

# MTAS Charging Management Guide

## MTAS

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### USER GUIDE

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# 1 Introduction

This document describes how to configure and activate charging and communication details transfer in the MTAS.

## 1.1 Prerequisites

This section describes the prerequisites which must be fulfilled before performing any procedures in this document.

### 1.1.1 Licenses

To enable basic services in the MTAS, the MMTel AS Voice Base license must be installed.

For more information about the MMTel AS Voice Base license, refer to *MTAS Licenses*.

### 1.1.2 Documents

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

- *Diameter Management*
- *Diameter Offline Charging in MTAS*
- *Diameter Online Charging in MTAS*
- *Ericsson Command-Line Interface User Guide*
- *Managed Object Model (MOM)*

### 1.1.3 Conditions

The following condition must apply:

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





## 2 Overview

This section describes the basics of online and offline charging in the MTAS.

### 2.1 Description

The charging behavior for a service is defined by an *MtasChargingProfile* Managed Object (MO). At initial start, the MTAS node creates a default charging profile, which has all charging turned off. Services referring to the default profile do not generate any charging information. Initially, all services refer to the default profile, setting all charging to off for a started MTAS node.

The charging behavior for an MMTel user can also be defined by provisioning a charging profile reference to a user. The referenced charging profile must have been created before the provisioning of the charging profile reference.

If a charging profile reference has been provisioned to a user, the referenced user charging profile is used instead of the MMTel service charging profile for charging sessions where this user is the charging user.

The *MtasCharging* MO controls the charging for a complete node. The *MtasChargingProfile* MO controls charging at a service level. There can be many instances of the *MtasChargingProfile*, and each instance can be referred to by multiple services.

For an overview example of a charging configuration, see Figure 1.

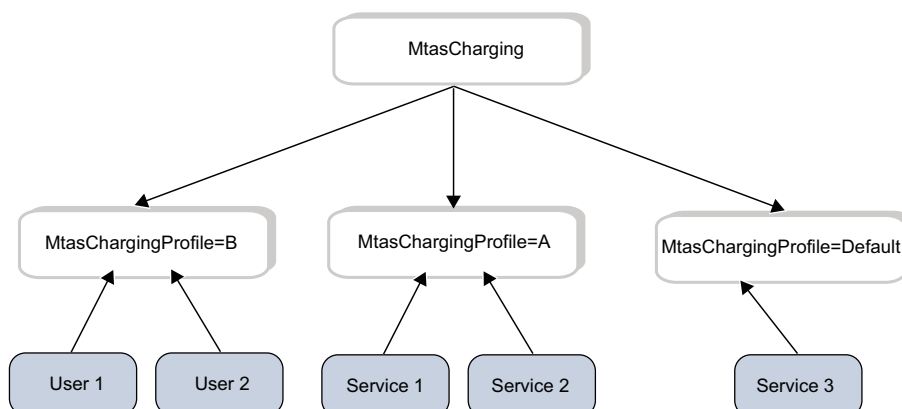


Figure 1 Configuration Example



## 2.2 Online and Offline Charging Evaluation

The `mtasChargingProfileOriginating` attribute defines the method of charging applicable for originating session charging, and has the following values:

- 0 (No Charging)

No information is sent to the online or offline charging servers.

- 1 (Offline Charging)

The decision whether to provide information to an offline charging server is made as described in the flowchart in Figure 2.

- 2 (Online Charging)

The decision whether to provide information to an online charging server is made as described in the flowchart in Figure 3.

- 3 (Online and Offline Charging)

The decision whether to provide information to an online charging server is made as described in the flowchart in Figure 3, and the decision whether to provide information to an offline charging server is made as described in the flowchart in Figure 2. If the outcome of either decision is “originating charging is not performed and the session is not allowed to continue”, the outcome is applied to both online and offline charging

- 4 (Online Charging Precedence)

The decision whether to provide information to an online charging server is made as described in the flowchart in Figure 3. If the outcome is “no originating online charging”, a decision whether to provide information to an offline charging server instead is made as described in the flowchart in Figure 2.

The similar logic applies for terminating session charging, using the attributes controlling the terminating session behavior, instead of attributes controlling the originating session behavior.

If online charging is enabled for terminating calls, the `mtasChargingProfileSuppressTermChargingInHplmn` attribute is set to “Online/Both”, and if the served UE is located in Home Public Land Mobile Network (HPLMN) or the served UE is fixed device, terminating online charging is suppressed.



