

Oracle® Communications Session Monitor

Mediation Engine Connector User's Guide

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Preface

This guide describes how to configure and use Oracle Communications Session Monitor Mediation Engine Connector.

The Oracle Communications Session Monitor product family includes the following products:

- Operations Monitor
- Enterprise Operations Monitor
- Fraud Monitor
- Control Plane Monitor

Audience

This guide is intended for SIP and IMS network operators who install and administer Oracle Communications Session Monitor.

Documentation Accessibility

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Document Revision History

The following table lists the revision history for this document:

Version	Date	Description
E57623-01	January 2015	Initial release.

Overview of the Mediation Engine Connector User Interface

This chapter provides an overview of the Oracle Communications Session Monitor Mediation Engine Connector (Mediation Engine Connector) user interface.

Logging In to Mediation Engine Connector

You must first install an instance of Mediation Engine Connector (MEC), connect it to your network, and access the user interface using a Web browser. See the referenced sections when changing settings for additional details.

Note: The Web interface requires a browser with Javascript enabled. Additionally, allowing "[HTTP cookie](#)" is recommended for several of the features.

Point the browser to the configured IP address of the management interface to load the login screen. Log into the pre-configured account with user name **admin** and password **oracle**.

Figure 1–1 Login Screen

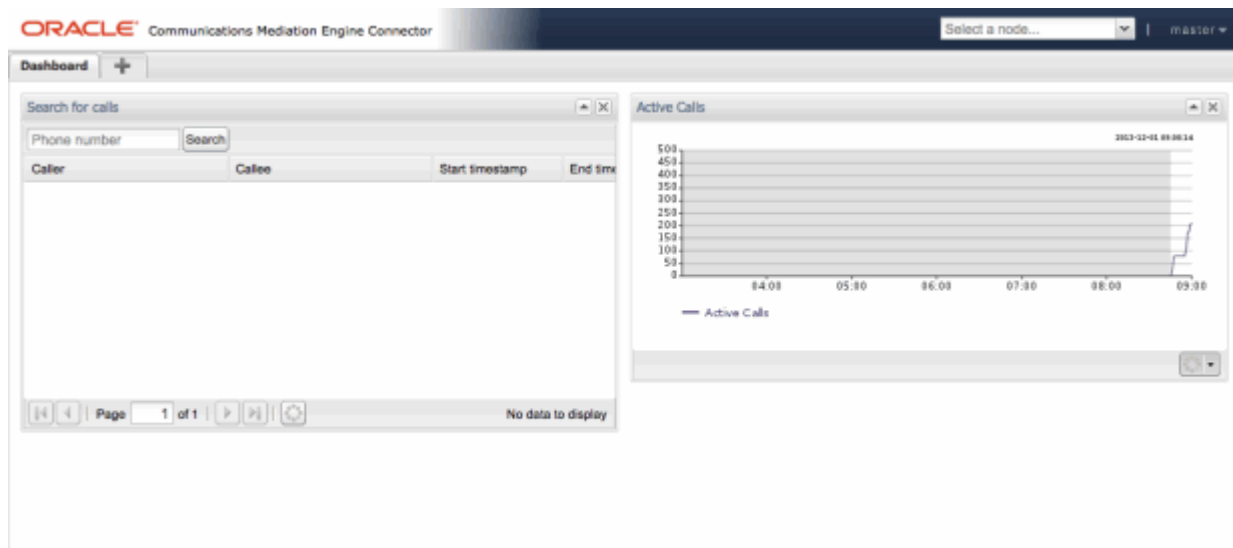


Mediation Engine Connector Dashboard

After you log in, you should see the MEC dashboard. In the top-right corner, a drop down menu displays the current user and contains links to the Mediation Engines window, the HTML version of this manual (opens in a new browser window), and the option to logout.

Figure 1–2 shows the MEC dashboard.

Figure 1–2 Mediation Engine Connector Dashboard



The Mediation Engine Connector (MEC) dashboard is similar to the dashboard of the Mediation Engines. It allows you to view at a glance important information retrieved

from single probes, as well as information aggregated from all Mediation Engines. The dashboard contains a configurable number of panels, which can be added or removed by the user. The following functionality is available for the MEC dashboard.

Adding a dashboard panel: To add a panel, right-click on the dashboard to get a context menu and select **Add a panel...** A wizard appears in a new window, which guides you through the creation of the new dashboard panel.

Removing a dashboard panel: To remove a dashboard panel, click the cross button in the upper-right corner of the panel. A dialog box appears and asks for confirmation.

Rearranging dashboard panels: Dashboard panels can be rearranged using drag and drop. Drag a dashboard panel by clicking and holding its title bar and drop it where you would like it to stay on the page.

The MEC dashboard can have the following types of panels:

- Panels containing aggregated information
- Panels containing information retrieved from a single Mediation Engine

The following sections describe only panels containing aggregated information. Panels containing Mediation Engine-related information are the same as the panels for the dashboard of the Mediation Engine.

Call Search Panel

The Call Search panel allows you to specify the search criteria and display matching unique calls on all probes simultaneously.

[Figure 1–3](#) shows the Call Search panel.

