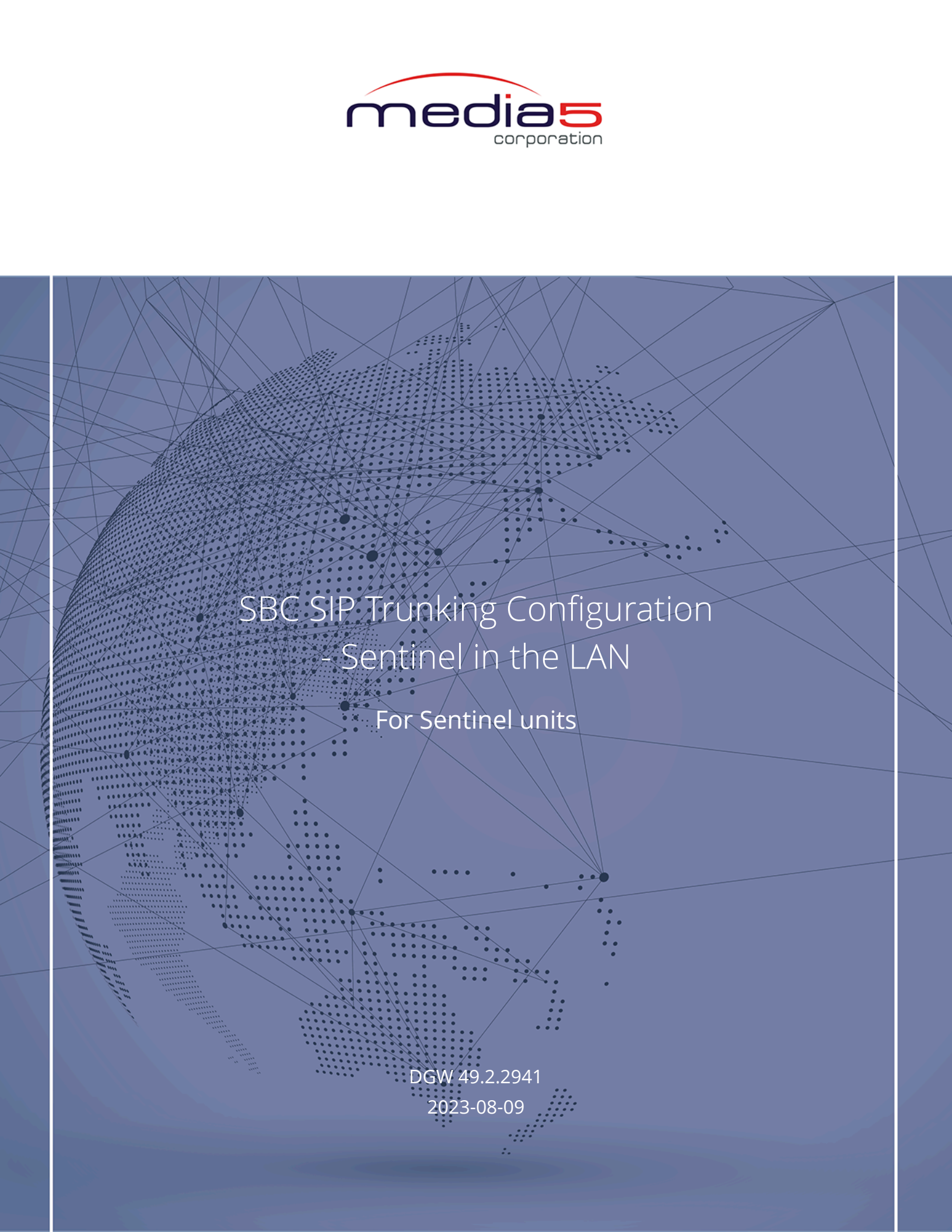


The background of the page is a dark blue abstract graphic. It features a complex network of thin white lines connecting numerous small black dots, creating a mesh-like structure. On the left side, there is a curved, grid-like pattern of dots, resembling a stylized globe or a data visualization. The overall effect is one of a sophisticated, interconnected network.

SBC SIP Trunking Configuration - Sentinel in the LAN For Sentinel units

DGW 49.2.2941
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Information to Know Before Starting

Before starting to use these configuration notes, complete the following table to make sure you have the required information to complete the different steps.

IMPORTANT: 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.

