

MTAS Call Return Management Guide

MTAS

USER GUIDE

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1 Introduction

This document describes how to configure the Call Return service in the MTAS.

1.1 Prerequisites

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

1.1.1 Licenses

To enable the Call Return service, 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:

- 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

The Call Return service saves information (such as tel URI and SIP URI) about the last incoming call and provides the end user with the possibility to obtain this information using a Supplementary Service Code (SSC). The user can also call back to the user of the incoming call.

The user can erase their stored last call data by dialing an SSC for a Call Return Erasure procedure.

The Call Return service mainly consists of two parts, saving of the last incoming call and invocation of Call Return.

2.1 Subfunctions

The subfunctions included in the Call Return service are described in this section.

2.1.1 Saving Last Incoming Call

The Call Return service can be configured to be triggered by either all calls or by unanswered calls only. The last incoming call is saved by the terminating MTAS. Depending on configuration, storage of the last incoming call is done locally in MTAS or externally in HSS. The detection of a last incoming call occurs when a “180 Ringing” is received (if Call Return is configured to all calls) or if no “200 OK” is received at the terminating MTAS from the called user (if Call Return is configured to unanswered calls).

In case of local storage in MTAS, the last saved incoming call is kept by the MTAS until either a new incoming call is received or the user is deregistered. During this time, the user can use the Call Return service to make a callback to the caller at any time.

If the last incoming call is stored in HSS, the last incoming call is kept until a new incoming call is received. The saved last incoming call is not lost at user deregistration.

2.1.2 Start Call Return

The served user can make a callback to the caller of the last incoming call by using the SSC in the initial INVITE message, as follows:

1. The served user receives an incoming call. The call data is stored.
2. The served user dials the SSC for Call Return. There is one SSC for Call Return without announcement prompt and one SSC for Call Return with announcement prompt.



3. If the SSC for Call Return without announcement prompt is dialed, a call attempt is made to the caller of the last saved incoming call.

Depending on configuration, three different types of announcement can be played:

1. Time and date is included in the announcement independent of interrogation time.
2. Time is included, but not date, if invocation day is the same as when the call was saved; date is included, but not time, if invocation day is not the same as when the call was saved.
3. “Today” is included in the announcement if invocation day is the same as when the call was saved; “yesterday” is included if invocation day is the day after the call was saved, and day and month is included if invocation day is at least 2 days after the call was saved.

If there is no last incoming call, the served user is informed with an announcement and the Call Return fails.

If the served user does not return a correct invocation code, or if no code is returned, a failure announcement can be sent before the invocation is rejected, depending on the configured value of `mtasCrPlayCollectFailureAnnName`.

2.1.3 Start Call Return Erasure

The served user can erase the last saved incoming call information by using the SSC in the initial INVITE message, as follows:

1. The served user receives an incoming call. The call data is stored.
2. The served user dials the SSC for Call Return Erasure.
3. The last call saved by call return service is erased and success announcement is played indicating that the last call record is erased. If there is no last incoming call data or CR Erasure fails to erase last call data, the served user is informed with respective announcement.

2.1.4 Play Announcement

To play announcements to the served user, the announcement function in the Media Resource Function Processor (MRFP) is used. The Call Return (CR) service announces the phone number of the last call received by the served user. An option allowing the CR service to send the phone number in the variable part of the announcement in National Number format is available.

2.1.5 Play Collect

The Play Collect function uses an MRFP to play the segment variable announcement to the served user and collect Dual-Tone Multifrequency (DTMF) digit from the served user.



The Call Return service is rejected when it is not possible to play the segmented variable announcements, collect digits, or when faulty digits are collected.

2.1.6 Charging for Call Return

Multimedia Telephony (MMTel) sessions that use the Call Return service support charging. The Credit Control Request (CCR), Initial Request, and Accounting-Request (ACR) Start generated by the originating MTAS on which Call Return was started, or CCR and ACR EVENT messages are generated by the originating MTAS on which Call Return Erasure was started, include the following Attribute-Value Pairs (AVPs) within the MMT Information AVP:

- Supplementary-Service-Information (group)

- Supplementary-Service-Identity

Set to “Call Return without announcement prompt” or “Call Return with announcement prompt”.

- Supplementary-Service-Action

Set to “Use of Service”.