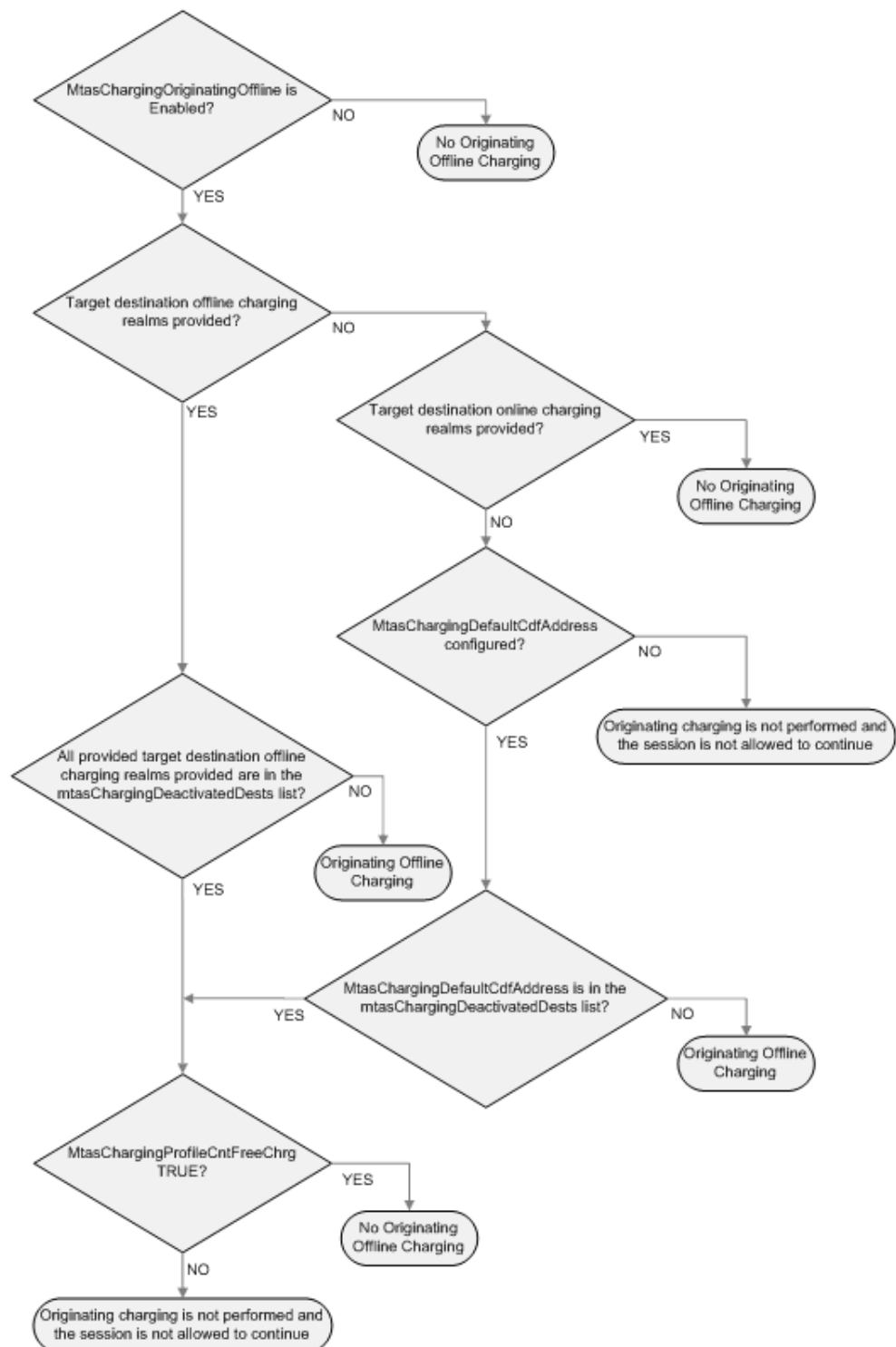


Figure 2 Offline Charging Evaluation Flowchart, Originating Charging

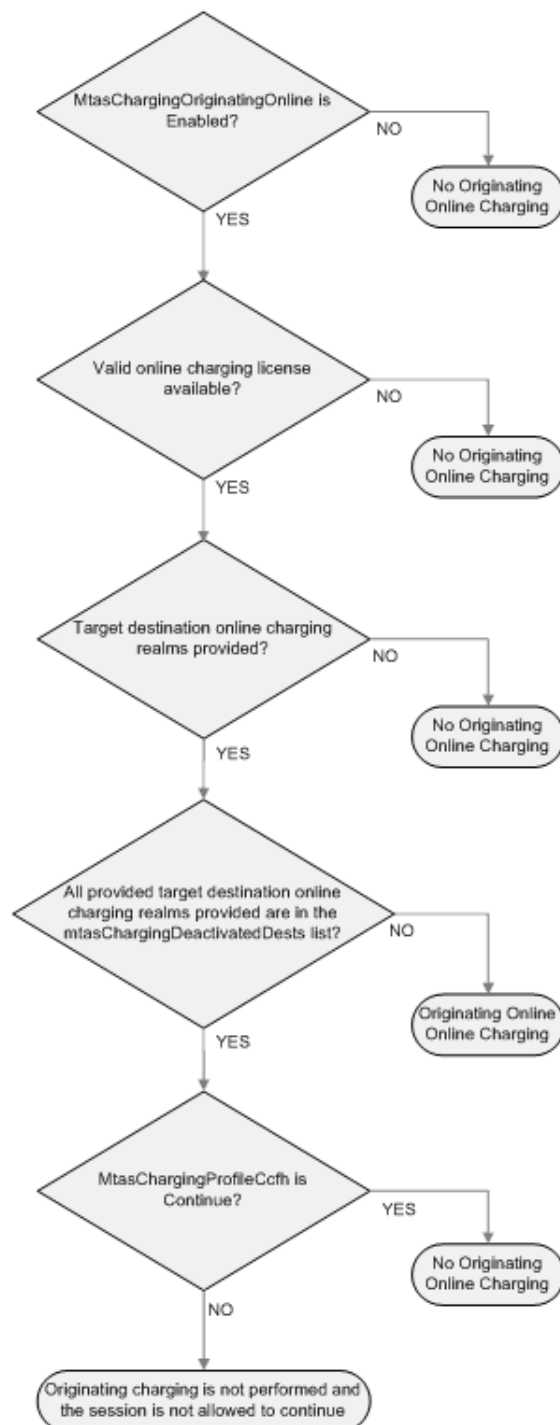


Figure 3 Online Charging Evaluation Flowchart, Originating Charging



## 2.3 Real-Time Transfer of Tariff Information

Using the Real-time Transfer of Tariff Information (RTTI) mechanism, the MTAS offers the ability to update the Online Charging System (OCS) with external tariffs and additional surcharges supplied by the third-party carrier on a per-session basis. This option is an alternative to the static storage of the tariffs that are charged by third-party carriers and servers. This facility can be activated by setting the value of the `mtasChargingRttiAdminState` attribute to 1(Unlocked) and can be deactivated by setting the value of the `mtasChargingRttiAdminState` attribute to 0 (Locked).

For further details of RTTI, refer to [SIP Transfer of IP Multimedia Service Tariff Information, 3GPP TS 29.658](#)

## 2.4 Backup Buffer Handling

The backup buffer handling enables offline charging messages (ACRs), Charging Data Records (CDRs), to be buffered locally in the MTAS when the charging server is unavailable. For established charging sessions, offline charging messages are buffered when the charging server becomes unavailable during the session. When the charging server is available again, the stored ACRs are resent to it.

The backup buffer handling is by default enabled in the MTAS. An alternative to the backup buffer handling is the ACR storage subfunction, which must be configured to be enabled, see Section 2.5 ACR Storage on page 7.

For more information about the backup buffer handling, refer to *Diameter Offline Charging in MTAS*

Keep your charging link under supervision and remove any backup files that are older than three months manually.