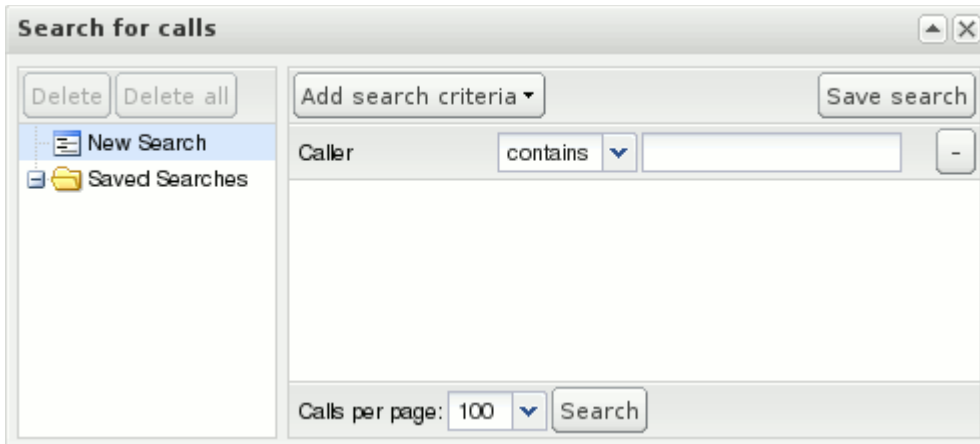
The Call Search panel provides the following functionality:

Enter search criteria: To enter the search criteria, click **Add search criteria** button and select the field for which you want to enter a search criterion. A new row appears in the center-right area of the Call Search panel. You can enter a comparison operator and a comparison value for the criterion in this row.

Execute a search: Click **Search** to execute the active search. The Call Search Results page appears.

Save search and retrieve saved searches: You can save a search by clicking **Save Search**. A new node appears in the tree to the left of the panel, under the **Saved Searches** folder. To give a name to the saved search, click the tree node for the search and enter a name. To retrieve a previously saved search, click select a node from under the **Saved Searches** folder. You can also delete a saved search by selecting its node and clicking **Delete**. Clicking **Delete all** deletes all saved searches. Note, that saved searches will be gone, once you reload the page or logout from the MEC and login again.

Figure 1-3 Call Search Panel



Call Search Results page: The Call Search Results page appears after you execute a search and displays unique calls matching the search criteria found on all Mediation Engines.

Figure 1-4 shows an example call search results.

Figure 1-4 Call Search Results Page

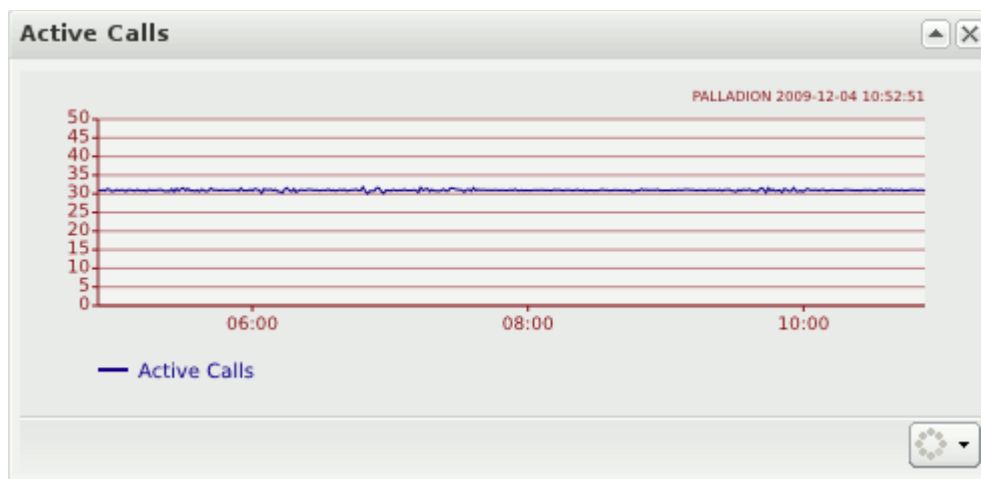
Caller	Callee	Start timestamp	Call time	Code	Ingress device
+492345324763110	+491233454763110	2009/12/04 10:50:56	3'55ms	200	proxy3
+492345324762110	+491233454762110	2009/12/04 10:49:16	3'95ms	200	proxy3
+492345324761107	+491233454761107	2009/12/04 10:47:36	3'87ms	200	proxy3
+492345324761110	+491233454761110	2009/12/04 10:47:36	3'87ms	200	proxy3
+492345324761108	+491233454761108	2009/12/04 10:47:36	3'87ms	200	proxy3
+492345324761106	+491233454761106	2009/12/04 10:47:36	3'87ms	200	proxy3
+492345324761109	+491233454761109	2009/12/04 10:47:36	3'87ms	200	proxy3
+492345324761104	+491233454761104	2009/12/04 10:47:35	3'87ms	200	proxy3
+492345324761102	+491233454761102	2009/12/04 10:47:35	3'87ms	200	proxy3
+492345324761105	+491233454761105	2009/12/04 10:47:35	3'87ms	200	proxy3
+492345324761100	+491233454761100	2009/12/04 10:47:35	3'94ms	200	proxy3
+492345324761103	+491233454761103	2009/12/04 10:47:35	3'87ms	200	proxy3
+492345324761101	+491233454761101	2009/12/04 10:47:35	3'87ms	200	proxy3
+492345324760110	+491233454760110	2009/12/04 10:45:56	3'27ms	200	proxy3
+492345324759110	+491233454759110	2009/12/04 10:44:16	3'60ms	200	proxy3
+492345324758110	+491233454758110	2009/12/04 10:42:36	3'69ms	200	proxy3
+492345324757110	+491233454757110	2009/12/04 10:40:56	3'80ms	200	proxy3

Active Calls Counter Panel

The Active Calls counter panel displays a chart which is computed based on values aggregated from all Mediation Engines. Currently the active calls counter is available. It is the only option present in the dashboard add panel wizard, when you choose **Display a counter**.

