

# MTAS Customized Alerting Tones Management Guide

MTAS

USER GUIDE

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# 1 Introduction

This document describes how to configure the Customized Alerting Tones (CAT) service in the MTAS.

## 1.1 Prerequisites

It is assumed that the user of this document is familiar with the O&M area, in general.

### 1.1.1 Licenses

To enable the CAT service 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:

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

### 1.1.3 Conditions

The following condition must apply:

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





## 2 Overview

The CAT service is an IMS terminating service that triggers an external Customized Alerting Tones Server (CAT-S) to generate a CAT signal towards the caller while the served user is alerted. The CAT signal can be a customized welcome message or a selected piece of music.

The CAT signal is generated from an external CAT-S. MTAS triggers only the CAT service invocation in the CAT-S.

The provisioning and evaluation of service rules for the CAT signal generation, the provisioning, storing, and managing of the media content used as CAT signal is implemented in the CAT-S.

CAT service is also sometimes referred to as Personal Ring Back Tone (PRBT).

For more information about the CAT service, refer to [MTAS Interface to CAT-S \(CAT\)](#).

### 2.1 Subfunctions

The subfunctions included in the CAT service are described in this section.

#### 2.1.1 Trigger and Stop CAT Signal

This subfunction is responsible for the triggering and stopping of CAT signal generation by the CAT-S on behalf of the served user. This subfunction uses the subfunction [Get Subscription Data](#) to access information about the subscriber.

For more information about subscriber data handling, refer to [MTAS Subscriber Data Management Guide](#).

#### 2.1.2 Manage Subscription Data

This subfunction creates, updates, and deletes subscription data.

For more information about subscriber data handling, refer to [MTAS Subscriber Data Management Guide](#).

### 2.2 Interaction with Other Services

This section describes how the CAT service interacts with other services.



### 2.2.1 Charging

The use of the CAT service is reported in charging messages generated during the setup of an MMTel session only when the CAT signal is successfully triggered, for example, the CAT-S returns 200 OK.

For details of how the use of CAT is reported for online charging and offline charging, refer to [Diameter Offline Charging in MTAS](#) and [Diameter Online Charging in MTAS](#).

### 2.2.2 Communication Diversion

CAT signal generation is not triggered in CAT-S on behalf of the served user (B) after Communication Diversion (CDIV) invocation. However, if the diverted-to user (C) has active CAT service, the CAT signal generation can be triggered in CAT-S on behalf of C.

If the served user has active CAT service and there is a valid CAT license present on the MTAS, no CDIV announcement is played on CDIV invocation.

#### **Case 1: Transparent Mode Is Disabled (CM `mtasMmtTransparentMode` Set to 0)**

If the CAT signal is triggered in CAT-S before CDIV invocation, for example, the CDIV started after time-out or with a non-200 OK final response after ringing, then the CAT signal is stopped when provisional response with Session Description Protocol (SDP) or final response is received from the diverted-to network.

#### **Case 2: Transparent Mode Is Enabled (CM `mtasMmtTransparentMode` Set to 1)**

If the CAT signal is triggered in CAT-S before CDIV invocation, for example, the CDIV started after time-out or with a non-200 OK final response after ringing, the CAT signal is stopped and a diversion announcement can be played to the caller and the INVITE is sent to the diverted to user.

For more information about the CDIV service, refer to [MTAS Communication Diversion Management Guide](#).

### 2.2.3 Flexible Communication Distribution

For Flexible Communication Distribution (FCD) parallel ringing and serial ringing, where the served user or the terminal of the served user is among the distribution targets or not, the interaction with the CAT service is the same. The CAT signal is triggered only when 180 Ringing is received from any of the targets or the CAT Timer expires.

For more information about the FCD service, refer to [MTAS Flexible Communication Distribution Management Guide](#).





## 2.2.4 Flexible Service Format Selection

The CAT service can be suppressed by the Flexible Service Format Selection (FSFS) service. When the FSFS service suppresses the CAT service, the incoming communication is processed as if the CAT service was not active. Therefore, the calling party is presented with the regular ringing procedure and the conveyance of CAT-related charging information is suppressed.

For more information about the FSFS service, refer to [MTAS Flexible Service Format Selection Management Guide](#).