## 2.5 ACR Storage

The Accounting Request (ACR) storage is a subfunction in offline charging and enables the operator to store offline charging messages. This subfunction is an alternative to the default charging backup buffer handler; the offline charging service can be configured to either be started by the charging backup handler or the ACR storage function at communication failure with the CDF.

The ACRs are stored locally in the MTAS when the CDRs cannot be sent to the charging server because of a failure situation. The stored ACRs can be transferred later to an external server.

For more information about ACR storage and how to configure this function, refer to *MTAS Charging ACR Storage Management Guide*



## 2.6 Flexible AVP

The flexible AVP function allows the operator to define SIP message header fields to be reported in AVPs of charging requests. If the configured SIP header field is found in the message, the `Transaction-Info` AVP is used to report the content of the matching SIP header.

If a SIP transaction can trigger charging, MTAS stores the selected SIP header fields from the SIP request and the final SIP response of that transaction. The SIP headers are later included in the `Transaction-Info` AVPs of the next charging request.

For more information about the flexible AVP handling, refer to *Diameter Offline Charging in MTAS*



## 3 Diameter Stack Configuration

Several MTAS-specific attribute values must be configured in the Diameter stack.

The minimal configuration includes the following:

- Own node configuration
- Neighbor node configuration
- Realm routing table configuration
- Charging application routing configuration

The same instance of the Diameter stack is used for online charging, offline charging, and communication details transfer.

