

SIP Gateways

For all Mediatrix units

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Basic Concepts

SIP Gateways

In the scope of this document and Mediatrix products in general, a "SIP gateway" is a software entity of the DGW application that ties the SIP communications to different network interfaces and listening ports. Not to be confused with a "VoIP gateway" which usually represents the whole gateway device.

A SIP gateway can be used to:

- Redirect ISDN calls to different SIP servers depending on the call.
- Hunt calls across several gateways.
- Terminate communication sessions between two or multiple parties.

There are two types of SIP gateways: trunk gateway and endpoint gateway. For more details on their difference, refer to [Trunk Gateway vs Endpoint Gateway](#) (p.4)

Number of Registrations

The total number of registrations is the sum of all the endpoint and gateway pairs.

For most Mediatrix devices, the total number of registrations is limited to 64. However, for the Mediatrix G7 Series, the Mediatrix S7 Series, the Sentinel 400, and the Sentinel 100, the limit is 500. If a custom DGW profile is used, the limit can be different depending on what value was defined in the profile. For example, when using a Sentinel 400, up to 500 registrations are possible, but if the profile specifies 200, then the unit will only be able to manage up to 200 registrations.

The Mediatrix unit supports a maximum of 10 gateways. An endpoint configured with **All** gateways generates as many registrations as the number of gateways. In a setup with 3 gateways, one endpoint configured with **All** as the gateway name counts for 3 in the total number of registrations. The registrations are enabled gateway by gateway until the limit is reached. Endpoint registrations are used first, then unit registrations. The remaining registrations are not registered and do not appear in the **Status** table. If the number of registrations exceeds the defined limit, a warning is displayed on the Web interface (as well as in the CLI and SNMP interfaces) and a syslog notify (Level Error) is sent. Adding a gateway or an endpoint triggers a warning message if the total number of registrations configured reached the defined limit

Trunk Gateway vs Endpoint Gateway

IMPORTANT: Gateways on a unit must be of the same type, i.e.. you cannot have trunk and endpoint gateways on the same unit. Using 2 types of gateways on the same unit may cause SIP messages to be misrouted.

Trunk Gateways	Endpoint Gateways
Operates like a traditional SIP gateway	Operation is inspired from the IMS (IP Multimedia Subsystem) model.
No concept of being connected to a SIP server at the SIP level.	- Establishes SIP connections to a SIP server based on the success of SIP registration. - SIP dialogs for a given SIP user can only be established once the user is registered to the server.
Accepts incoming SIP requests from peers on a listening port.	The gateway has no listening port. It accepts incoming SIP requests only from the server on which it is registered.
When the destination is an FQDN, each SIP transaction is possibly sent to a different IP address, depending on the DNS query result. The gateway assumes that all SIP servers identified by a single FQDN have a synchronised state.	The Endpoint Gateway is designed to operate with a destination specified by an FQDN. The addresses obtained from the DNS resolution of this FQDN are used as potential "SIP connection" addresses, in ordered priorities. The endpoint gateway first attempts to register to the highest priority server. If the SIP connection (registration) fails, the next priority server is tried, and so on. A failback scheme periodically attempts to switch to the server with the highest priority available. Failover/fallback to another server requires the SIP user to register on that server prior to establishing SIP communication.
Supports UDP, TCP, and TLS transport: - TLS connections are persistent - UDP and TCP connections are not persistent	Supports UDP, TCP, and TLS transport - Separate persistent connections are established for each user. - For UDP transport, the gateway simulates persistent connections.
SIP dialogs are established independently of each other (in some conditions, the selection of the destination server may depend on the keep alive parameters configured under SIP/Servers).	SIP dialogs for a given SIP user can only be established once the user is registered to the server.

Trunk Gateways	Endpoint Gateways
The call router shows a single SIP source/destination for the gateway.	The call router and gateway status tables show an instance of the gateway for each user of the gateway.
Supports endpoint, gateway, user, and unit registrations.	Supports endpoint registrations only.
Supports NAPTR DNS queries.	NAPTR DNS queries are not supported.

Important Information to Know before Using SIP Gateways

Limitations

- Adding a SIP gateway triggers a warning message if the total number of registrations configured reached the defined limit. Refer to [Number of Registrations](#) (p.3).
- The Mediatrix unit supports a maximum of 10 gateways.

IMPORTANT: Downgrading from a version supporting 10 gateways (introduced in DGW v.46.0) to an older version with a limit of 5, will erase gateways in excess of 5. After downgrade, the configuration will require verification.

Naming

Gateway names only support alphanumeric characters, "-", and "_".

Network Interfaces

- When a gateway is associated with a Network interface for signaling, it applies to all transport types (UDP, TCP, etc.).
- The LAN interface may be used by a SIP gateway to be bound on the LAN. However, there is no SIP to SIP routing between the LAN and the Uplink interface..

Port Use

If two or more SIP gateways use the same port, only the first SIP gateway starts correctly. The others are in error and not started. The SIP gateway is also in error and not started if the port is already used.

Basic Tasks

Creating a SIP Gateway on the LAN Network Interface

Information

IMPORTANT: The LAN interface may be used by a SIP gateway to be bound on the LAN. However, there is no routing between the LAN and the Uplink interface.

Steps

- 1) Go to **SIP/Gateways**.
- 2) In the **Gateway Configuration** table, in the **Name** field, enter the name of the new gateway (ex. gateway_lan).
- 3) Click **+**.
- 4) From the **Type** selection list, select the type of gateway used.