## 2.2.5 Identity Presentation

MTAS passes on the received Privacy header unchanged to the CAT-S independently of the served user's provisioned or not provisioned Identity Presentation services, for example, Originating Identity Presentation (OIP), or Originating Identity Restriction (OIR) with Override.

For more information about the Identity Presentation services, refer to [MTAS Identity Presentation Management Guide](#).

## 2.2.6 Communication Waiting

### Case 1: Transparent Mode Is Disabled (CM `mtasMmtTransparentMode` Set to 0)

The caller does not receive any indication that the served user is busy but does have Communication Waiting (CW), as the CAT service stops the CW Used (CWU) indication included in the received 180 Ringing from the served user.

### Case 2: Transparent Mode Is Enabled (CM `mtasMmtTransparentMode` Set to 1)

A CWU indication in a 180 Ringing that also includes SDP information is forwarded to the caller. When 180 Ringing includes CWU indication but no SDP information, the 180 Ringing is mapped to 183 Progress with the CWU indication and forwarded to the caller.

For more information about the CW service, refer to [MTAS Communication Waiting Management Guide](#).

## 2.2.7 Customized Applications for Mobile Enhanced Logic

MTAS passes on the received from header unchanged to the CAT-S, for example, the CAT service that is not considering the header update ordered by the Customized Applications for Mobile Enhanced Logic (CAMEL) service.



## 2.2.8 Ring Back Tone

If CAT service is not able to trigger CAT-S successfully so the CAT signal cannot be played, CAT service stops and initiates a fallback to Ring Back Tone service. After the fallback, Ring Back Tone service continues call handling.

The fallback takes place in the following cases:

- The CAT-S replies with error message other than 503 Service Unavailable.
- The CAT-S replies with 503 Service Unavailable and there are no more CAT servers to try.

For more information about the Ring Back Tone service, refer to [MTAS Network Provided Ring Back Tone Management](#).



## 3 CAT Service Configuration

An overview of the `MtasCat` MO structure is shown in Figure 1.

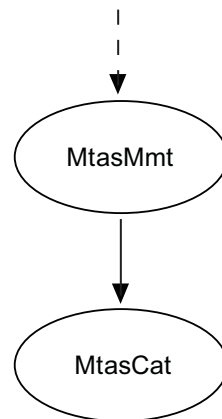


Figure 1 CAT MO Structure

For configurable MOs and attributes related to general CAT configuration, refer to [Managed Object Model \(MOM\)](#).

### 3.1 Configuration Activities

Configuration activities are listed in Table 1.

Table 1 Configuration Activities

Activity	Attribute	Comment
Defining whether the CAT signals are started on 183 Session Progress from the served user.	<code>mtasCatInvokeOnSessionProgress</code>	
Defining the timer for starting the CAT signal without SIP response messages from the served user.	<code>mtasCatTimer</code>	Setting the parameter to 0 means the timer is not started.
Defining whether Black Hole IPv4 address (0.0.0.0) is used in the SDP offer sent to the served user.	<code>mtasCatUseBlackHoleIPv4Address</code>	For IPv6, the value of the attribute <code>mtasFunctionInvalidAddress</code> is used.



Table 1 Configuration Activities

Activity	Attribute	Comment
Defining whether MTAS maintains single SIP dialog towards the caller when no-fork directive is set in the Request-Disposition header of the received INVITE.	mtasCatNoForkSupport	<p>The attribute has the same value as mtasCDivNoForkSupport.</p> <p>It is recommended to use no-fork support provided by the Gateway Model service.</p> <p>The attribute has no effect when no-fork support for the session is provided by the Gateway Model service.</p>
Defining the timer for triggering ring tone generation from the A side, by sending 180 Ringing without SDP, when no SIP final response is received from the CAT server.	mtasCatRequestTime	Setting the parameter to 0 means that the <a href="#">RFC 3261</a> standard value (64*T1) is used. Set the value of this attribute to the value of mtasSipFailoverTimeInvite multiplied by the number of CAT servers.
Defining whether support of end-to-end negotiation of SIP Preconditions in the CAT service is enabled or not.	mtasCatEndToEndSipPreconditions	The support of SIP Preconditions cannot be enabled if mtasCatInvokeOnSessionProgress is enabled or is mtasCatTimer greater than 0.
Defining of SIP headers sent to CAT-S. The following headers can be filtered: Diversion, History-Info, P-Charging-Vector, X-FCI.	mtasCatUseDiversion, mtasCatUseHistoryInfo, mtasCatUsePChargingVector, mtasCatUseXFci	Inclusion or exclusion of particular header is configured independently with separate attribute.