### 3.1 Configure Diameter Stack

For configuration of the Diameter Stack, refer to *Diameter Management*

To configure the Diameter Stack:

1. Set the own node configuration attributes, described in Table 1.
2. Set the neighbor node configuration attributes, described in Table 2.
3. Set the realm routing table configuration attributes, described in Table 3.
4. Set the accounting application routing configuration attributes, described in Table 4, in the `accReqContainerName` container.

The accounting application routing configuration attributes are applicable in routing tables used for offline charging and in routing tables used for communication details transfer.

5. Set the authorization application routing configuration attributes, described in Table 5, in the `authReqContainerName` container.

The authorization application routing configuration attributes are applicable in routing tables used for online charging.

6. Perform a backup, as described in *Create Backup*.



## 3.2 MO Attributes

The MO attributes in Table 1, Table 2, Table 3, Table 4, and Table 5 depend on the MTAS, and are used together with the general parameter list in the Diameter configuration.

Information on the LDAP identities is available in *Managed Object Model (MOM)*

**Table 1** MTAS MO Attributes for Own Node Diameter Configuration

MO Attribute	Description	Value
stackId	StackId of MTAS application.	MTAS
productName	The node product name.	ericsson_mtas
supportedVendorSpecificApps	This attribute is to be used when there are proprietary Diameter applications. It is a list of application codes that the server supports for Authentication and Accounting-Requests.	0:10415:16777217:0
supportedVendorsIds	Ericsson	193
supportedVendorsIds	3GPP	10415
supportedAcctAppIds	List of the Diameter applications that support Accounting-Requests.	3
supportedAuthAppIds	List of the Diameter applications that support Authentication and Authorization.	4
transportLayerType	This attribute defines the transport layer to be used when setting up a connection to this node.	1
enabled	This Boolean can be set to FALSE whenever the node suspends its activity.	TRUE
PortNr	The port number that the Diameter stack use.	3868
hostId	The node identification. It must be Fully Qualified Domain Name (FQDN).	Example: mtas1.mtas.ericsson.com
realm	The domain to which the node must belong.	Example: mtas.ericsson.com
watchdogTimeout	The maximum time without activity before a Device-Watchdog-Request (DWR) is sent. Use the same value at both ends of the link.	6



*Table 1 MTAS MO Attributes for Own Node Diameter Configuration*

MO Attribute	Description	Value
maxNumberOfRetries	This attribute is the maximum number of times the system retries to send a request.	1
maxRequestPendingTime	This attribute is the maximum time (in seconds) without receiving a response for a request.	3
tcTimer	This attribute is the time elapsed between reattempts when the connection to a node has failed.	3

*Table 2 MTAS MO Attributes to Neighbor Node Configuration*

MO Attribute	Description	Value
nodeId	This attribute is the identifier of the node. It is composed by hostId and stackId. It is a Read-Only attribute.	Example: ccf1.ccf.ericsson.com #MTAS
initiateConnection	Set to TRUE when the Diameter Node initiates a connection with the neighbor node.	TRUE
transportLayerType	This attribute defines the transport layer to be used when setting up a connection to this node.	1
ipAddressesList	The IP address that identifies the neighbor node.	Example: 0:123.11.22.33

*Table 3 MTAS Attributes to Realm Routing Table Configuration*

MO Attribute	Description	Value
entryId	The entryId consists of realm, stackId, and isIncomingRequest. The isIncomingRequest field in the entryId attribute is true for routing incoming requests, and false for outgoing requests.	<realm>:MTAS:FALSE

*Table 4 MTAS Attributes to Accounting Application Routing Configuration*

MO Attribute	Description	Value
requestedApp	The vendor Diameter application whose messages are recognized by the Realm Routing Table.	0:3

**Table 4** MTAS Attributes to Accounting Application Routing Configuration

MO Attribute	Description	Value
action	The routing action from requests for a certain realm and a given request type that belongs to the Diameter application specified in the requestedApp attribute.	4
nodeIds	One or more servers that the message is to be routed to.	0:<neighbor node id> Example: 0:ccf1.ccf.ericsson.com#MTAS

The rest of the MO attributes can be found in the *Managed Object Model (MOM)*

**Table 5** MTAS MO Attributes to Authorization Application Routing Configuration

MO Attribute	Description	Value
requestedApp	The vendor Diameter application whose messages are recognized by the Realm Routing Table.	0:4
action	The routing action from requests for a certain realm and a given request type that belongs to the Diameter application specified in the requestedApp attribute.	4
nodeIds	One or more servers that the message is to be routed to.	0:<neighbor node id> Example: 0:ecf1.ecf.ericsson.com#MTAS





