Using Trusted CA and Host Certificates
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Certificates

The Mediatrix unit uses digital certificates, which are a collection of data used to verify the identity of individuals, computers, and other entities on a network.

Certificates contain:

- the certificate's name
- the issuer and issued to names
- the validity period (the certificate is not valid before or after this period)
- the use of certificates such as:
  - TlsClient: The certificate identifies a TLS client. A host authenticated by this kind of certificate can act as a client in a SIP over TLS connection when mutual authentication is required by the server.
  - TlsServer: The certificate identifies a TLS server. A host authenticated by this kind of certificate can serve files or web pages using the HTTPS protocol or can act as a server in a SIP over TLS connection.
- whether or not the certificate is owned by a Certification Authority (CA)

Although certificates are factory-installed new ones can also be added. Since TLS certificates are validated in terms of time (certificate validation/expiration date, etc.), the use of NTP (Network Time Protocol) is mandatory when using the security features.

The Mediatrix unit uses two types of certificates:

- Host Certificates: used to certify the unit (e.g.: a web server with HTTPS requires a host certificate).
- Others: Any other certificate including trusted CA certificates used to certify peers (e.g.: a SIP server with TLS).

The Conf, Cwmp, Eth, Fpu, Nlm, Sbc, and SipEp services are considered secure as they require certificate validation to establish a secure connection to a remote host. The following parameters, available by the CLI, are used to determine whether or not the connection to the remote host should be validated with the service certificate. By default, the parameters are always set to a value requiring validation.

- Conf.ScriptsTransferCertificateValidation
- Cwmp.TransportCertificateValidation
- Eth.Eap[].CertificateValidation
- Fpu.MfpTransferCertificateValidation
- Nlm.PCaptureTransferCertificateValidation
- Sbc.CertificateValidation
- SipEp.InteropTlsCertificateValidation (also available in the DGW Web page under SIP/Interop)
Using Trusted CA and Host Certificates

The certificates must be uploaded to the Mediatrix units. They define how a Mediatrix unit will certify the remote host in order to mark it as secure and suitable for a TLS connection. If the Mediatrix unit does not trust the remote certificate (i.e. does not authenticate it with either one of the 3 methods: HostName, trustedCertificate, DnsSrv), then the Mediatrix unit will not establish the connection.

By default it is not possible to upload a Host certificate without first clicking on Activate unsecure certificate transfer. This is because the certificate upload will be done in clear text, which means the private key will be susceptible to interception. Establishing a connection without certificate validation, i.e. establishing an unsecure connection, should only be used:

- for testing purpose,
- if one cannot identify the required CA cert, or
- the CA cert has mismatched Common Name/Subject Alternate Name. (In this case there is no fallback, it will fail if the name does not match)

Certificates are used to secure the following connections:

- SIP
- Configuration Web pages
- File transfers (scripts, firmwares, etc.) with HTTPS
- Configuration using TR-069
- Wired Ethernet Authentication with EAP (802.1x)

One common use of the host certificate is to allow https Web access to the unit (which in this case, the device is the TLS server. For more details refer to the Creating a Media5 Host Certificate with Open SSL document located Technical bulletins section of the the Media5 documentation portal at https://documentation.media5corp.com..

Importing a Trusted CA or SIP Server Certificate to the Mediatrix Unit

Before you start

You must have an SNTP server for time tracking.

Steps

1) Go to Management/Certificates.
2) Click Activate unsecure certificate transfer.
3) In the Certificate Import Through Web Browser table, from the Type selection list, select Other.
4) Click Browse and select your certificate.
   
   Note: The name of the certificate cannot have more than 50 characters.

5) Click Import.
6) Click Apply.
7) Click restart required services located at the top of the page.
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Result

<table>
<thead>
<tr>
<th>Host Certificates</th>
<th>File Name</th>
<th>Issued To</th>
<th>Issued By</th>
<th>Valid From</th>
<th>Valid To</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0090f80b1b9e_thomas_new.pem</td>
<td>0090f80b1b9e</td>
<td>Mediatrix Units CA</td>
<td>2019-05-30 05:06:06</td>
<td>2049-05-30 05:06:06</td>
<td>TLS/Client, TLS/Server</td>
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<table>
<thead>
<tr>
<th>Other Certificates</th>
<th>File Name</th>
<th>Issued To</th>
<th>Issued By</th>
<th>Valid From</th>
<th>Valid To</th>
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<tbody>
<tr>
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<td>2028-08-01 18:59:59</td>
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<table>
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<tr>
<th>Host Certificate Associations</th>
<th>File Name</th>
<th>SIP</th>
<th>Web</th>
<th>EAP</th>
<th>Conf</th>
<th>Fku</th>
<th>File</th>
<th>Cert</th>
<th>Nm</th>
<th>SBC</th>
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<td></td>
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<td>✓</td>
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</tr>
</tbody>
</table>
6) In the Host Certificate Associations table, select the services that Host Certificate should be associated with.

**Note:** A Host certificate is by default associated with all services. Several Host Certificates can be imported and associated with one or several services.

7) Click Import.

8) Click Apply.

**Result**

This is an example of the result of a Host Certificate imported and associated with all services.
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Trusted CA Certificate Content Example

-----BEGIN CERTIFICATE-----
MIICNTCCAZ6gAwIBAgIJAANYsw8F6ocdbMA0GCSqGSIb3DQEBBQUAMEQx EzARBgoJkiaJk/IsZAEZFgNjb20xGTAXBgoJkiaJk/IsZAEZFgltZWRpYXRyaXgx EjAQBqNVBARMTCu11ZGlhNWRldjCBnzANBkghkIG9w0BAQEFAAOBJQAwYkCgYE A3Tjm6UbfidGJ/kURz3/kwr810LY+Fe280/Iq9Klq5m5G0EBl8af3+EbSPTV8GU Y1nzXshHhrAvDP5f3gPJU2+obWxbmQ1vja6QdxAhNcGTdPv7UGatQapCmQe1/Ct 2qtlqXrG/bTnV+Vt/WKpmFda+hjkVJ1hQgQLaU0D2MCAwEAAaMvMC0wDAYDVR0T BAUwAwEB/zAdBqNVHSUEFjaUBgqzBfEBqcDAQYIKwYBEQUHAAwIwDQYJKoZIhvcN AqQFBQAdgYELAhFUomUWUR0V7UTf/Zy3hmZDWYjd8YcuAk+TrdvkJ7HyHJhtqC0DdvB L10REHz6Ch7WCiydR8JLj0fAK+kXGYj9VdWj+qvlTnV4PBEvNzA3bbHBqVoOupJM aDT7atCenRJ8ipcy7MHN0FRbEW0KhwnDxQnX2tz0myAeAnDHe5bsQ=
-----END CERTIFICATE-----

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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 units are supplied with an exhaustive set of documentation.

Mediatrix user documentation is available on the Media5 Documentation Portal at http://documentation.media5corp.com

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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