Figure 1–5 shows the Active Calls counter panel.

Figure 1–5 Active Calls Counter Panel

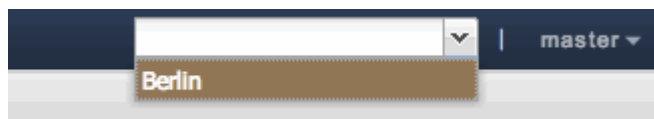


Mediation Engine Selection and View

Mediation Engine selection refers to the controls in the header bar of the MEC user interface. These controls allow you to select a Mediation Engine to display in the Mediation Engine view.

Figure 1–6 shows the Mediation Engine selection drop-down list.

Figure 1–6 Mediation Engine Selection

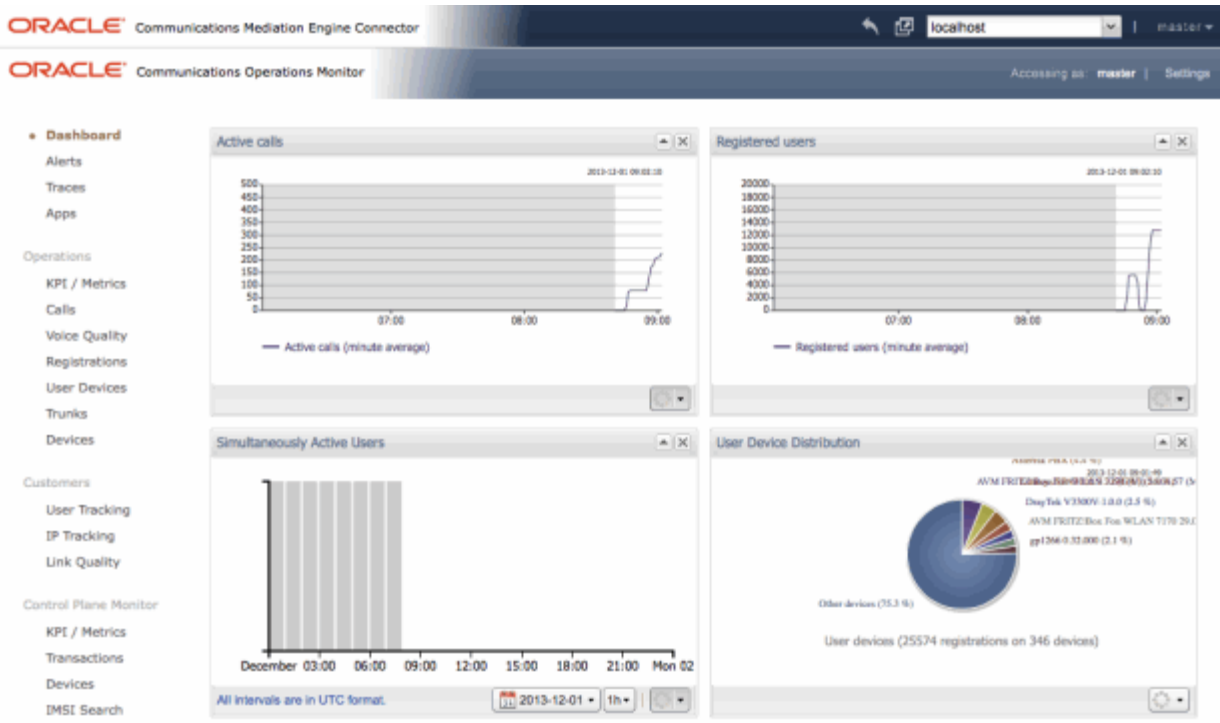


Select the Mediation Engine you want to view from the drop-down list and the Mediation Engine view for this Mediation Engine is displayed. The Mediation Engine view is displayed in an iframe inside the MEC user interface. You are automatically logged in with the user name that you used to log into the MEC.

Figure 1–7 shows the Mediation Engine view page.

You can also display the Mediation Engine view in its own window by clicking **Open in new window** button.

Figure 1-7 Mediation Engine View Page



Configuring Mediation Engine Connector

This chapter describes how to configure Oracle Communications Session Monitor Mediation Engine Connector (Mediation Engine Connector).

Changing the Default Administrator Password

Start by changing the default administrator password. Click on the user name in the top-right corner and then on the **My Profile** link. The Edit own user information dialog box appears. Enter the new password twice and click **Finish**.