## 4 Create and Configure Charging Profile

This section describes how to create a charging profile, with or without configuring the following:

- The presence of AVPs in ACR/CCR messages
- Optional ACR and CCR event messages

### 4.1 Create Charging Profile

To create a charging profile:

1. Navigate to the `MtasCharging` MO.
2. Click **New Entry** (**Edit** and then click **New**).
3. Remove any preselected classes.
4. Select the **MtasChargingProfile** from the available classes. Enter the Relative Distinguished Name (RDN), for example, **MtasChargingProfile=Charging1**, and click **Add**.
5. Click **OK**. A new `MtasChargingProfile` MO is presented in the CM browser.
6. Set the attributes for the `MtasChargingProfile` MO, for more information, refer to *Managed Object Model (MOM)*.
7. Click **Submit**.
8. Perform a backup, as described in *Create Backup*.

### 4.2 Create Charging Profile Omit

To create a charging profile, omit:

1. Navigate to the `MtasChargingProfile` MO.
2. Click **New Entry** (**Edit** and then click **New**).
3. Remove any preselected classes.
4. Select the **MtasChargingProfileOmit** from the available classes, and click **Add**. Enter the RDN using the vendor-id as the value, for example, **MtasChargingProfileOmit=193**.
5. Click **OK**. A new `MtasChargingProfileOmit` MO is presented in the CM browser.
6. Click **Submit**.



7. Perform a backup, as described in *Create Backup*.

## 4.3 Configure Presence of AVPs in ACR/CCR Messages

To configure the presence of AVPs in ACR/CCR messages:

1. Create `MtasChargingProfile`, or use an existing one, with the suitable attribute settings, as described in Section 4.1 Create Charging Profile on page 13.
2. Create `MtasChargingProfileOmit`, or use an existing one, with the suitable attribute settings, as described in Section 4.2 Create Charging Profile Omit on page 13.
3. Add AVPs to be omitted from ACR/CCR messages to the appropriate attributes in the following list:

- `mtasChargingProfileOmitAcr`
- `mtasChargingProfileOmitCcr`
- `mtasChargingProfileOmitAoc`

If an omitted AVP attribute exists, click **Add another value** to create an attribute.

4. Ensure that AVPs to be included in ACR/CCR messages do not appear in the appropriate attributes in the following list for a given vendor id:

- `mtasChargingProfileOmitAcr`
- `mtasChargingProfileOmitCcr`
- `mtasChargingProfileOmitAoc`

Right-click AVPs to be included in ACR/CCR messages and click **Delete value**.

5. Click **Submit**.
6. Perform a backup, as described in *Create Backup*.

## 4.4 Configure Optional ACR and CCR Event Messages

To configure optional ACR and CCR Event messages:

1. Create `MtasChargingProfile`, or use an existing one, with the suitable attribute settings, as described in Section 4.1 Create Charging Profile on page 13.
2. Select any of the following:
  - `mtasChargingProfileSscActDeact`



- `mtasChargingProfileSscMod`
  - `mtasChargingProfileSscInt`
  - `mtasChargingProfileSscInv`
  - `mtasChargingProfileUserDataAct`
  - `mtasChargingProfileUserDataMod`
  - `mtasChargingProfileUserDataInt`
  - `mtasChargingProfileCcmp` (only charging method 0 and 1 available)
  - `mtasChargingProfileSchcFocus` (only charging method 0 and 1 available)
3. Change to the desired charging method: 0, 1, 2, 3 or 4 (0=No Charging, 1=Offline Charging, 2=Online Charging, 3=Online and Offline Charging, 4=Online Charging Precedence)
  4. Select the following:
    - `mtasChargingProfileSessAcrEvent`
  5. Change to the desired state: 0 or 1 (0=Disabled or 1=Enabled)
  6. Click **Submit**.
  7. Perform a backup, as described in *Create Backup*.

**Note:** The following attribute is set to Disabled by default:

- `mtasChargingProfileSessAcrEvent`

The following attributes are set to No Charging by default:

- `mtasChargingProfileSscActDeact`
- `mtasChargingProfileSscMod`
- `mtasChargingProfileSscInt`
- `mtasChargingProfileSscInv`
- `mtasChargingProfileUserDataAct`
- `mtasChargingProfileUserDataMod`
- `mtasChargingProfileUserDataInt`
- `mtasChargingProfileCcmp`
- `mtasChargingProfileSchcFocus`



## 4.5 Configuring Charging Profile for SCC AS

To configure charging profile for Service Centralization and Continuity Application Server (SCC AS):

1. Create `MtasChargingProfile`, or use an existing one, with the suitable attribute settings, as described in Section 4.1 Create Charging Profile on page 13.
2. Select any of the following and change to the desired value:
  - `mtasChargingProfileCntFreeChrg` (0=False, 1=True)
  - `mtasChargingProfileServContext` (string value)
  - `mtasChargingProfileRfVersion` (0, 1, or 2)
3. Select the following:
  - `mtasChargingProfileSessAcrEvent`
4. Change to the desired state: 0 or 1 (0=Disabled or 1=Enabled).
5. Click **Submit**.
6. Perform a backup, as described in *Create Backup*.

