

MTAS Media Control Management Guide

MTAS

USER GUIDE

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1 Introduction

This document describes how to configure the attributes controlling the interaction with the Media Resource Function Processor (MRFP) and the Media Resource Function Controller (MRFC) over the Mp and Mr interfaces, respectively.

The document also describes how to configure the selection algorithm based on which the MTAS chooses either an MRFP or an MRFC used to execute media operations.

In addition to the Mr and Mp interfaces, for playing alerting tones, the MTAS can use the CAT Server controlled over SIP interface. For detailed information, refer to *MTAS Customized Alerting Tones Management Guide*

1.1 Prerequisites

It is assumed that the user of this document is familiar with the Operation and Maintenance (O&M) area, in general.

1.1.1 Licenses

Not applicable.

1.1.2 Documents

Before starting any procedure in this document, ensure that the following documents are available:

- *Ericsson Command-Line Interface User Guide*
- *Managed Object Model (MOM)*

1.1.3 Conditions

The following conditions must apply:

An Ericsson Command-Line Interface (ECLI) session in Exec mode is in progress.

The MRFC or the MRFP is started.



1.1.4 Parameters

The parameter in Table 1 must be available during the creation of the MRFP.

Table 1 MRFP Parameters

Name	Value	Description
MRFP_MId	[____.____.____.____]: <____>	For information on MId of the MRFP, refer to ITU-T Rec. H.248.1 (05/2002) Gateway control protocol: Version 2

The parameter in Table 2 must be available during the creation of the MRFC.

Table 2 MRFC Parameters

Name	Value	Description
mtasMrControllerName	The hostname or IP address and optionally the port used for routing SIP messages to the MRFC. Use hostname (FQDN) when configuring DNS-based redundancy.	The hostname or IP address and optional port for routing SIP messages to the MRFC. Hostname can be used, for example, when there are more MRFCs in the network for loadsharing purposes. In this case, it is up to the Domain Name System Server (DNS) to resolve the hostname for the IP address of a certain MRFC. When there is only one MRFC in the network, either hostname or IP address can be used.



2 Overview

In the MTAS there are two general ways of controlling media resources for playing announcements, collecting user input or connecting media to conference bridges:

- Using the Mp interface. In this case, the MTAS operates the configured MRFPs with text encoded H.248 v2 protocol over SCTP. For more information about text encoded H.248 v2 protocol over SCTP, refer to *MTAS H.248 Support*
- Using the Mr interface. In this case, the MTAS operates the MRFCs with SIP over UDP or TCP. For more information about SIP over UDP or TCP, refer to *MTAS Interface to MRF (Mr)*.

This document describes how to configure the attributes for both of these alternatives.

Note: Either the Mp or the Mr interface can be used, but only one at a time. By default Mp is used. Both interfaces can be operated over IPv4 or IPv6.

For instructions on configuring the SCTP stack to be used for H.248 signaling on the Mp interface, refer to *MTAS SS7 Management Guide*.

Note: In case SS7 is configured, the H.248 addresses must be manually configured on the Front Ends (FEs). For more information, refer to *MTAS SS7 Management Guide*.

For instructions how to configure the SIP interfaces in MTAS, including Mr, refer to *MTAS SIP Management Guide*.

2.1 Subfunctions

The subfunctions included in the media control function are described in this section.

2.1.1 Blacklist MRF Nodes

To blacklist MRF nodes (either MRFP or MRFC), set their administrative state to `locked`. Once locked, the node is not selected by MTAS. The feature is available over both the Mr and Mp interfaces.

Over the Mp interface, MTAS monitors the operational state of the MRFP nodes it controls and when the H.248 / SCTP link is disconnected the node is blacklisted automatically, that is, its operational state becomes disabled.



MTAS does not use the disabled node, instead MTAS searches for some other functional node. When the connection to the MRFP is re-established, the operational state of the node changes automatically to `enabled` and the node is removed from the blacklist.

Note: There is latency in this behavior. It takes some time until the MTAS realizes that the node is disabled. During this transient, the MTAS can send requests to the unavailable node. However, when the node is locked by changing its administrative state, there is no latency and it is assured that media requests are not sent to the unavailable node.

2.1.2 Load Balancing

Over the Mp and Mr interfaces, the MTAS can work with multiple MRFP or MRFC nodes. The MTAS selects the MRF node (either MRFP or MRFC) when it needs to allocate the first media resource in a call session.

When the Mp interface is used, an MRFP is selected. When using the Mr interface, MTAS selects an MRFC.