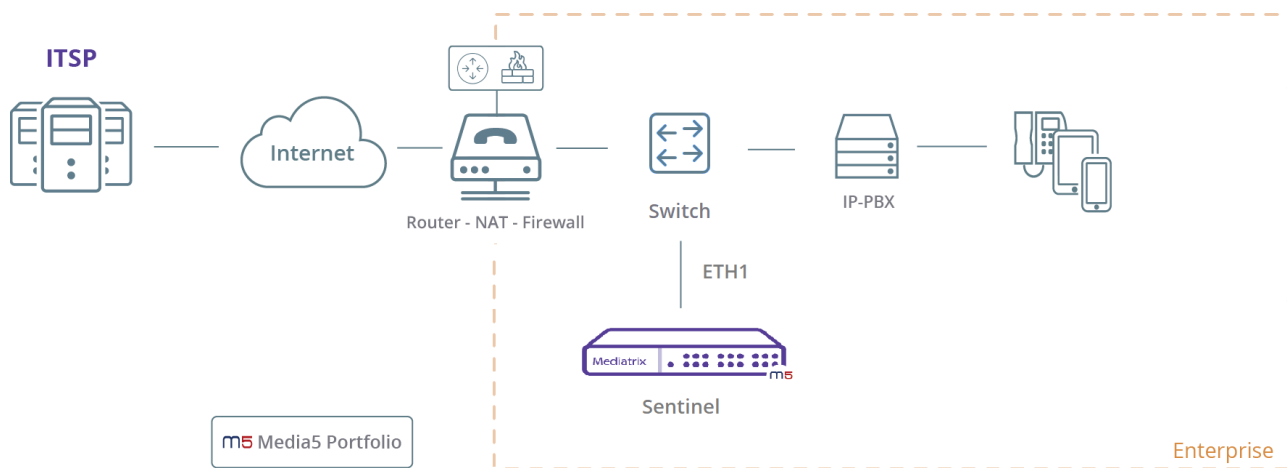
Note: The Mediatrix unit must be reinitialised to its factory default settings to make sure the configuration can be successfully executed.

Information	Value	Used in Step
Temporary IP address used by your Mediatrix unit to communicate with the Management Interface.	DHCP server- provided IP address	Logging on to the Mediatrix Unit Web Interface (p.6)
Final Static LAN IP address as defined in your network address range.		Configuring the Uplink Network Interface (p.7)
Static Default Router IP address of the Uplink Network Interface		Configuring the Default Network Gateway to a Static IP Address (p.8)
IP address of each DNS server		Configuring the Domain Name Server (DNS) (p.8)
IP address of each SNTP server		Configuring the SNTP Server to a Static IP Address (p.9)
Public IP address of router/ firewall		Configuring the uplink_s Signaling Interface (p.10)
IP address or FQDN of the service provider server		Configuring the wan_ip_trunk_ca Call Agent (p.14)
Username and password for the SIP trunk (optional)		Configuring the wan_ip_trunk_ca Call Agent (p.14)
IP address of the IP PBX		Configuring the lan_ip_pbx_ca Call Agent (p.16)
Make sure you have the latest rulesets from the Media5 Support Portal	- wan_ip_trunk_to_lan_pbx.rrs - lan_pbx_to_wan_ip_trunk_dm.rrs	Importing Rulesets (p.13)

SBC SIP Trunking Configuration - Sentinel in the LAN

This scenario describes how to connect a local PBX to a SIP service provider using a Sentinel (SBC).

- The Sentinel unit is located in the LAN.
- Only port ETH1 of the Sentinel is used.
- The Sentinel unit is set as a Demarcation point.
- The Sentinel unit may or may not register to the SIP service provider.
- The Sentinel unit is located in the LAN, behind a Near-End NAT.



Important Information on NAT, Interfaces, and Ports

Since this scenario uses only one physical network interface (ETH1) for communicating both with the ITSP/Public Internet and the IP-PBX, different ports will need to be assigned to the signaling and media interfaces for the Sentinel to differentiate the traffic.

- On the ITSP/Public Internet side, port 5060 is used for signaling with the 20000-20999 range for media. The router/firewall will need to be set up to allow connections from the ITSP/Public Internet on these ports, and set up port forwarding to the Sentinel internal IP address.
- On the IP PBX side, port 5064 is used for signaling with the 21000-21999 range for media. Depending on the PBX, this can be accomplished by either creating a SIP trunk on an alternate port, or in the Outbound Proxy configuration.

Logging on to the Mediatrix Unit Web Interface

Before you start

The computer IP address must be in the same TCP/IP network as the Mediatrix unit.