## 4.6 Configure Charging Profile for Roaming

To configure the roaming check performed on the terminating side for Ro suppression in the Home Public Land Mobile Network feature:

1. Create `MtasChargingProfile` or use an existing one with the suitable attribute settings, as described in Section 4.1 Create Charging Profile on page 13.
2. Select the following:
  - `mtasChargingProfileRoamingCheckMode`
3. Change to the desired state: 0 or 1 (0=MCC+MNC or 1=MCC).
4. Click **Submit**.
5. Perform a backup, as described in *Create Backup*.



## 5 Activate Charging for a Service

To activate the online and offline charging for a service:

1. Navigate to the `MtasCharging` MO. Make sure that the status is set to 1 (Enabled) for the following relevant attributes:

- `mtasChargingOriginatingOnline`
- `mtasChargingTerminatingOnline`
- `mtasChargingOriginatingOffline`
- `mtasChargingTerminatingOffline`
- `mtasChargingScheduledConferenceOffline`

For details regarding the attributes, refer to *Managed Object Model (MOM)*.

2. Create `MtasChargingProfile`, or use an existing one, with the suitable attribute settings, as described in Section 4 on page 13.
3. Navigate to the desired service MO.

Example:

*MtasMmt*  
*MtasScc*  
*MtasSchedConf*

4. Set the name of the `MtasChargingProfile` to be used, in the profile reference attribute, for example, **Charging1**.
5. Click **Submit**.
6. Perform a backup, as described in *Create Backup*.





## 6 Deactivate Charging for Services

It is possible to deactivate the online and offline charging for services in different ways, as follows:

- Change relevant `MtasCharging` attributes to the disabled state, affecting all services.
- Set the `MtasChargingProfile` of the service to the default value, affecting the specific service, for which all online and offline charging is disabled, refer to *Managed Object Model (MOM)*.
- Change the `MtasChargingProfile` attributes to disable the relevant charging methods, affecting all services referring to the `MtasChargingProfile`.

### 6.1 Deactivate Charging for All Services

To deactivate the online and offline charging for all services:

1. Navigate to the `MtasCharging` MO.
2. Set the status to 0 (Disabled) for the following relevant attributes:
  - `mtasChargingOriginatingOnline`
  - `mtasChargingTerminatingOnline`
  - `mtasChargingOriginatingOffline`
  - `mtasChargingTerminatingOffline`
  - `mtasChargingScheduledConferenceOffline`
3. Click **Submit**.
4. Perform a backup, as described in *Create Backup*.

### 6.2 Deactivate Charging for a Specific Service

To deactivate the online and offline charging for a specific service:

1. Navigate to the desired service MO, for example, `MtasMmt`.
2. Set the value `Default` to the profile reference attribute.
3. Click **Submit**.
4. Perform a backup, as described in *Create Backup*.



## 6.3 Deactivate Charging for Services Using a Specific Charging Profile

To deactivate the online and offline charging for services using a specific charging profile:

1. Navigate to the `MtasChargingProfile` MO that is used by the appropriate services.
2. Set the value to provide the desired charging methods only for the following relevant attributes:
  - `mtasChargingProfileOriginating`
  - `mtasChargingProfileTerminating`

**Note:** Verify that other services referring to the charging profile can use the same settings, otherwise create a new charging profile with the correct settings, as described in Section 4 on page 13.

3. Click **Submit**.
4. Perform a backup, as described in *Create Backup*.





## 7 Deactivate Charging Destinations

Online and offline charging destinations (realms) can be deactivated. Up to 32 realms can be added to the list of deactivated charging destinations.

### 7.1 Start Deactivation of a Charging Destination

To start deactivation of an online or offline charging destination (realm):

1. Navigate to the `MtasCharging` MO.
2. Add the charging destination to be deactivated, in the following attribute:

- `mtasChargingDeactivatedDests`

If a deactivated charging destination attribute exists, **Add another value** must be used to create an attribute.