Warning: The default administrator password is easy to guess and is given in the product documentation, which is generally available to sub-users. Oracle strongly recommends changing the administrator password before creating any sub-users.

Configuring Users and Realms

Due to the powerful visibility that Mediation Engine Connector (MEC) offers inside a network and the associated user privacy risks, a comprehensive user rights management system is available to restrict MEC users to defined views and functionalities.

When using multiple Mediation Engines with a MEC, the MEC is responsible for managing users and realms. The user database and the realm definitions are entered using the MEC user interface, which then distributes the information across the Mediation Engines. User database and realm definitions should be set up before the Mediation Engines are connected.

Configuring Realms

Realms are used to partition the captured data for presenting a separate view to each MEC user. This is especially useful in cases where different resellers share the same MEC instance, each being allowed to view only the SIP users served by themselves.

In the MEC, a realm is defined by a pattern containing a set of telephone numbers, a set of domains, or both. Realms defined only by a range of telephone numbers should be used when the resellers share the same domain, but have different SIP users. Realms defined only by domain should be used when the MEC is analyzing the traffic from multiple domains. A combination of both cases defines a pattern with a domain and a telephone number range.

[Figure 2-1](#) shows the Realms Definitions section on the MEC Settings page.

To add a pattern that defines a realm, click the **Add pattern** button. A new row appears at the top of the table. The pattern is editable by double clicking on the row.

Name: The name of the realm that defines a reseller.

First Number: The lower limit of the telephone numbers range.

Last Number: The higher limit of the telephone numbers range.

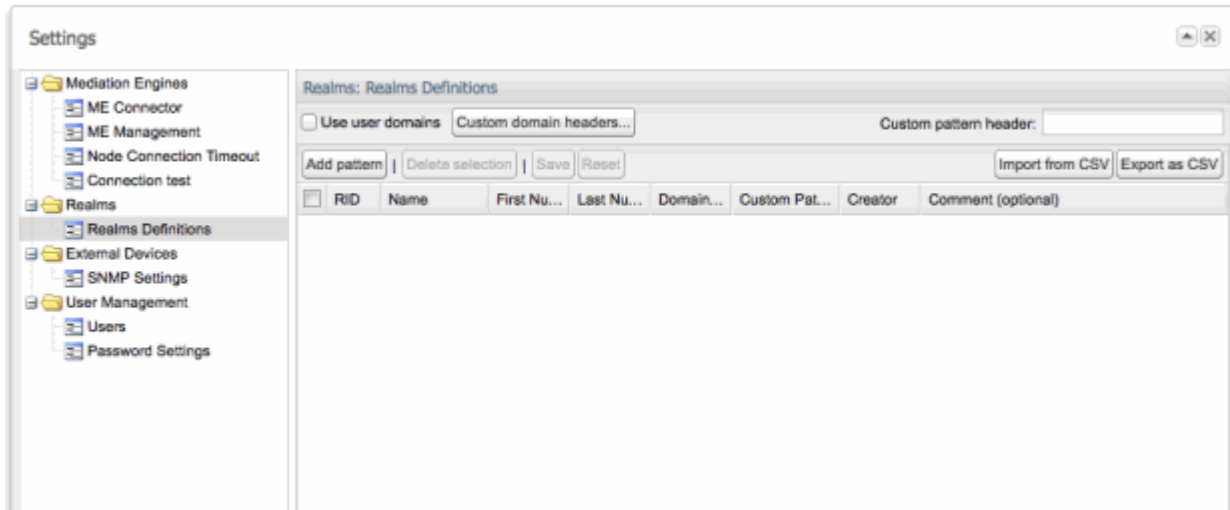
Domain: The domain name. The field is optional as the realm might be identified only by number range.

Comment: An optional comment line, only for convenience.

To delete a selected pattern, click **Delete selection**. You can import and export realm configuration to and from CSV files, which helps in maintaining the realm configuration when many patterns have been defined.

You may also provision realm patterns automatically by uploading a similar CSV file via FTP.

Figure 2-1 Realm Configuration



Configuring User Access

A *user* is identified by a name, a set of access rights, a set of relations with other users, a realm to which the user belongs, an e-mail address, and a logo image file.

Users are organized hierarchically, with **admin** being the root user (default password **oracle**) with unrestricted access. Every user can create a set of *sub-users*, who have less permissions than their parent user.

User interface access is defined by permissions, that control which pages or sections from the user interface the user can see and use, and should be defined by the parent user when the user is created.

User management is similar to the process in the Mediation Engines. The difference being that users provisioned in the MEC are duplicated to all Mediation Engines belonging to it.

Configuring the Mediation Engine Connector URL and Authentication Secret

Mediation Engines communicate with their MEC using an http address under which the MEC is reachable. In most cases, it appears in the form of `http://fully.qualified.hostname/`, where *fully.qualified.hostname* is the fully qualified hostname of the MEC in your network.

You also need to enter an authentication secret, which is used to authenticate the Mediation Engines to the MEC.

These two settings can be entered on the Settings page in the Mediation Engine: ME Connector section.

Figure 2–2 shows an example of Mediation Engine Connector settings.