Information

For better performances, it is recommended to use the latest available version of Microsoft Internet Explorer, Google Chrome, or Mozilla Firefox.

Note: You may not be able to log on to the Mediatrix unit Web interface if you are using older browser versions.

Steps

- 1) In your Web browser, enter the IP address at which the Web interface of your Mediatrix unit can be reached.
 - If your network has an IPv4 DHCP server, connect the primary Ethernet port of the Mediatrix unit to the network (ETH1 port), use the provided DHCP server IP address. The primary Ethernet port, i.e. ETH1 port, of the Mediatrix unit must be connected to the switch.
 - If your network has no DHCP, you can connect temporarily your computer to the secondary Ethernet port of the Mediatrix unit (ETH2), using the 192.168.0.10 IP address. The computer must also own an IP address in the 192.168.0.0/24 network. Note that, after configuring the network, you will need to reconnect your computer to the switch to finish configuration.
- 2) Enter **admin** as your username and **administrator** as the password.

Note: You can also use **public** as a username and leave the password field empty. By default, it has the full administration rights .

- 3) Click **Login**.

Result

The **Information** page of the Web interface is displayed.

Related tasks

[Configuring the Uplink Network Interface](#) (p.7)

Configuring the Uplink Network Interface

Information

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.

Steps

- 1) Go to **Network/Interfaces**.
- 2) In the **Network Interface Configuration** table, from the **Link** selection list located next to **Uplink**, leave the default value, i.e. ETH1 .
- 3) From the **Type** selection list, select **IpStatic (IPv4 Static)**.

Note: The **Uplink** Network Interface must be set with a fixed IP address for the NAT/router to be able to do port-forwarding to the unit. It will also be easier for the PBX to communicate with the unit if the address is static.

- 4) In the **Static IP Address** field enter the **Internal static IP address** of the unit followed by the subnet CIDR prefix (for example: 192.168.1.100/24, 10.1.2.3/8, etc.).
- 5) From the **Activation** selection list, select **Enable**.
- 6) Click **Apply** to apply all changes to the configuration.

Note: Once the changes are applied, the connection with the unit might be lost. You may need to reconnect to the web page using the new address, or plug back your computer into the network switch to continue configuration on the Uplink network.

Result

The unit can be reached (via the Web) with the Static Address.

Network Interface Configuration						
Name	Link	Type	Static IP Address	Static Default Router	Activation	
Lan1	eth2-5 ▼	IpStatic (IPv4 Static) ▼	192.168.0.10/24		Enable ▼	—
Uplink	eth1 ▼	IpStatic (IPv4 Static) ▼	Internal Static IP/subnet		Enable ▼	—

Next Step

Configuring the Default Network Gateway to a Static IP Address (p.8)

Configuring the Default Network Gateway to a Static IP Address

Steps

- 1) Go to **Network/Host**.
- 2) In the **Default Gateway Configuration** table, from the **IPv4/Configuration Source** selection list, select **Static**.
- 3) In the **IPv4/Default Gateway** field, enter the IP address used as the **Static Default Router** for the Uplink Network Interface.

Note: The Sbc service only supports IPv4.

- 4) Click **Apply**.

Result

The specified address is used as the current default router address.

Default Gateway Configuration	
IPv4	
Configuration Source:	Static ▼
Default Gateway:	IP address of default gateway

Configuring the Domain Name Server (DNS)

Before you start

Although it is possible to use public DNS servers you should always ask your internet service provider to provide at least the primary and secondary DNS servers.

Steps

- 1) Go to **Network/Host**.
- 2) In the **DNS Configuration** table, from the **Configuration Source** selection list, select **Static**.
- 3) For each DNS used, enter the IP address of the DNS.
- 4) Click **Apply**.

Result

DNS Configuration		
Configuration Source:	Static ▼	
Primary DNS:	Example (Google): 8.8.8.8	
Secondary DNS:	Example (Cloudflare): 1.1.1.1	
Third DNS:	Example (OpenDNS): 208.67.222.222	
Fourth DNS:	Example (Level3): 209.244.0.3	

Next Step

Configuring the SNTP Server to a Static IP Address (p.9)

Configuring the SNTP Server to a Static IP Address

Before you start

Make sure there is an SNTP server available.

Steps

- 1) Go to **Network/Host**.
- 2) In the **SNTP Configuration** table, from the **Configuration Source** selection list, select **Static**.
- 3) Provide an IP address or domain name and port numbers for each SNTP server you are using.