For more information about offline and online charging, refer to [Diameter Offline Charging in MTAS](#) and [Diameter Online Charging in MTAS](#).

2.2 Interaction with Other Services

This section describes the Call Return interactions with other services.

2.2.1 Anonymous Callers

When the served user receives a call from an anonymous caller, the call is saved as the last call. When the served user starts Call Return, an announcement is played informing the served user that the last incoming call was private or anonymous.

2.2.2 SSC

When the auto callback function is started, the called user dials the SSCs for Call Return, one SSC for Call Return without announcement prompt, and one SSC for Call Return with announcement prompt.



3 Call Return Service Configuration

The Call Return service is controlled by the `MtasCr` MO. An overview of the Call Return MO structure is shown in Figure 1.

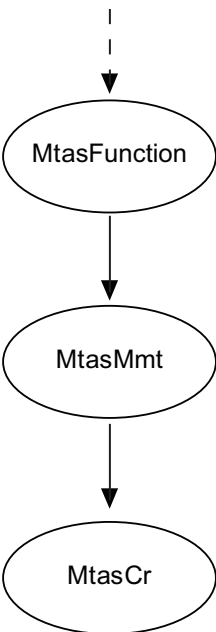


Figure 1 Call Return MO Structure

For configurable MOs and attributes related to the Call Return service, refer to Managed Object Model (MOM).

3.1 Call Return Administrative State Configuration

The Call Return service is enabled by setting the `mtasCrAdministrativeState` attribute in the `MtasCr` MO to 1 (Unlocked). If the `mtasCrAdministrativeState` is set to 0 (Locked), no Call Return service is provided by the MTAS.

3.2 Configuration Activities

The configuration activities are listed in Table 1.

Table 1 Additional Configuration Activities

Activity	Attribute
Defines if the last incoming call or the last unanswered incoming call is to be saved (0 = last call, 1 = last unanswered call).	<code>mtasCrSaveUnansweredCall</code>



Table 1 Additional Configuration Activities

Activity	Attribute
Defines the value of the operator named announcement to be played when the Call Return service rejects an attempt when no saved call for the served user exists.	mtasCrNoSavedCallAnnName
Defines the value of the operator named announcement to be played when the Call Return (CR) service rejects an attempt when the saved call includes privacy header.	mtasCrPrivacyCallSavedAnnName
Defines the value of the operator named segmented announcement to be played when the Call Return service prompts the caller with information about the code to press for making a call return.	mtasCrNoPhonePromptAnnName
Defines the value of the operator named segmented announcement to be played when the Call Return service prompts the caller with information about the last call and the code to press for making a call return.	mtasCrPromptAnnName
Defines the code to press to make a callback call when started with the Supplementary Service code for Call Return with announcement prompt.	mtasCrCallReturnCode
Defines the auto callback timer for the Call Return service when started with the Supplementary Service code for Call Return without announcement prompt and the mtasCrAutoAnnName is configured.	mtasCrAutoCallBackTimer
Defines the Call Return time to wait for the first digit in the mtasCrCallReturnCode after the announcement (mtasCrPromptAnnName or mtasCrNoPhonePromptAnnName) is started. The announcement duration is included in the waiting time.	mtasCrFirstDigitTimeout
Defines the Call Return time between the digits in the mtasCrCallReturnCode after the announcement (mtasCrPromptAnnName or mtasCrNoPhonePromptAnnName) is finished.	mtasCrInterDigitTimeout
Defines the value of the operator named segmented announcement to be played when the Call Return is started with the Supplementary Service code for Call Return without announcement prompt.	mtasCrAutoAnnName