By default, the MTAS selects an MRFP or MRFC such as that load balancing is assured over the configured ones. When Mp is used, the MTAS selects an MRFP node based on round-robin approach. When using Mr, the MTAS selects randomly.

In addition, the MTAS implements location base MRF selection.

2.1.3 Location-based MRF Selection

The MRF nodes the MTAS interacts with can be grouped into sites. These are either real geographical sites or virtual ones. The MTAS selects a site using the information it receives in the SIP header P-Access-Network-Info (PANI). The same MRF node can be allocated to multiple sites.

The standard is flexible and allows for large variety information in the PANI. Though, this is primarily for network access information such as cell identities. The MTAS uses this information transparently. The site selection is based on an Access Map that can be set up at solution integration. This maps the information in the PANI header to one MRF site.

One site can have more MRF nodes configured. Within a site, the MTAS assures load balancing over the functional ones. When Mp is used, the MTAS selects an MRFP node based on round-robin approach. When using Mr, the MTAS selects randomly.

One site can be denoted as default. Whenever the MTAS is not able to find any functional MRF node on the site matching the PANI header, it chooses one node from the default site. The same functionality is available over both the Mr and Mp interfaces.



When the default site is not configured or it has no functional nodes on Mr interface, the MTAS uses the default MRFC. On Mp interface, the MTAS selects one MRFP from all functional ones in round-robin fashion.





3 MRFPs Configuration

This section describes how to add, change, activate, deactivate, and remove MRFPs.

For information about the Managed Objects (MOs), refer to *Managed Object Model (MOM)*.

3.1 Add MRFP

To create one or several MRFPs use manual parameter entries.

To create MRFP by using manual parameter entry:

1. Navigate to the *MtasMpController* MO in the CM browser tree.
2. Click **New Entry (Edit->New)**.
3. Select the *MtasMrfpNode* from the available classes, and click **Add**.
4. Enter the Relative Distinguished Name (RDN), for example, **MtasMrfpNode=Mrfp_1**.
5. Click **OK**.

A new MRFP structure is presented in the CM browser.

6. Select the `mtasMrfpNodeMId` attribute and enter the **MRFP_MId**, that is, the message Id, which is a unique identifier of the MRFP in the MTAS. Use the table editor view in the CM browser.

Note: The `mtasMrfpNodeMId` cannot be changed once set.

7. If the MRFP is to be activated immediately, set the `mtasMrfpNodeAdministrativeState` attribute to **1** (Unlocked), otherwise set it to **0** (Locked).
8. Click **Submit**.

The created **MtasMrfpNode** MO, is visible in the CM browser tree.

9. Perform a backup. For more information, refer to *Create Backup*.

3.2 MRFP Parameters Configuration

It is possible to change a number of parameters related to an MRFP. For a complete description of the parameters, refer to *Managed Object Model (MOM)*.



3.3 Activate MRFP

To activate the MRFP, do the following:

1. Navigate to the `MtasMrfpNode` MO to be activated in the CM browser.
2. Set the `mtasMrfpNodeAdministrativeState` attribute to 1 (Unlocked).
3. Click **Submit**.
4. Perform a backup. For more information, refer to *Create Backup*.

Result: The MRFP is activated.

Note: The Operational State of the MRFP is enabled, that is, the `mtasMrfpNodeOperationalState` attribute changes to 1, after a successful H.248 Service Change to the MTAS node has been performed by the MRFP.

3.4 MRFP Deactivation

It is possible to deactivate an MRFP gracefully, leaving the active sessions undisturbed. It is also possible to deactivate an MRFP forced, closing all active sessions. For information on different deactivation methods, refer to *Managed Object Model (MOM)*.

3.4.1 Deactivate Gracefully

To deactivate an MRFP gracefully, do the following:

1. Navigate to the `MtasMrfpNode` MO to be deactivated in the CM browser.
2. Set the `mtasMrfpNodeAdministrativeState` attribute to 2 (Shuttingdown).
3. Click **Submit**.
4. Wait until the network is free from traffic sessions, that is, typically more than five times the normal holding time for a session. Refer to call statistics for a suitable time.
5. Set the `mtasMrfpNodeAdministrativeState` attribute to 0 (Locked).
6. Perform a backup. For more information, refer to *Create Backup*.



3.4.2 Deactivate Forced

Attention!

Risk of system malfunction or traffic disturbance.

Deactivating the only or last MRFP forced results in service unavailability. All calls connected to the MRFP are terminated immediately. Deactivating one or more of several MRFPs forced results in decreased capacity.

To deactivate an MRFP forced:

1. Navigate to the `MtasMrfpNode` MO to be deactivated in the CM browser.
2. Set the `mtasMrfpNodeAdministrativeState` attribute to 0 (Locked).
3. Click **Submit**.
4. Perform a backup. For more information, refer to *Create Backup*.