Note: The best practice is to use the servers supplied by your Internet Service Provider, then complement with servers from a different network close to your geographical area. For example: time.nist.gov (USA), ntp4.sptime.se (Sweden), time1.isu.net.sa (Saudi Arabia), ntp.nict.jp (Japan), time.google.com (Worldwide), pool.ntp.org or one of their regional server pools (see <https://www.ntppool.org/> for more information).

- 4) If necessary, change the value of the **Synchronisation Period**.
- 5) If necessary, change the value of the **Synchronisation Period on Error**.
- 6) Click **Apply**.

Result

The SNTP host name and port will be displayed in the **Host Status** table under **Network/Status**.

SNTP Configuration	
Configuration Source:	Static v
Primary SNTP:	address of primary SNTP server
Secondary SNTP:	address of secondary SNTP server
Third SNTP:	address of third SNTP server
Fourth SNTP:	address of fourth SNTP server
Synchronization Period:	1440
Synchronization Period On Error:	60

Next Step

Configuring the **uplink_s** Signaling Interface (p.10)

Configuring the **uplink_s** Signaling Interface

Steps

- 1) Go to **SBC/Configuration**.
- 2) In the **Signaling Interface Configuration** table, from the **Network** selection list located next to **uplink_s**, make sure **Uplink** is selected.

Note: The Network Interfaces displayed in the **Network** column, are created under the **Network/Interfaces** page.

- 3) In the **Port** field, set the SIP listening port for the Sbc service, if a listening port other than 5060 is required, or leave it as it is.
- 4) In the **Public Address** field, set the NAT/FW public IP Address that will be used to communicate with the service provider.
- 5) Click **Save**.
- 6) Click **Apply** to apply all changes to the configuration.
- 7) Click **restart required services**, located at the top of the page.

Result

The **Signaling Interface** will be available when configuring a Call Agent, in the **Configure Call Agent** page in the **Signaling Interface** selection list.

Signaling Interface Configuration							
Name	Network	Port	Secure Port	Allowed Transports	Tls Mode	Public Address	
loop_s	Loop	0	0	All	Client		-
lan1_s	Lan1	5060	0	All	Client		-
uplink_s	Uplink	5060		All	Client	NAT/FW IP Address	-
							+

Next Step

Configuring the uplink_m Media Interface (p.11)

Configuring the uplink_m Media Interface

Steps

- 1) Go to **SBC/Configuration**.
- 2) In the **Media Interface Configuration** table, from the **Network** selection list located next to **uplink_m**, make sure **Uplink** is selected.

Note: The Network Interfaces displayed in the **Network** column, are created under **Network/Interfaces** page.

- 3) In the **Public Address** field, set the NAT/FW public IP Address that will be used to communicate with the service provider.
- 4) In the **Port Range** field, set the media (RTP) port range if a port range other than 20000-20999 is required, or leave it as it is.
- 5) Click **Save**.
- 6) Click **Apply** to apply all changes to the configuration.
- 7) Click **restart required services**, located at the top of the page.

Result

The **Media Interface** will be available when configuring a call agent, in the **Configure Call Agent** page, in the **Media Interface** selection list.

Media Interface Configuration					
Name	Network	Port Range	Public Address		
loop_m	Loop	20000-20999		—	
lan1_m	Lan1	20000-20999		—	
uplink_m	Uplink	20000-20999	NAT/FW IP Address	—	
				+	

Next Step

Configuring the pbx_s Signaling Interface (p.12)

Configuring the pbx_s Signaling Interface

Steps

- 1) Go to **SBC/Configuration**.
- 2) In the **Signaling Interface Configuration** table, click **+** to create a new interface.
- 3) In the **Name** field, enter **pbx_s**.
- 4) from the **Network** selection list located next to **pbx_s**, make sure **Uplink** is selected.

Note: The Network Interfaces displayed in the **Network** column, are created under the **Network/Interfaces** page.

- 5) Set the **Port** field to the alternate port used between the PBX and SBC, for example 5064.
- 6) Set the **Secure Port** to the same value but incremented by 1, for example 5065.

Note: It is important that there are no port conflicts for the signaling on a same Network interface.

- 7) Click **Save**.
- 8) Click **Apply** to apply all changes to the configuration.
- 9) Click **restart required services**, located at the top of the page.