Table 1 Additional Configuration Activities

Activity	Attribute
Defines the interrogation of date and time. 0 = DEPENDING_ON_INTERROGATION_TIME. Only time of the last saved call is played if it was received on the same day, and only date of the last saved call is played if it was received in a different day from interrogation time. 1=independent_of_interrogation_time. Service plays date and time of the last saved call together regardless the moment of interrogation. 2 = INDEPENDENT_OF_INTERROGATION_TIME_RELATIVE_DATE. Service plays “today” when last incoming call was saved the same day, “yesterday” when last incoming call was saved the day before or day (as ordinal integer) and month when last incoming call was saved at least two days before. In all these three cases the time is also played.	mtasCrLastCallInfoType
Defines the interrogation of date and time for last saved call even if that comes from user with presentation restricted. (Connected to mtasCrLastCallInfoType parameter.) 0 = DEPENDING_ON_PRIVACY_HEADER. Date or time, or both, is played if presentation is not restricted. 1 = INDEPENDENT_OF_PRIVACY_HEADER. Date or time, or both, is played regardless the presentation of the identity of the user.	mtasCrLastCallInfoRestricted
Defines that if the value set to 1, FROM header is used to store last caller information. If the value set to 0, the P-Asserted-Identity header is used to store last caller information.	mtasCrUseFromHeader
Defines the value of the operator named segmented announcement to be played when the Call Return (CR) service rejects call return attempt when last incoming call is of “no Classification” type and the last call is saved on the same day.	mtasCrCallUnavailableSavedTodayAnnName
Defines the value of the operator named segmented announcement to be played when the Call Return (CR) service rejects call return attempt when the last incoming call is of “no Classification” type and the last call was saved 1 day before.	mtasCrCallUnavailableSavedYesterdayAnnName



Table 1 Additional Configuration Activities

Activity	Attribute
Defines the value of the operator named segmented announcement to be played when the Call Return (CR) service rejects call return attempt when the last incoming call is of “no Classification” type and the last call was saved at least 2 days before.	mtasCrCallUnavailableSavedDayAndMonthAnnName
Defines the value of the operator named segmented announcement to be played when Call Return (CR) service rejects an attempt when the last call saved the same day contains a privacy header. This announcement is applied if mtasCrLastCallInfoType is set to 2 = INDEPENDENT_OF_INTERROGATION_TIME_RELATIVE_DATE.	mtasCrPrivacyCallSavedTodayAnnName
Defines the value of the operator named segmented announcement to be played when Call Return (CR) service rejects an attempt when the last call saved the day before contains a privacy header. This announcement is applied if mtasCrLastCallInfoType is set to 2 = INDEPENDENT_OF_INTERROGATION_TIME_RELATIVE_DATE.	mtasCrPrivacyCallSavedYesterdayAnnName
Defines the value of the operator named segmented announcement to be played when Call Return (CR) service rejects an attempt when the last call saved at least two days before contains a privacy header. This announcement is applied if mtasCrLastCallInfoType is set to 2 = INDEPENDENT_OF_INTERROGATION_TIME_RELATIVE_DATE.	mtasCrPrivacyCallSavedDayAndMonthAnnName
Defines the value of the operator named segmented announcement to be played when the Call Return (CR) service prompts the caller with information about the last call and the code to press for making a call return. This announcement is played when the last call was saved the same day. This announcement is applied if mtasCrLastCallInfoType is set to 2 = INDEPENDENT_OF_INTERROGATION_TIME_RELATIVE_DATE.	mtasCrPromptTodayAnnName



Table 1 Additional Configuration Activities

Activity	Attribute
Defines the value of the operator named segmented announcement to be played when the Call Return (CR) service prompts the caller with information about the last call and the code to press for making a call return. This announcement is played when the last call was saved the day before. This announcement is applied if <code>mtasCrLastCallInfoType</code> is set to 2 = INDEPENDENT_OF_INTERROGATION_TIME_RELATIVE_DATE.	<code>mtasCrPromptYesterdayAnnName</code>
Defines the value of the operator named segmented announcement to be played when the Call Return (CR) service prompts the caller with information about the last call and the code to press for making a call return. This announcement is played when the last call was saved at least two days before. This announcement is applied if <code>mtasCrLastCallInfoType</code> is set to 2 = INDEPENDENT_OF_INTERROGATION_TIME_RELATIVE_DATE.	<code>mtasCrPromptDayAndMonthAnnName</code>
This attribute defines the value of the operator named announcement to be played when an incorrect code has been given by the user when ordering the call setup towards the last call number.	<code>mtasCrPlayCollectFailureAnnName</code>
Defines the value of the operator fixed announcement to be played when Call Return (CR) service rejects an attempt when the last caller number in the last incoming call is unavailable (of “no Classification” type).	<code>mtasCrUnavailableSavedAnnName</code>
Defines where CR Last Incoming Call Data shall be stored. When set to 0=STORAGE_IN_MTAS storage is done in MTAS. When set to 1=STORAGE_IN_HSS storage is done in HSS.	<code>mtasCrStorageLastIncomingCall</code>

3.3 Announcement Configuration

When the Call Return service is started with the service code for call return without announcement prompt `mtasSscCrComSyntInv`, the default setting is that no announcement is played and controlled by the `mtasCrAutoAnnName` attribute. This attribute is empty by default. If an announcement is to be played, an announcement name, that is, the announcement named by the operator, must be set.