3.5 Remove MRFP

To delete an MRFP:

1. Navigate to the `MtasMrfpNode` MO to be deleted.
2. Deactivate the MRFP gracefully, see Section 3.4.1 Deactivate Gracefully on page 8.
3. Delete the `MtasMrfpNode` MO.
4. Click **Submit**.
5. Perform a backup. For more information, refer to *Create Backup*.





4 Mp Interface Configuration

This section describes how to activate the Mp interface, select the IP protocol version, and configure language support on the Mp interface.

For information about the Managed Objects (MOs), refer to *Managed Object Model (MOM)*.

4.1 Activate Mp Interface

To activate the Mp interface:

1. Navigate to the *MtasMrf* MO in the CM browser.
2. Set the `mtasMrfServiceLocation` attribute to 0 (Internal).
3. Click **Submit**.
4. Perform a backup. For more information, refer to *Create Backup*.

4.2 Select IP Protocol Version on the Mp Interface

The `mtasMpControllerIpVersion` attribute sets the IP protocol version.

To modify the Ip version attribute:

1. Navigate to the *MtasMpController* MO.
2. Set the `mtasMpControllerIpVersion` attribute to 0 (IPv4) or 1 (IPv6).
3. Click **Submit**.
4. Perform a backup. For more information, refer to *Create Backup*.
5. Perform a Cluster reload to apply the changes.

4.3 Multiple Language Support on the Mp Interface

MTAS supports multiple languages in announcements by configured language prefixes added to the content codes.

For details about multiple language support, refer to *MTAS Multiple Languages Management Guide*



4.4 Configure Mrf Operation Timer

The Mrf Operational Timer limits the time MTAS waits for response from the internal MRFC. When MTAS sends the `ADD` or `MODIFY` message to the internal MRFC, it starts the timer and upon time-out, MTAS acts as if it received one failure report from the MRFC to resume the call-handling.

The default value of the timer is 3 (unit: seconds).

Note: Time-out of the internal MRFC link is also limited by the SCTP configuration. Check `TimerHeartBeat` in section *SCTP Link Failure of MTAS SS7 Management Guide*.

To configure the Mrf operational Timer:

1. Navigate to the `MtasMrf` MO in the CM browser.
2. Set the `mtasMrfOperationTimer` attribute to the desired value.
3. Click **Submit**.
4. Perform a backup. For more information, refer to *Create Backup*.

4.5 Configure the Hangterm Timer

The `mtasMpControllerHangtermTimer` attribute defines the timer value used by the MTAS with the hangterm package (H.248.36) to clean up hanging terminations allocated in the MRFP through the Mp interface. When this attribute is set to 0, the hangterm package is not used.

Possible values of the timer: 0, 180 – 7200 (unit: seconds).

The default value of the timer is 3600 (unit: seconds).

To configure the Hangterm Timer:

1. Navigate to the `MtasMpController` MO in the CM browser.
2. Set the `mtasMpControllerHangtermTimer` attribute to the desired value.
3. Click **Submit**.



5 MRFCs Configuration

This section describes how to configure the default MRFC as well as how to add, change, activate, deactivate, and remove MRFC nodes. The default MRFC is used when no other MRFC is available.

For information about the Managed Objects (MOs), refer to *Managed Object Model (MOM)*.

5.1 Configure Default MRFC

To configure the default (external) MRFC:

1. Navigate to the *MtasMrController* MO in the CM browser.
2. Set the `mtasMrControllerName` attribute to the hostname or IP address of the default MRFC. Use hostname (FQDN) when configuring DNS-based redundancy. Optionally, add the port on which the MRFC expects SIP messages on the Mr interface.
3. Set the `mtasMrControllerRoute` attribute to 0 (Direct) or 1 (through CSCF) depending if SIP messages on the Mr interface are to be routed directly or through the CSCF.
4. Click **Submit**.
5. Perform a backup. For more information, refer to *Create Backup*

5.2 Add MRFC

To create one or several MRFCs use manual parameter entries.

To create MRFC by using manual parameter entry:

1. Navigate to the *MtasMrController* MO in the CM browser.
2. Click **New Entry (Edit->New)**.
3. Select the *MtasMrfcNode* from the available classes, and click **Add**.
4. Enter the Relative Distinguished Name (RDN), for example, `MtasMrfcNode=Mrfc_1`.
5. Click **OK**.

A new MRFC structure is presented in the CM browser.