Note: In most scenarios, it is the Trunk gateway type that is used. For more details refer to [Trunk Gateway vs Endpoint Gateway](#) (p.4).

- 5) From the **Signaling Network** selection list, select **Lan1**
- 6) In the **Port** and **Secure Port** fields, enter the gateway listening port to use (ex. 5060) .

Note: The default value is 0, which means it will use Port 5060 and Secure Port 5061. To have multiple gateways in the same Signaling Network, use different ports, for example Port 5062 and Secure Port 5063.

- 7) Click **Apply**.
- 8) Click **restart required services** located at the top of the page.

Result

The new gateway will be available under the **SIP/Servers** page.

Creating a SIP Gateway on the Uplink Network Interface

Steps

- 1) Go to **SIP/Gateways**.
- 2) In the **Gateway Configuration** table, in the **Name** field, enter the name of the new gateway. (ex. gateway_uplink)
- 3) Click **+**.

- 4) From the **Type** selection list, select the type of gateway used.

Note: In most scenarios, it is the Trunk gateway type that is used. For more details refer to [Trunk Gateway vs Endpoint Gateway](#) (p.4).

- 5) From the **Signaling Network** selection list, select **Uplink**.
- 6) In the **Port** and **Secure Port** fields, enter the gateway listening port to use (ex. 5060) .

Note: In the Port and Secure Port fields, enter the gateway listening ports to use. Default is 0, which means it will use Port 5060 and Secure Port 5061. To have multiple gateways in the same Signaling Network, use different ports, for example Port 5062 and Secure Port 5063).

- 7) Click **Apply**.
- 8) Click **restart required services** located at the top of the page.

Result

The new gateway will be available under the **SIP/Servers** page.

Modifying a SIP Gateway

Steps

- 1) Go to **SIP/Gateways**.
- 2) In the **Gateway Configuration** table, modify the fields of the gateway.
- 3) Click **Apply**.
- 4) Click **restart required services**.

Result

The changes will appear in the **Gateway Status** table.

Deleting a SIP Gateway

Steps

- 1) Go to **SIP/Gateways**.
- 2) In the **Gateway Configuration** table, click - next to the gateway to delete.
- 3) Click **Apply**.
- 4) Click **restart required services**, located at the top of the page.

Result

The Gateway will be removed from the **Gateway Status** table along with its configured parameters (e.g. servers, registrations), and any reference to this gateway would be invalid (e.g. from the Call Router or the Sbc service). Furthermore, error notifications and syslogs will be issued to indicate the inconsistencies found.

Other Related Tasks

Defining a username-password for a Gateway

Before you start

- Administrator rights are required to access this page.
- The challenge needs to be for a SIP request performed on the SIP Gateway specified in the **Gateway** column if the corresponding **Apply to** column is set to **Gateway**.

Steps

- 1) Go to **SIP/Authentication**.
- 2) Click + located on the first row.
- 3) Click **Edit** located on the first row.
- 4) From the **Criteria** selection list, choose **Gateway**.
- 5) From the **Gateway** selection list, choose a gateway.
- 6) Enter a password and username for the gateway.

Note: you can choose to enable the realm validation, but this is not mandatory.

- 7) Click **Apply**.

Result

The username and password will be used to authenticate IP requests from the selected gateway. If they do not match the username and password of the gateway, then the communication will fail.

Advanced Parameters

SIP Gateway Advanced Parameters

All SIP gateway parameters are configurable via the DGW Web Interface.

Online Help

If you are not familiar with the meaning of the fields and buttons, click **Show Help**, located at the upper right corner of the Web page. When activated, the fields and buttons that offer online help will change to green and if you hover over them, the description will be displayed.

DGW Documentation

Mediatrix devices are supplied with an exhaustive set of documentation.

Mediatrix user documentation is available on the [Media5 Documentation Portal](#).

Several types of documents were created to clearly present the information you are looking for. Our documentation includes:

- **Release notes:** Generated at each GA release, this document includes the known and solved issues of the software. It also outlines the changes and the new features the release includes.
- **Configuration notes:** These documents are created to facilitate the configuration of a specific use case. They address a configuration aspect we consider that most users will need to perform. However, in some cases, a configuration note is created after receiving a question from a customer. They provide standard step-by-step procedures detailing the values of the parameters to use. They provide a means of validation and present some conceptual information. The configuration notes are specifically created to guide the user through an aspect of the configuration.
- **Technical bulletins:** These documents are created to facilitate the configuration of a specific technical action, such as performing a firmware upgrade.
- **Hardware installation guide:** They provide the detailed procedure on how to safely and adequately install the unit. It provides information on card installation, cable connections, and how to access for the first time the Management interface.
- **User guide:** The user guide explains how to customise to your needs the configuration of the unit. Although this document is task oriented, it provides conceptual information to help the user understand the purpose and impact of each task. The User Guide will provide information such as where and how TR-069 can be configured in the Management Interface, how to set firewalls, or how to use the CLI to configure parameters that are not available in the Management Interface.
- **Reference guide:** This exhaustive document has been created for advanced users. It includes a description of all the parameters used by all the services of the Mediatrix units. You will find, for example, scripts to configure a specific parameter, notification messages sent by a service, or an action description used to create Rulesets. This document includes reference information such as a dictionary, and it does not include any step-by-step procedures.

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