics_by_Device_20_are_2014_31_20 are					

2. Click Over Report; the report is displayed:





Figure 11-9: Viewing a Scheduler Generated Report

11.2.1.1 Saving the File of a Scheduler Generated Report

You can save the file of a report generated by the scheduler.

- To save the file:
- 1. In the Report Generated by Scheduler page (see Figure 11-8), click (S Save Report File.
- 2. Select the location on your pc in which to save the file and click **Save**.

11.2.1.2 Deleting the File of a Scheduler Generated Report

You can delete the file of a report generated by the scheduler.

- > To delete the file:
- 1. In the Report Generated by Scheduler page (see Figure 11-8), click Delete File; you're prompted 'Delete Generated Report File?'
- 2. Click **Yes**; the file is deleted.

11.2.2 Editing a Schedule

You can edit a report schedule.

- > To edit a schedule:
- 1. In the Scheduled Reports page (see Figure 11-6), click *O* Update Scheduler; the Scheduler opens (see Figure 11-7).
- 2. Edit the reports schedule. See under Section 11.2 for detailed information.

11.2.3 Deleting a Schedule

You can delete a report schedule.

- > To delete a schedule:
- 1. In the Scheduled Reports page (see Figure 11-6), click ODelete Scheduler; you're prompted 'Are you sure?'.
- 2. Click **Yes**; the report schedule is deleted.

11.2.4 Manually Running or Pausing a Schedule

You can manually run or pause a report schedule.

- > To manually run a schedule:
- In the Scheduled Reports page (see Figure 11-6), click Run Scheduler; the icon changes to and the report scheduler is run.
- > To manually pause a schedule:
- Click Decision Pause Scheduler; the icon reverts to Decision and the scheduler is paused.



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12 Managing Server Storage

The Utilities page shown in the figure below lets you monitor and manage the SEM server storage.

Session Experience Manager	* Network	e Statistics	Calls List	us ers	🔔 Alarms	Reports	Ö Utilities
Server Storage QoE Thresholds Server configuration							•
Server Storage Status	Storage Level	Configuration					
Version: 7.0.1081 Calls Statistics Storage		Max S	Storage Level	s			
Capacity:			C - All Calls, Partial Tr	rends			
Stored Days: 76 Statistics Interval: 5 minutes			- All Calls, No Trend	s rends			
Calls Details Storage	Description	Min S	torage Level				
Total Calls: 79,695,078 Max:80,000,000 Capacity:	All calls but will be save	t no trends for good ad in the server.	quality calls				
0% Free Stored Days: 16455							
Refresh Status	Refresh	Save	Default Settings				

Figure 12-1: Utilities – Server Storage

Under the Server Storage tab (see the figure below), you can:

- Monitor Calls Statistics Storage (see Section 12.1)
- Monitor Calls Details Storage (see Section 12.2)
- Configuration Storage Level (see Section 12.3)

12.1 Monitoring Calls Statistics Storage

The Calls Statistics Storage section of the page lets you monitor the storage status of calls statistics, stored according to the number of days (Stored Days) in intervals (5 minute intervals in the figure above).

This information represents statistics calculations associated with each call displayed in the Network, Statistics and Reports pages.

If the 'Capacity' of Calls Statistics Storage is reached, the oldest call statistics data are purged from the database to free space.

12.2 Monitoring Calls Details Storage

The Calls Details Storage section of the page lets you monitor the storage status of the Calls Details displayed in the 'Calls List' page.

When the storage level reaches its full capacity, the oldest call details data is purged from the database to free space.

12.3 Configuring Storage Level

In the Utilities page, under Storage Level Configuration section (see the figure above), you can configure the storage level in order to optimize storage capability. You can select:

- All Calls, All Trends (maximum storage level) = all calls and all trends will be saved in the server
- All Calls, Partial Trends = all calls but no trends for good quality calls will be saved in the server
- All Calls, No Trends
- Partial Calls, No Trends (minimum storage level) = only failed, poor and fair quality calls and no trends will be saved in the server.

Note:

- Trends are only relevant to calls made over AudioCodes VoIP networking devices (Media Gateway / SBC / MSBR). Trends use more storage relative to other call statistics.
- After selecting a level, the Ø icon is displayed. Click the Apply button to set the level.
- If you're operating with hardware that supports more than 50 CAPS (Call Attempts Per Second), set the storage level to **All Calls, No Trends**
- If you're operating with hardware that supports more than 100 CAPS, set the storage level to **Partial Calls, No Trends**.

For information on applying QoE Thresholds, see Section 1.7.

SEM

12.4 Configuring the Server

In the Utilities page, under the Server Configuration tab shown in the figure below, you can configure server thresholds.

Figure 12-2: L	Jtilities – (Configuring	Server	Thresholds
----------------	---------------	-------------	--------	------------

Server Storage	QoE Thresholds	Server configuration						
Server Configuration								
Calls longer tha	n 3 🔺 hou	urs will be dropped						
Device will be m	narked with 🔴	when either threshold exceeded:						
Failed calls	above 30) <u>*</u> %						
Poor calls q	uality above 15	÷ %						
Links will have	Red background	I when either threshold exceeded:						
Failed calls	above 30) 🔺 %						
Poor calls q	uality above 15	÷ %						
Refresh	Save	Default Settings						

You can configure:

Call duration threshold; calls longer than this threshold will not be factored into SEM statistical calculations.

Devices thresholds

- Failed calls % threshold; if this % is exceeded during operation, the related device will be color-coded red.
- Poor quality calls % threshold; if this threshold is exceeded during operation, the related device will be color-coded red.

Links thresholds

- Failed calls % threshold; if this % is exceeded during operation, the related link will be color-coded red.
- Poor quality calls % threshold; if this threshold is exceeded during operation, the related link will be color-coded red.

SEM for AudioCodes Media Gateways and Servers

SEM Session Experience Manager

User's Manual

Version 7.0



www.audiocodes.com