Figure 2–2 Mediation Engine Connector Settings

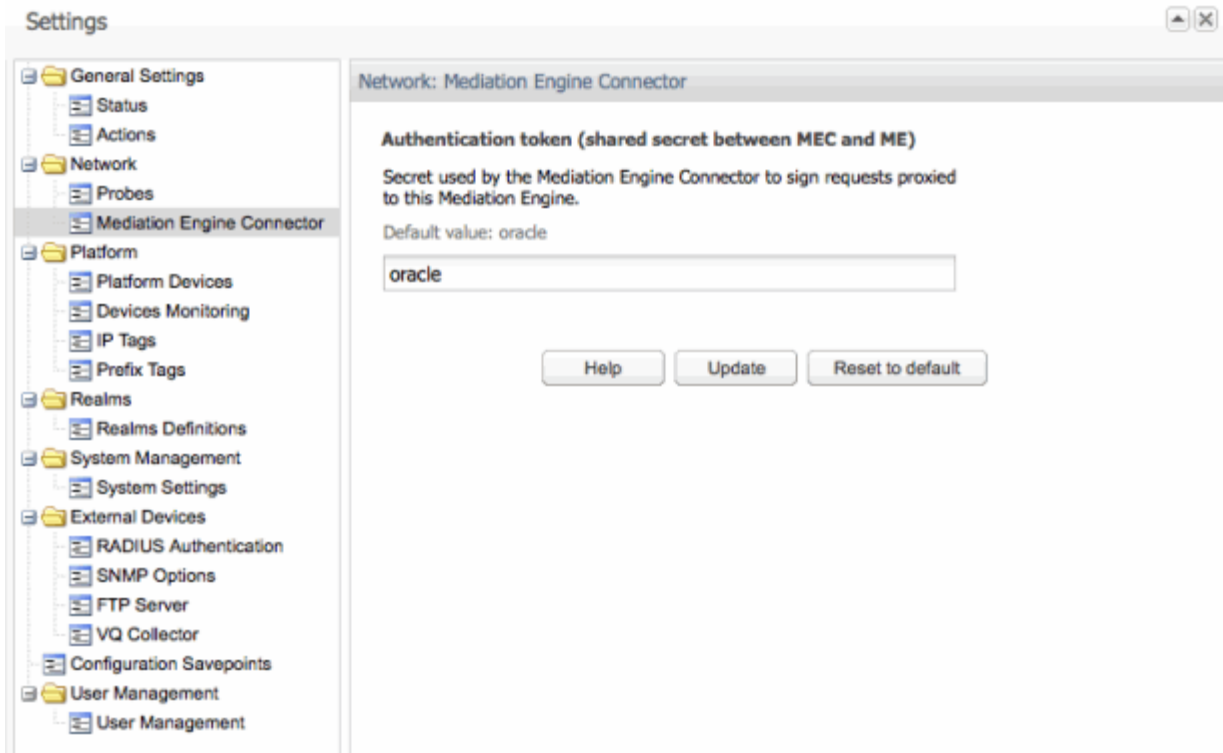


Adding Mediation Engines

The last step in setting up the MEC is to add connections to the Mediation Engines. You must first prepare each Mediation Engine so that it is ready for connections from the MEC. To prepare probing for a connection from the MEC, go to the Settings page of the Mediation Engine, navigate to the Network: Mediation Engine Connector section, and set the secret key.

Figure 2–3 shows an example of secret key setting.

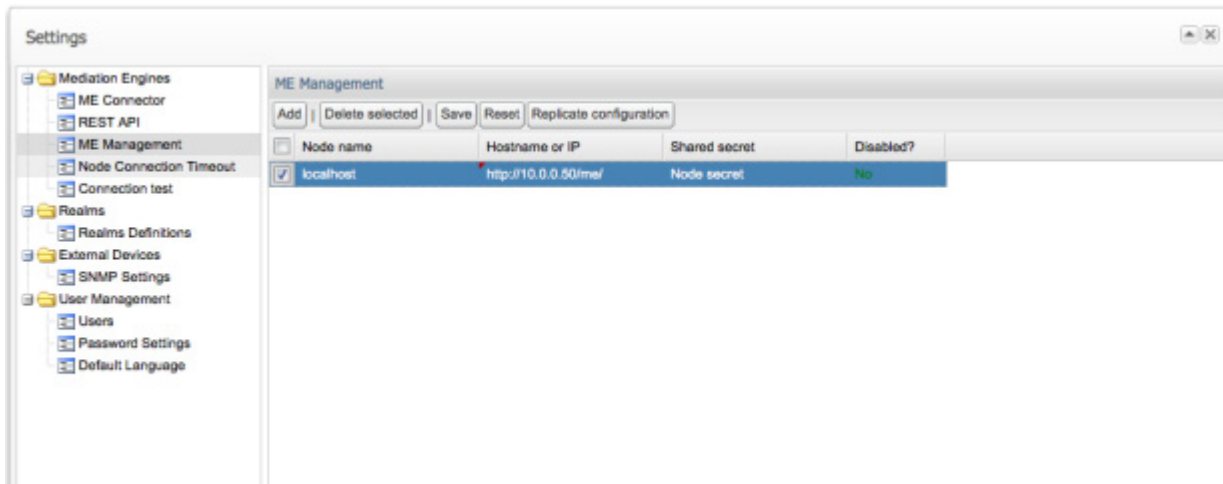
Figure 2-3 *Setting the Authentication Secret*



You can now add the Mediation Engine to the MEC configuration in the Mediation Engine Management section of the MEC's Settings page.