Result

The **Signaling Interface** will be available when configuring a Call Agent, in the **Configure Call Agent** page in the **Signaling Interface** selection list.

pbx_s	Uplink ▼	5064	5065	All ▼	Client ▼		-
							+

Next Step

Configuring the pbx_m Media Interface (p.13)

Configuring the pbx_m Media Interface

Steps

- 1) Go to **SBC/Configuration**.
- 2) In the **Media Interface Configuration** table, click **+** to create a new interface.
- 3) In the **Name** field, enter **pbx_m**.
- 4) From the **Network** selection list located next to **pbx_m**, make sure **Uplink** is selected.

Note: The Network Interfaces displayed in the **Network** column, are created under **Network/Interfaces** page.

- 5) In the **Port Range** field, set the media (RTP) port range, enter **21000-21999**.
- 6) Click **Save**.
- 7) Click **Apply** to apply all changes to the configuration.
- 8) Click **restart required services**, located at the top of the page.

Result

The **Media Interface** will be available when configuring a call agent, in the **Configure Call Agent** page, in the **Media Interface** selection list.

pbx_m	Uplink ▼	21000-21999		-
				+

Next Step

Importing Rulesets (p.13)

Importing Rulesets

Before you start

Rulesets must be imported. The latest Ruleset package can be found on the <https://media5.secure.force.com/supportportal> (you will be required to supply a user name and password).

In the Downloads tab, choose **SBC Updated Rulesets**, then download the zip file and extract it to your PC.

Information

Steps

- 1) Go to **Management/File**.

Note: Required Rulesets depend on the scenario being configured. Refer to the Call Agent and Routing Ruleset sections of the configuration notes for details on Rulesets needed to complete the configuration.

Note: Step 2 is only required when importing the first Ruleset and if you are not using a secure connexion to access the Management Interface (http://).

- 2) Click **Activate unsecure file importation from the Web browser**.
- 3) From the **Path** field, select sbc/rulesets/.
- 4) Click **Browse**, and navigate to the Ruleset you wish to import, i.e.
 - a) **lan_pbx_to_wan_ip_trunk_dm.rrs**
 - b) **wan_ip_trunk_to_lan_pbx.rrs**

Note: Ruleset file extension must be *.crs for Call Agent Rulesets or *.rrs for Routing Rulesets.

- 5) Click **Import**.
- 6) Repeat steps 3 to 5 for all required rulesets.

Result

The imported Ruleset will appear in the **Internal files** table, with the selected path in front of the name. The Ruleset will be available in the tables of the **SBC/Rulesets** page.



Next Step

[Configuring the wan_ip_trunk_ca Call Agent](#) (p.14)

Configuring the wan_ip_trunk_ca Call Agent

Information

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.

Steps

- 1) Go to **SBC/Configuration**.

- 2) In the **Call Agent Configuration** table, click  next to **wan_ip_trunk_ca**.
- 3) In the **Configure Call Agent** table, complete the following fields:
 - a) Select the **Enable** check box.
 - b) From the **Signaling Interface** selection list, select **uplink_s**.
 - c) From the **Media Interface** selection list, select **uplink_m**.
 - d) Set the **Peer Host** to the IP address of the service provider server or FQDN.
- 4) In the **Call Agent Rulesets** table, click  to insert a new ruleset entry.

Note: You can ignore the "Invalid configuration" and "Unknown ruleset" warnings. They will disappear when the configuration is saved.

- 5) From the **Name** selection list, choose **automatic_media_relay**.
- 6) Click .
- 7) From the **Name** selection list, choose **topology_hiding_out**.
- 8) If your SIP trunk requires authentication:
 - a) Click .
 - b) From the **Name** selection list, choose **uac_authentication_out**.
 - c) In the **Parameters** field, enter **USERNAME=trunk_username**
PASSWORD=trunk_password corresponding to the username and password used for authentication.
- 9) Click **Save**.
- 10) Click **Apply** to apply all changes to the configuration.

Result

No will be displayed in the **Config.Modified** field, indicating that the configuration that was modified is now applied to the system. When the Mediatrix SBC will use the selected Call Agent for a communication, the selected parameters will be applied.

Configure Call Agent		Value
Call Agent Parameters		
Name	wan_ip_trunk_ca	
Enable	☒	
Gateway		
Signaling Interface	uplink_s	
Media Interface	uplink_m	
Peer Host	SIP server IP or FQDN	
Peer Network		
Force Transport	None	
Monitoring and Blacklisting Parameters		
Keep-Alive Interval	0	
Blacklisting Duration	0	
Blacklisting Delay	0	
Blacklisting Error Codes		

Call Agent Rulesets			
Priority	Name	Parameters	
1	automatic_media_relay		↑ ↓ −
2	topology_hiding_out		↑ ↓ −
3	uac_authentication_out	USERNAME=trunk_username PASSWORD=trunk_password	↑ ↓ −
			+ −

Next Step

Configuring the lan_ip_pbx_ca Call Agent (p.16)

Configuring the lan_ip_pbx_ca Call Agent

Information

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.