Table 1 Configuration Activities

Activity	Attribute	Comment
Defining whether CAT is suppressing the early media from the called party side by changing the SDP direction to “sendonly” or “inactive”.	mtasCatSendonlySdp	<p>Setting the parameter to SEND ONLY_AUDIO_AND_VIDEO means that the CAT service is changing the media direction both for audio and video to “sendonly” in the SDP offer sent to served user, to suppress early media. Setting the parameter to SENDONLY_AUDIO_INACTIVE_VIDEO changes media direction to “sendonly” for audio and “inactive” for video. Setting the parameter to INACTIVE_AUDIO_AND_VIDEO changes media direction to “inactive” both for audio and video. Setting it to UNCHANGED means that the SDP is not modified.</p> <p>The parameter must be set to 0 (UNCHANGED) when transparent mode is enabled (mtasMmtTransparentMode set to 1).</p>



Table 1 Configuration Activities

Activity	Attribute	Comment
Defining how CAT can be suppressed when the called user is roaming in CS.	mtasCatSuppressTone, mtasCatSendonlySdp, mtasMmtNpliTerminating	<p>The CAT tone can be suppressed for a called user roaming in CS when <code>mtasCatSuppressTone=1</code>. Network Provided Location Information together with MSISDN of the served user is used to determine if the user is roaming in CS. MSISDN is retrieved from the HSS, if needed at the arrival of 180 Ringing response. If Network Provided Location Information is not available in the incoming message, its retrieval from the HSS can be enabled in the MMTel Telephony AS by using the <code>mtasMmtNpliTerminating</code> attribute.</p> <p>The CCM service is used to find out the roaming status by comparing the Country Calling Code (CCC) with the Mobile Country Code (MCC). This is to decide if they belong to same country or not. Refer to <a href="#">MTAS Country Code Mapping Management Guide</a> to configure the CCM service with the Country Code Mapping.</p>
Defining whether CAT service anonymizes From and P-Asserted-Identity headers in the INVITE sent to the CAT server.	mtasCatPrivacy	<p>Setting the parameter to <code>HEADERS_UNCHANGED</code> means that From, Privacy and P-Asserted-Identity headers of the received INVITE are passed on to the CAT server without change.</p> <p>Setting the parameter to <code>HEADERS_ANONYMIZED</code> means that From and P-Asserted-Identity headers are set to <code>anonymous@anonymous.invalid</code> and Privacy header is not included.</p>



Table 1 Configuration Activities

Activity	Attribute	Comment
Defining an early media suppression header sent to the served user in the INVITE message, whenever the served user has active CAT service.	mtasMmtSuppressEarlyMediaHeader	Setting the parameter to empty means that the header is not sent.
Defining if CAT announcement is terminated when the call is diverted and a CDIV announcement can be played or if CAT announcement continues until diverted to user respond.	mtasCatUntilDiversionResponse	<p>Setting the parameter to 0 means that the CAT is terminated at diversion.</p> <p>Setting the parameter to 1 means that the CAT continues until diverted to user respond.</p>

## 3.2 CAT Administrative State Configuration

The CAT service is enabled by setting the `mtasCatAdministrativeState` attribute in the `MtasCat` MO to 1 (Unlocked). If the `mtasCatAdministrativeState` is set to 0 (Locked), no CAT service is provided by the MTAS.

The attribute cannot not be unlocked if there is no `MtasSpecializedMediaResource` object created with the attribute `mtasSpecializedMediaResourceAdministrativeState` set to 1 and the `mtasSpecializedMediaResourceAdministrativeState` attribute set to other value than the default.

## 3.3 Service Data Management

This section describes how to configure the service data.

### 3.3.1 Operator Subscription Level Service Configuration

The operator can activate or deactivate the CAT service subscription for the subscriber by providing or removing the CAT XML structure in the Subscriber Data of the user.

For more information about schema definition, refer to [MTAS CAI3G Interface](#).

### 3.3.2 Subscriber Subscription Level Service Configuration

No service data for CAT is configured in the subscriber part of the subscriber data.