3. Click **Submit**.
4. Perform a backup, as described in *Create Backup*.

### 7.2 Revoke Deactivation of a Charging Destination

To revoke the deactivation of an online or offline charging destination:

1. Navigate to the `MtasCharging` MO.
2. Remove the charging destination to be activated, from the following attribute:

- `mtasChargingDeactivatedDests`

Right-click on the charging destination, and click **Delete value**.

3. Click **Submit**.
4. Perform a backup, as described in *Create Backup*.





## 8 Default CDF Address

It is possible to configure a default CDF address. This process is used in the absence of charging function address information from the Serving Call Session Control Function (S-CSCF).

### 8.1 Add Default CDF Address

To add the default CDF address:

1. Navigate to the `MtasCharging` MO.
2. Add the default CDF address in the following attribute:
  - `mtasChargingDefaultCdfAddress`
3. Click **Submit**.
4. Perform a backup, as described in *Create Backup*.

### 8.2 Remove Default CDF Address

To remove the default CDF address:

1. Navigate to the `MtasCharging` MO.
2. Remove the default CDF address from the following attribute:
  - `mtasChargingDefaultCdfAddress`

Right-click on the default CDF address, and click **Delete value**.
3. Click **Submit**.
4. Perform a backup, as described in *Create Backup*.





## 9 CDS Addresses

It is possible to configure one or two CDS addresses. When two addresses are configured, the prime address identifies the preferred CDS and the second address identifies the alternative CDS to be used when communication with the preferred CDS is not possible.

### 9.1 Add CDS Addresses

To add the CDS addresses:

1. Navigate to the `MtasComDetails` MO.
2. Add the preferred CDS address (if necessary) in the following attribute:
  - `mtasComDetailsPrimeCdsAddress`
3. Add the alternative CDS address (if necessary) in the following attribute:
  - `mtasComDetailsSecondCdsAddress`
4. Click **Submit**.
5. Perform a backup, as described in *Create Backup*.

### 9.2 Remove CDS Addresses

To remove the CDS addresses:

1. Navigate to the `MtasComDetails` MO.
2. Remove the preferred CDS address (if necessary) from the following attribute:
  - `mtasComDetailsPrimeCdsAddress`Right-click the CDS address, and click **Delete**.
3. Remove the alternative CDS address (if necessary) from the following attribute:
  - `mtasComDetailsSecondCdsAddress`Right-click the CDS address, and click **Delete**.
4. Click **Submit**.
5. Perform a backup, as described in *Create Backup*.





## 10 Delete Charging Profiles

To delete a charging profile:

1. Verify that no services refer to the charging profile to be deleted.
2. Navigate to the charging profile to be deleted, and delete it by clicking **Edit** and **Delete**.
3. Perform a backup, as described in *Create Backup*.







## 11 Configure Charging Attributes

The `MtasCharging` and `MtasChargingProfile` MOs make it possible to configure attributes relating to charging. For a complete description of all attributes relating to the configuration of the Charging MOs, refer to *Managed Object Model (MOM)*.

**Note:** Changing the setting of the `mtasChargingAcrBackUpFiles` attribute alters the rate at which the MTAS can resend buffered ACR messages to offline charging servers and communication details servers. Consideration is to be given to the potential effects on the overall network load, on individual charging server loads, and on individual Communication Details Server loads, before changing the setting.

When configuring charging attributes, a backup must be performed, as described in *Create Backup*.





## 12 Configure Communication Details Transfer Attributes

The `MtasComDetails` MO makes it possible to configure attributes relating to communication details transfer. For a complete description of all attributes relating to configuration of the `MtasComDetails` MO, refer to *Managed Object Model (MOM)*.

When configuring communication details transfer attributes, a backup must be performed, as described in *Create Backup*.





## 13 Ro Announcement Mapping

This section describes how to create a mapping from a number to Generic Announcement. This mapping is used to select an announcement configured in the system based on announcement number received from OCS. For details on the configuration of Generic Announcements, refer to *MTAS Generic Announcement Management Guide*.

### 13.1 Create Ro Announcement Mapping

To create an announcement mapping:

1. Navigate to the `MtasRoAnnouncementMappings` MO.
2. Click **New Entry** (**Edit** and then click **New**).
3. Remove any preselected classes.
4. Select the `MtasRoAnnouncementMapping` from the available classes.

Enter the Relative Distinguished Name (RDN), for example, `MtasRoAnnouncementMapping=100`, and click **Add**.

5. Click **OK**. A new `MtasRoAnnouncementMapping` MO is presented in the CM browser.
6. Set the attributes for the `MtasRoAnnouncementMapping` MO, referring to *Managed Object Model (MOM)*.
7. Click **Submit**.
8. Perform a backup, as described in *Create Backup*.