Steps

- 1) Go to **SBC/Configuration**.
- 2) In the **Call Agent Configuration** table, click  next to **lan_ip_pbx_ca**.
- 3) In the **Configure Call Agent** table, complete the fields as follows:
 - a) Select the **Enable** check box.
 - b) From the **Signaling Interface** selection list, select **pbx_s**.
 - c) From the **Media Interface** selection list, select **pbx_m**.
 - d) Set the **Peer Host** to IP address of the IP PBX.
- 4) Click **Save**.

- 5) Click **Apply** to apply all changes to the configuration.

Result

No will be displayed in the **Config.Modified** field, indicating that the configuration that was modified is now applied to the system. When the Mediatrix SBC will use the selected Call Agent for a communication, the selected parameters will be applied.

➤ Configure Call Agent

Configure Call Agent		Value
Call Agent Parameters		
Name	lan_ip_pbx_ca	
Enable	☒	
Gateway		
Signaling Interface	pbx_s	
Media Interface	pbx_m	
Peer Host	IP PBX address	
Peer Network		
Force Transport	None	
Monitoring and Blacklisting Parameters		
Keep-Alive Interval	0	
Blacklisting Duration	0	
Blacklisting Delay	0	
Blacklisting Error Codes		

Call Agent Rulesets		
Priority	Name	Parameters
+		

Associating Routing Rulesets to Your Configuration

Before you start

[Importing Rulesets](#) (p.13) must be completed for Routing Rulesets to be available.

Steps

- 1) Go to **SBC/Configuration**
- 2) In the **Routing Rulesets** table, click **+** to add a new entry.

Note: You can ignore the "Invalid configuration" and "Unknown ruleset" warnings. They will disappear when the configuration is saved.

- 3) From the **Name** selection list, select **wan_ip_trunk_to_lan_pbx**.
- 4) Click **+**.
- 5) From the **Name** selection list, select **lan_pbx_to_wan_ip_trunk_dm**.

- 6) If your SIP trunk requires registration:
 - a) Click **+**.
 - b) From the **Name** selection list, select **registration_to_wan_ip_trunk**.
- 7) Click **Save**.
- 8) Click **Apply** to apply all changes to the configuration.

Result

No will be displayed in the **Config.Modified** field, indicating that the configuration that was modified is now applied to the system.

Routing Rulesets			
Priority	Name	Parameters	
1	wan_ip_trunk_to_lan_pbx		^ v -
2	lan_pbx_to_wan_ip_trunk_dm		^ v -
3	registration_to_wan_ip_trunk		^ v -
			+

Configuring a Registration Agent (Optional)

If your ITSP requires registration, configure the registration agent for your account.

Steps

- 1) Go to **SBC/Registration**.
- 2) In the **Registration Agent Configuration** table, click **+**.

Note: A new line of fields is added.

- 3) In the **User Name**, field, enter the username required by your provider to register your SIP trunk.

Note: If your provider also requires a password, the information needs to match the parameters in uac_authentication_out in the [Configuring the wan_ip_trunk_ca Call Agent](#) (p.14) section.

- 4) The **Friendly Name** is usually left empty.
- 5) In the **Domain** field, enter the IP or FQDN of your SIP registrar. Generally the same as defined in [Configuring the wan_ip_trunk_ca Call Agent](#) (p.14).
- 6) In the **Contact** field, enter **sip:myCONTACT@%capubip(wan_ip_trunk_ca)%**.

Note: **myCONTACT** must be replaced by either the SIP account username or DID (telephone number), depending on your provider.

Note: **%capubip(wan_ip_trunk_ca)%** is a macro, which will be automatically replaced by the IP address of the external public IP as defined in [Configuring the uplink_s Signaling Interface](#) (p.10).

- 7) From the **Registration Type** selection, make sure **Normal** is selected.

- 8) If necessary, repeat [step 2](#) to [step 7](#) if you are using more than one service provider.
- 9) Click **Apply**.

Result

The result of the registration will be shown in **SBC/Registration Agent Status**.

Registration Agent Configuration				
User Name	Friendly Name	Domain	Contact	Registration Type
USERNAME		IP.FQDN.of.registrar	sip:myCONTACT@%capubip(wa	Normal ▼

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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