Figure 2-4 shows an example of a Mediation Engine configuration.

Figure 2-4 *Mediation Engine Management*



Click **Add**, a new row appears at the top of the table. To edit a field, double click on it. Enter a name for the Mediation Engine. The name you enter forms part of the URL under which the Mediation Engine is reachable from the MEC. You also must enter the Mediation Engine's base URL along with the Mediation Engine's secret. The former must be the HTTP URL under which the Mediation Engine's user interface is

reachable. The secret must match the one you entered while preparing the probe. Click **Save** when you are finished.

The Mediation Engine is added to the MEC and is available in the Mediation Engine selection in the header bar of the MEC user interface.

Important: When adding a new Mediation Engine, the list of local users on the Mediation Engine might be lost. Any local users and realms in the Mediation Engine will be replaced with the current list of users and realms that exist on the Mediation Engine Connector. If there are users and realms on the Mediation Engine that do not exist on the Mediation Engine Connector, these will be lost.

Configuring Mediation Engines

This chapter describes how to set the location of the Mediation Engine Connector (MEC) and Mediation Engines URLs and test the connections between each Mediation Engine and the MEC and between every two Mediation Engines.

Setting Mediation Engine Connector Configurations

The URL of the Mediation Engine Connector represents the location of the MEC instance.

Mediation Engines use the password for authenticating probes at the Mediation Engine Connector. The default password is **oracle** and should be changed by the administrator. Its value should be identical with the password set in the Mediation Engines (**Proxy authentication secret** field of the System Settings panel).

Click **Save** to commit changes to these fields.

[Figure 3-1](#) shows an example of the Mediation Engine Connector configuration settings.

Figure 3-1 Mediation Engine Connector Configuration Settings



Setting Mediation Engine Configurations

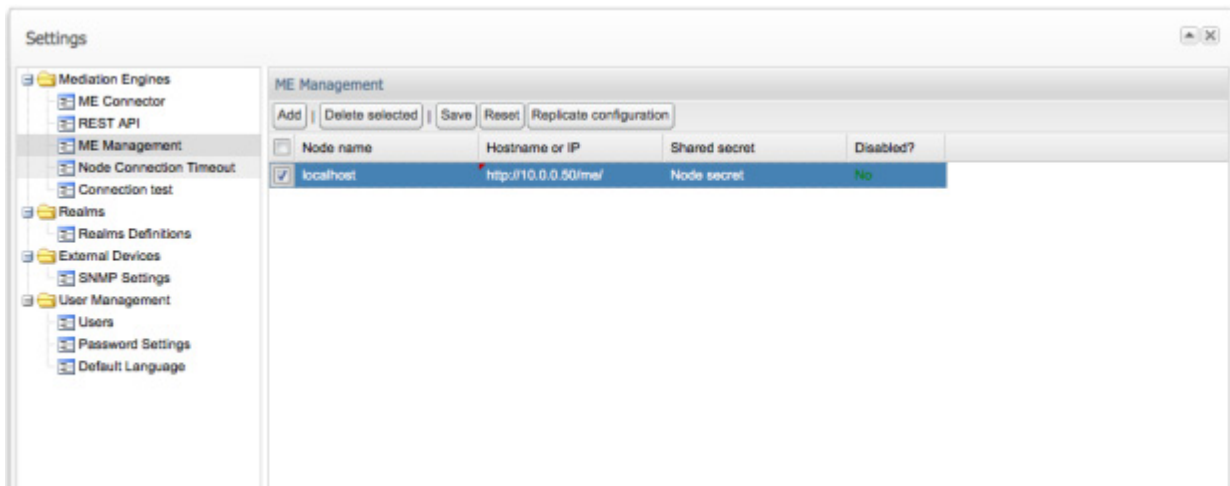
The Mediation Engines subordinated to the MEC can be configured from the Mediation Engine Management section. To add a Mediation Engine, click **Add**. A new row appears at the top of the table.

To edit a field, double click on the table entry. Name, URL, and password should be given to each Mediation Engine. The name of the Mediation Engine is used by the MEC to form the URL under which the Mediation Engine is reached. The base URL field holds the address of the Mediation Engine's Web interface. The **Shared secret** is the password required by the Mediation Engine to authenticate itself while connecting to the MEC. The same password needs to be set in the connecting Mediation Engine under the System Settings section. To commit any changes done to the Mediation Engine's table, click **Save**.

To delete Mediation Engines from the table, select them and click **Delete selected** button. The **Disabled?** column is used to disconnect a Mediation Engine from the MEC. The configuration of the MEC (for example, users and realms) may be replicated to any Mediation Engine by clicking **Replicate configuration** button. Changes to the Mediation Engine configuration need to be committed by clicking **Save**.

Figure 3–2 shows an example of Mediation Engine configuration.

Figure 3–2 Mediation Engine Management



Setting Node Connection Timeout

Node connection timeout is the timeout value for connecting to nodes, for example when replicating settings to nodes. The value is given in seconds.