6. Select the `mtasMrfcNodeHostName` attribute and enter the hostname or the IP address of the MRFC node. Also add the port when it differs from the standard SIP port. Use the table editor view in the CM browser.
7. If the MRFC is to be activated immediately, set the `mtasMrfcNodeAdministrativeState` attribute to 1 (Unlocked), otherwise set it to 0 (Locked).
8. Click **Submit**. The **MtasMrController** MO is created and is displayed in the CM browser tree.
9. Perform a backup. For more information, refer to *Create Backup*.

5.3 Change MRFC Parameters

It is possible to change a number of other parameters relating to an MRFC. For a complete description of the parameters, refer to *Managed Object Model (MOM)*.

5.4 Activate MRFC

To activate an MRFC:

1. Navigate to the `MtasMrfcNode` MO in the CM browser.
2. Set the `mtasMrfcNodeAdministrativeState` attribute to 1 (Unlocked).
3. Click **Submit**.

The MRFC is activated and is to be used in upcoming new sessions.

4. Perform a backup. For more information, refer to *Create Backup*

5.5 Deactivate MRFC

To deactivate an MRFC:

1. Navigate to the `MtasMrfcNode` MO in the CM browser.
2. Set the `mtasMrfcNodeAdministrativeState` attribute to 0 (Locked).
3. Click **Submit**.

The MRFC is deactivated and is not used in upcoming new sessions. Current sessions are not affected.

4. Perform a backup. For more information, refer to *Create Backup*

5.6 Remove MRFC

To remove an MRFC:



1. Navigate to the `MtasMrfcNode` MO to be removed.
2. Deactivate the MRFC by setting the `mtasMrfcNodeAdministrativeState` attribute to 0 (Locked).
3. Click **Submit**.

The MRFC is deactivated and is not to be used in upcoming new sessions. Current sessions are not affected.
4. Wait until the sessions using the MRFC terminate. Delete the `MtasMrfcNode` MO.
5. Click **Submit**.
6. Perform a backup. For more information, refer to *Create Backup*





6 Mr Interface Configuration

This section describes how to activate the Mr interface, select the IP protocol version, configure language support, and configure DNS-based redundancy.

For information about the Managed Objects (MOs), refer to *Managed Object Model (MOM)*

6.1 Activate Mr Interface

To activate the Mr interface:

1. Navigate to the `MtasMrf` MO in the CM browser.
2. Set the `mtasMrfServiceLocation` attribute to **1** (External).
3. Click **Submit**.

The Mr interface is activated. In newly started sessions MTAS uses the Mr interface to perform media operations (announcement, user input, conference, and so on.)

4. Perform a backup. For more information, refer to *Create Backup*

6.2 IP Protocol Version on the Mr Interface Selection

For instructions on how to configure the IP protocol version on SIP interfaces in the MTAS, including Mr, refer to *MTAS SIP Management Guide*

6.3 Multiple Language Support on the Mr Interface

MTAS supports multiple languages in announcements by configured language prefixes added to the content codes.

For information on multiple language support on the Mr interface, refer to *MTAS Interface to MRF (Mr)*

6.4 DNS-Based Redundancy on the Mr Interface

MTAS supports DNS-based redundancy of MRFC nodes, for details, refer to *MTAS SIP Management Guide*





7 MRF Selection Configuration

When the Distributed MRF feature is configured and unlocked, the MTAS selects the MRF node based on the PANI header received in a SIP message. When the distributed MRF feature is not configured or locked, the MTAS selects the MRF node from all the available functional ones in a way that it assures load balancing (default behavior).

The MTAS creates the media resource requested by the active service on the chosen MRF node. When this fails, the MTAS Media Framework reports the failure to the service which requested the resource. The service either terminates the call session or continues. In this latter case, no MRF-based functionality is provided to the user.

The same node can be configured multiple times. This can be used to share a node between different sites.

This section describes how to

- Add and remove MRF sites
- Configure the default MRF site
- Configure the MRF access map
- Activate and deactivate location-based MRF selection

When location-based MRF selection is deactivated, MTAS assures load sharing over all the configured MRF nodes.

For information about the Managed Objects (MOs), refer to *Managed Object Model (MOM)*.

7.1 Add MRF Site

To create one or several MRF sites use manual parameter entries.

To add MRF sites by using manual parameter entry:

1. Navigate to the *MtasMrfDistribution* MO in the CM browser tree.
2. Click **New Entry (Edit->New)**.
3. Select *MtasMrfDistributionSite* from the available classes and click **Add**.
4. Enter the Relative Distinguished Name (RDN), for example:
`MtasMrfDistributionSite=0.`
5. Click **OK**.



A new `MtasMrfDistributionSite` structure is presented in the CM browser.