### 13.2 Delete Ro Announcement Mapping

To delete the announcement mapping:

1. Verify that OCS does not use the announcement number in subject.
2. Navigate to announcement mapping to be deleted, and delete it by clicking: **Edit** and **Delete**.
3. Perform a backup, as described in *Create Backup*.



## 13.3 Examples

MTAS supports playing multiple announcements requested by the OCS. If the requested announcement number cannot be mapped to a Generic Announcement, then the announcement is not played.

*Table 6 Example MTAS Configuration*

mtasRoAnnouncemen tMapping	mtasRoAnnouncemen tMappingAnnouncem entName	mtasRoAnnouncemen tMappingVariableN ame
100	GA100greeting	
110	GA110nonexisting (not defined in MTAS)	
120	GA120question	
200	GA200segmentedGree ting	userid
210	GA210segmentedId	accountNumber

### Example 1

OCS requests the following:

*Table 7 MTAS Announcement Number and Type*

Announcement Number	Announcement Type
100	PRE-QUOTA
110	PRE-QUOTA
120	PAC-ANNOUNCEMENT

### Example 2

OCS requests the following:

*Table 8 MTAS Announcement Number and Type*

Announcement Number	Announcement Type
100	PRE-QUOTA
120	PAC-ANNOUNCEMENT
200	PRE-QUOTA

As the result, MTAS plays announcements GA200segmentedGreeting, GA120question, and GA100greeting.

**Example 3***Table 9 MTAS Announcement Number, Type, and Variables*

<b>Announcement Number</b>	<b>Announcement Type</b>	<b>Variable Name</b>
120	PAC-ANNOUNCEMENT	
200	PRE-QUOTA	userid
210	PRE-QUOTA	credit

As the result, MTAS plays announcements GA200segmentedGreeting and GA120question (GA210segmentedId announcement is not played because the variable name does not match). The examples are based on AVPs defined in *Diameter Online Charging in MTAS*.







## 14 Ro Language Mapping

This section describes how to create a mapping from a Ro language code to an HSS language code. This mapping is used by the administration of language preference feature of the user. If MTAS receives a CCA (initial or update) response from OCS containing language indication and the administration of language preference of the user is enabled (`mtasChargingProfileLanguageMode=1`), the Online Charging Function can initiate the update of the preferred language of the user stored in Service Data (MTAS cache) and in HSS.

**Note:** In order for MTAS to be able to play announcements to the user according to the language preferences of the user, the multiple languages service must be configured properly. For details on the configuration of multiple languages services, refer to *MTAS Multiple Languages Management Guide*.

### 14.1 Create Ro Language Mapping

To create a language mapping:

1. Navigate to the `MtasRoLanguageMappings` MO.
2. Click **Edit, New, New Entry**.
3. Remove any preselected classes.
4. Select the `MtasRoLanguageMapping` from the available classes.

Enter the Relative Distinguished Name (RDN), for example, **`MtasRoLanguageMapping=en`**, and click **Add**.

5. Click **OK**. A new `MtasRoLanguageMapping` MO is presented in the CM browser.
6. Set the attribute for the `MtasRoLanguageMapping` MO, for more details on attributes refer to *Managed Object Model (MOM)*.
7. Click **Submit**.
8. Perform a backup, as described in *Create Backup*.

### 14.2 Delete Ro Language Mapping

To delete the language mapping:

1. Verify that OCS does not use the language code in the subject.



2. Navigate to language mapping to be deleted, and delete it by clicking **Edit, Delete**.
3. Perform a backup, as described in *Create Backup*.

## 14.3 Example

MTAS supports OCS initiated administration of language preference of the user. If the language code received from OCS cannot be mapped to HSS language code, then the preferred language of the user is not updated either in service data (MTAS cache) or in the HSS.

Table 10 shows an example mapping of MTAS configurations.

*Table 10 Example MTAS Configuration*

<b>mtasRoLanguageMapping</b>	<b>mtasRoLanguageMappingLocale</b>
en	eng_us
sv	swe
hu	hun
es	spa-mx

### Example

A user is provisioned with the preferred language “swe”.

The user initiates a call.

MTAS sends a CCR (initial) request to OCS containing the language code “sv” (language preference stored in service data of the user “swe” has been mapped to “sv” through the Ro language mapping table).

MTAS receives the language code “en” from OCS in CCA (initial or update) response. MTAS maps it to “eng\_us” and compares it with the language preference stored in service data “swe” since the values are different MTAS updates the preferred language of the user stored in service data (MTAS cache) and in the HSS.