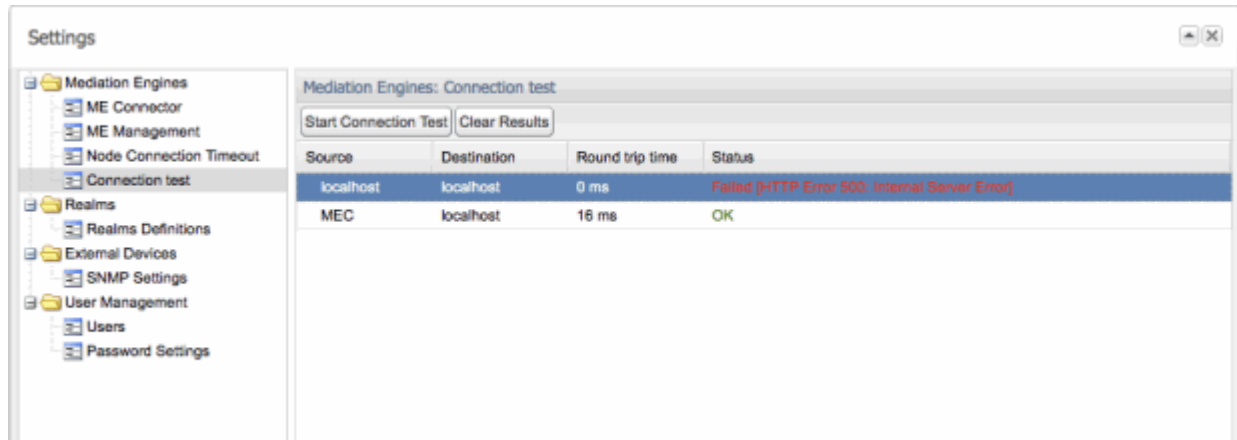
Testing Connections between Mediation Engines

After the Mediation Engines have been configured in the Mediation Engine Management section, the link between any two Mediation Engines (including the MEC) may be tested by clicking **Start Connection Test** button. A ping is sent by each Mediation Engine and by the MEC to each other in order to determine the link quality presented by the **Round trip time** value.

The **Status** is displayed as **OK** in case the source and destination Mediation Engines are connected to each other, or **Failed** otherwise. The **Clear Results** button deletes the test results from the panel.

Figure 3–3 shows an example of Mediation Engine connection test results.

Figure 3–3 Connection Test



The screenshot shows a 'Settings' window with a tree view on the left and a 'Mediation Engines: Connection test' panel on the right. The tree view includes 'Mediation Engines' (with sub-items: ME Connector, ME Management, Node Connection Timeout, Connection test), 'Realms' (with sub-item: Realms Definitions), 'External Devices' (with sub-item: SNMP Settings), and 'User Management' (with sub-items: Users, Password Settings). The 'Connection test' sub-item is selected. The 'Mediation Engines: Connection test' panel has two buttons: 'Start Connection Test' and 'Clear Results'. Below the buttons is a table with the following data:

Source	Destination	Round trip time	Status
localhost	localhost	0 ms	Failed (HTTP Error 500: Internal Server Error)
MEC	localhost	16 ms	OK

Glossary

AOR

Address Of Record.

B2BUA

Back-to-back User Agent. A logical entity that receives a request and processes it as a UAS. In order to determine how the request should be answered, it acts as a UAC and generates requests. See **RFC 3261** for details.

BSS

Business Support System.

Call leg

A call leg is the portion of the call between two SIP devices.

CDR

Call Detail Record.

Codec

COmpressor/DECompressor, algorithms for compressing and decompressing data.

CSV

Comma Separated Values. An exchange format for tabular data understood by Microsoft Excel, OpenOffice.org, and many other applications.

DHCP

Dynamic Host Configuration Protocol. Used for automatically assigning network addresses.

Diameter

Network protocol for data exchange, database access, accounting and policy control, successor of Radius.

DNS

Domain name service.

DoS

Denial of Service.

ENUM

Protocol based on DNS used within IMS for routing decisions.

E-Model

Computational model for use in transmission planning. Defined by the ITU in recommendation G.107.

Egress device

An egress device is the SIP device through which the call leaves the platform.

A more formal definition: An egress call leg is one which has as source a device from the platform, and the destination IP address is from outside the platform. A device is an egress device from a call if it is the source device of an egress call leg. If the call is terminated by a gateway device, this device is also considered an egress device.

Ethernet

Family of frame-based computer networking technologies for local area networks (LANs).

FTP

File Transfer Protocol.

HA

High Availability.

HTML

HyperText Markup Language.

HTTP cookie

Information unit from a web server for purposes of identification and customization. It is stored by the web browser and accessed by the server during subsequent visits.

H.248

Gateway control protocol.

H.323

VoIP protocol defined by ITU-T.

ICMP

Internet Control Message Protocol. Defined in **RFC 792**.

le-eff

Effective equipment impairment factor. See ITU recommendation G.107.

IMS

IP Multimedia Subsystem.

Ingress device

An ingress device is the SIP device through which the call enters the platform.

A more formal definition: An ingress call leg is one which has as destination a device from the platform, and the source IP address is from outside the platform. A device is an ingress device from a call if it is the destination device of an ingress call leg. If the call is created by a gateway device, this device is also considered an ingress device.

IP

Internet Protocol. Defined in **RFC 791**.