## 3.4 CAT in Transparent Mode

The transparent mode of the CAT service is enabled when `mtasMmtTransparentMode` is set to 1.

The CAT service in transparent mode passes all early messages from the called party to the calling party, and from the calling party to the called party. To prevent unwanted backward early media from the target terminals, the CAT service sets the value of the P-Early-Media header to `inactive` in SIP signals sent upstream.





## 4 External CAT-S Configuration

The external CAT-S must be defined as an additional media resource in the MTAS. An overview of the `MtasSpecializedMediaResource` MO structure is shown in Figure 2.

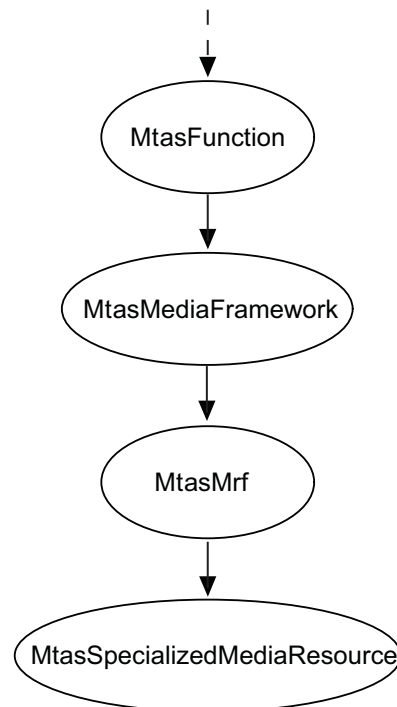


Figure 2 Media Resource MO Structure

For configurable MOs and attributes related to additional media resource configuration, refer to [Managed Object Model \(MOM\)](#).

### 4.1 Configuration Activities

Configuration activities are listed in Table 2.

Table 2 Additional Configuration Activities

Activity	Attribute	Comment
Create an additional media resource.	<code>mtasSpecializedMediaResource</code>	Key value for CAT service must be set to 0.
Define the address of the additional media resource.	<code>mtasSpecializedMediaResourceName</code>	Domain name, hostname, or IP address and an optional port. Domain name is indicated with port = 0.



Table 2 Additional Configuration Activities

Activity	Attribute	Comment
Define the routing configuration for SIP messages.	mtasSpecializedMediaResourceRoute	MTAS can be configured to include or omit the Route header information in the SIP messages towards the CAT server.  For more information, refer to attribute <code>mtasSpecializedMediaResourceRoute</code> in the <code>MtasSpecializedMediaResource</code> MO.
Define the type of the additional external media resource.	mtasSpecializedMediaResourceType	Type has the 0 value for the CAT service.

## 4.2 Enable Additional Media Resource

The additional Media Resource Function must be enabled for the external CAT-S to function.

The additional Media Resource Function is enabled by setting the `mtasSpecializedMediaResourceAdministrativeState` attribute in the `MtasSpecializedMediaResource` MO to 1 (Unlocked). If the `mtasSpecializedMediaResourceAdministrativeState` is set to 0 (Locked), no additional Media Resource Function is provided by the MTAS.



## 5 Performance Management

For measurements related to the CAT service, refer to MTAS Performance Measurements.





## 6 Fault Management

For alarms related to the CAT service, refer to MTAS Alarm List.





## 7 Create a CAT Server and Activate the CAT Service

To create a CAT server and enable the CAT service:

1. In the CM browser, navigate to the MtasMrf MO in MtasMediaFramework.
2. Click **New Entry (Edit, and then click New)**.
3. Remove any preselected classes.
4. Select the MtasSpecializedMediaResource from the available classes. Enter the Relative Distinguished Name (RDN), MtasSpecializedMediaResource=0, and click **Add**.
5. Click **OK**. A new MtasSpecializedMediaResource MO is present in the CM browser.
6. Set the attributes for the MtasSpecializedMediaResource MO, see Section 4.1 Configuration Activities on page 13 and Section 4.2 Enable Additional Media Resource on page 14.
7. Click **Submit**.
8. Navigate to the MtasCat MO.
9. Set the attributes for the **MtasCat** MO, see Section 3.1 Configuration Activities on page 7.
10. Set the mtasCatAdministrativeState to 1 (Unlocked) as described in Section 3.2 CAT Administrative State Configuration on page 11.