6. Select the `mtasMrfDistributionSiteName` attribute and enter a name for the site. Use the table editor view in the CM browser.
7. Depending on whether Mp or Mr interface is used, perform the following step:
 - a If the Mp interface is used, add attribute `mtasMrfDistributionSiteMrfp` with value set to the key of a configured `MtasMrfpNode` MO corresponding to an MRFP node.
 - b If the Mr interface is used, add attribute `mtasMrfDistributionSiteExtMrfcNode` with value set to the key of a configured `MtasMrfcNode` MO denoting an MRFC node.
8. Repeat Step 7 as many times as needed.
9. Click **Submit**.

The created `MtasMrfDistributionSite` MO is visible in the CM browser tree.

10. Perform a backup, refer to *Create Backup*.

7.2 Remove MRF Site

To remove an MRF site:

1. Navigate to the `MtasMrfDistributionSite` MO to be removed and delete the MO.
2. Click **Submit**.
3. Perform a backup. For more information, refer to *Create Backup*

7.3 Configure Default MRF Site

To configure the default MRFC site:

1. Navigate to the `MtasMrfDistribution` MO in the CM browser.
2. Set the `mtasMrfDistributionDefaultSite` attribute to the key of an `MtasMrfDistributionSite` MO denoting a configured MRF site.
3. Click **Submit**.
4. Perform a backup. For more information, refer to *Create Backup*



7.4 Configure MRF Access Map

To the information received in a P-Access-Network-Info (PANI) SIP header to a configured MRF site:

1. Navigate to the `MtasCommonDataAccNetwTypeAccInfo` MO matching a possible P-Access-Network-Info SIP header.

For description on how to find the appropriate instance, refer to *MTAS Dialed Number Mapping Management Guide*.

```
dn: MtasCommonDataAccNetwType=0, MtasCommonData=0, =>
applicationName=MtasFunction, nodeName=nsp16
objectClass: MtasCommonDataAccNetwType
MtasCommonDataAccNetwType: 1
```

```
dn: MtasCommonDataAccNetwType=3GPP-E-UTRAN-FDD, =>
MtasCommonData=0, applicationName=MtasFunction, nodeName=nsp16
objectClass: MtasCommonDataAccNetwType
MtasCommonDataAccNetwType: 3GPP-E-UTRAN-FDD
```

```
dn: MtasCommonDataAccNetwTypeAccInfo=0, =>
MtasCommonDataAccNetwType=0, MtasCommonData=0, =>
applicationName=MtasFunction, nodeName=nsp16
objectClass: MtasCommonDataAccNetwTypeAccInfo
MtasCommonDataAccNetwTypeAccInfo: 3GPP-UTRAN-TDD
```

```
dn: MtasCommonDataAccNetwTypeAccInfo= =>
3GPP-E-UTRAN-FDD&12312301DD1234501, =>
MtasCommonDataAccNetwType=3GPP-E-UTRAN-FDD, MtasCommonData=0, =>
applicationName=MtasFunction, nodeName=nsp16
objectClass: MtasCommonDataAccNetwTypeAccInfo
MtasCommonDataAccNetwTypeAccInfo: =>
3GPP-E-UTRAN-FDD&12312301DD1234501
mtasCommonDataAccNetwTypeAccInfoMediaSite: 0
```

2. Set `mtasCommonDataAccNetwTypeAccInfoMediaSite` to the key of the configured `MtasMrfDistributionSite` MO corresponding to the MRF site, see example in Page 21.
3. Repeat step1 and step 2 as many times as needed.
4. Click **Submit**.
5. Perform a backup, refer to *Create Backup*.

7.5 Activate Location-Based MRF Selection

To activate location-based MRF selection:

1. Navigate to the `MtasMrfDistribution` MO.



2. Set the `mtasMrfDistributionAdministrativeState` attribute to **1** (Unlocked).
3. Click **Submit**.

In new sessions, the MTAS selects an MRF node (either MRFP or MRFC) from the MRF site identified by the received SIP P-Access-Network-Info (PANI) header.

4. Perform a backup. For more information, refer to *Create Backup*.

7.6 Deactivate Location-Based MRF Selection

To deactivate location-based MRF selection:

1. Navigate to the `MtasMrfDistribution` MO.
2. Set the `mtasMrfDistributionAdministrativeState` attribute to **0** (Locked).
3. Click **Submit**.

In new sessions, the MTAS selects an MRF node (either MRFP or MRFC) from all the available ones irrespective of the information received in the SIP P-Access-Network-Info (PANI) header.

4. Perform a backup. For more information, refer to *Create Backup*.