ISUP

ISDN user part.

ITU

International Telecommunication Union.

Javascript

A scripting programming language most commonly used to add interactive features to web pages.

Jitter

A measure of the variability over time of the latency across a network. Term generally used in the VoIP environment describing the variation in delay between packets.

JSON

JavaScript Object Notation, a lightweight computer data interchange format.

LISP

Mature high-level programming language based on lambda calculus.

ME

Mediation Engine. The ME is the core of the Session Monitor product family running the real-time data processing and serves the frontend and interfaces.

Megaco

Gateway control protocol.

MEGACO TerminationID

Termination IDs of physical Terminations are provisioned in the Media Gateway.

MEGACO ContextID

A Context is an association between a number of Terminations. The Context describes the topology (who hears/sees whom) and the media mixing and/or switching parameters if more than two Terminations are involved in the association.

MEGACO Transaction

MEGACO Commands between the Media Gateway Controller and the Media Gateway are grouped into Transactions.

MGCP

Media Gateway Control Protocol.

MIB

Management Information Base.

MOS

The Mean Opinion Score (MOS) provides a numerical indication of the perceived quality of the received media. The MOS is expressed as single number in the range of 1 to 5. MOS is always measured by humans. Software products and devices like Session

Monitor Operations Monitor can only estimate it, the result being MOS-LQE (listening quality estimate).

The estimation is done based on a set of static parameters and taking into account a set of factors related to the flow of the voice packets throughout the network. The content of the packets is not deeply inspected. This can have an impact in such cases where a call is hopping over multiple media processors, resulting in multiple legs, some of which are not available to Session Monitor Operations Monitor (like foreign network segments, TDM etc). In these cases, only the maximum possible voice quality over the inspected segments is provided, rather than an absolute estimate, end-to-end.

In other words, if one of the media legs not accessible to Session Monitor Operations Monitor will degrade the quality, a processor downstream will decode the signal and re-packetize it to good parameters, but without enhancing it back, Session Monitor Operations Monitor might rate the call higher than the human listener will actually perceive it.

MOS	Quality	Impairment
5	Excellent	Imperceptible
4	Good	Perceptible but not annoying
3	Fair	Slightly annoying
2	Poor	Annoying
1	Bad	Very annoying

NIC

Network Interface Card.

NTP

Network Time Protocol.

OID

Object IDentifiers.

OSI

Open Systems Interconnection. A joint ISO and ITU-T standard for computer networks and communication protocols.

OSS

Operations Support System.

PCAP

Packet Capture file format. Used by many network analyzers including the open source tool Wireshark. The stored messages contain TCP/UDP headers, IP header and Layer 2 headers, plus the timestamp at which the message was received.

PDF

Portable Document Format. PDF is used for representing two-dimensional documents in a manner independent of the application software, hardware, and operating system.

Probe

A probe is a software to collect raw signaling and/or media traffic. Probes can be configured to be running locally within the Mediation Engine, externally on dedicated probe machines or integrated with Oracle Communications Session Border Controller.

Proxy

An intermediary entity that acts as both a server and a client for the purpose of making requests on behalf of other clients. A proxy server primarily plays the role of routing. See **RFC 3261** for details.

PSTN

Public Switched Telephone Network.

R-Factor

Voice quality score on a scale from 0 (worst) to 100 (best).

RADIUS

Remote Authentication Dial-In User Service is a networking protocol that provides centralized Authentication, Authorization, and Accounting (AAA) management for computers to connect and use a network service.

REST

Representational State Transfer. A convention for web services.

RSPAN

Remote SPAN.

RTP

Real-time Transport Protocol. Used for transporting media. Defined in **RFC 3550**.

RTCP

Real-time Transport Control Protocol. Used for reporting end point media quality information.

RTT

Round-Trip Time. The time elapsed for a message to a remote target and back again.

SBC

Session Border Controller. Used in some VoIP networks to offer decoupling, interoperability, and to hide the internal topology. They are typically involved in the signalling and often also relay the media streams. From the SIP point of view, they are usual B2BUAs.

SCTP

Stream Control Transmission Protocol. Is a Transport Layer protocol ensuring reliable, insequence transport of messages with congestion control.

SDP

Session Description Protocol. Defined in **RFC 4566**.

SIGTRAN

Suite of protocols to enable the use of SS7 over IP networks.

SIP

Session Initiation Protocol. Defined in **RFC 3261**.

SNMP

Simple Network Management Protocol.

SPAN

Switched Port Analyzer.

SPIT

SPAM over Internet Telephony.

SS7

Signaling System 7

TCP

Transmission Control Protocol.

UAC

User Agent Client. The SIP element that creates a new request; usually the caller's SIP device in case of calls, or the user's SIP device in case of registrations. For details, see **RFC 3261**, Section 6.

UAS

User Agent Server. The SIP element answering the request; usually the callee's SIP device, or a SIP server. For details, see **RFC 3261**, Section 6.

UDP

User Datagram Protocol.

URI

Uniform Resource Identifier.

VLAN

Virtual Local Area Network.

VRRP

Virtual Router Redundancy Protocol. A redundancy protocol described in **RFC 3768**.

XML

The eXtensible Markup Language is a flexible text format for creating structured computer documents.