When the Call Return service is started with the service code for call return with announcement prompt `mtasSscCrAnnComSyntInv`, the default setting is that the announcement is played and controlled by the `mtasCrPromptAnnName` and `mtasCrNoPhonePromptAnnName` attributes. These attributes are by default empty. If an announcement is to be played, an announcement name, that is, the announcement named by the operator, must be set.

When the Call Return service is started with the service code for call return Erasure `mtasSscCrEraComSyntInv`, the default setting is that the announcement is played and controlled by the `mtasCrEraSuccessAnnName` and `mtasCrEraFailureAnnName` attributes. These attributes are by default empty. If an announcement is to be played, an announcement name, that is, the announcement named by the operator, must be set.

An option allowing the Call Return service to send the phone number in the variable part of the announcement in National Number format is available.

Call Return announces the phone number of the last call in denormalized format when the following attributes are set to 1 (True):

- The `vtasCrCallingPartyDenorm` attribute in the `VtasCr` MO.
- The `mtasCrCallingPartyDenorm` attribute in the `MtasCr` MO.

If the attributes are set to 0 (False), Call Return announces the phone number of the last call without modifying it.

For information on announcement handling and Call Return announcement attributes, refer to [MTAS Announcement Management Guide](#).

An example of announcement configuration for Call Return is shown in Example 1:

```
This is the structure of a segmented announcement.
1300 = "Your last call was from" (fix part)
LastCall == "xxx" variable part (phone number)
2000 = "at" (fix part)
LastCallDate = "yyyymmdd" optional variable part(date)
LastCallTime = "hhmm" optional variable part(tod)
1500 = "to callback press" (fix part)
InvokeCode = "zz" variable part (mtasCrCallReturnCode = zz)
```

Example 1 Configuring `mtasCrPromptAnnName` to Play "Your last call was from xxx at yyyymmdd/hhmm to callback press zz"

3.4 Wholesale for Call Return Configuration

The Call Return service supports Wholesale. Call Return is configurable on Virtual Telephony Provider-level.

Wholesale for Call Return is activated when the following attributes are set to 1 (Unlocked):

- The `vtasCrAdministrativeState` attribute in the `VtasCr` MO.



— The `mtasCrAdministrativeState` attribute in the `MtasCr` MO.

For more information about the Wholesale service, refer to [MTAS Wholesale Support Management Guide](#).

3.5 Auto Call Back Configuration

The auto callback function is controlled by an SSC service for Call Return. For more information about the SSC services, refer to [MTAS Supplementary Service Codes Management Guide](#).

3.6 Service Data Configuration

This section describes how to configure the service data.

3.6.1 Operator Subscription Level Service Configuration

The operator can activate, deactivate, or provision the Call Return subscription for the subscriber by setting the user data using the CAI3G protocol.

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

An example of a CAI3G protocol of how to provision Call Return is shown in [Example 2](#).



```
<?xml
  version="1.0"
  encoding=UTF-8"
?>
<Sh-Data
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mtas-sh-top-schema.xsd">
  <RepositoryData>
    <ServiceIndication>
      MmtServiceConfig
    </ServiceIndication>
    <SequenceNumber>
      0
    </SequenceNumber>
    <ServiceData>
      <mmt-data:telephony-service-configuration
        version="3.1"
        xmlns:cp="urn:ietf:params:xml:ns:common-policy"
        xmlns:mmt-data="http://schema.ericsson.com/mmtel/service-data"
        xmlns:mmt-op="http://schema.ericsson.com/mmtel/operator-service-data"
        xmlns:mmt-serv="http://schemas.ericsson.com/mmtel/services"
        xmlns:ocp="urn:oma:xml:xm:common-policy"
        xmlns:ss="http://uri.etsi.org/ngn/params/xml/simservs/xcap">
        <mmt-data:user-configuration>
          <ss:simservs/>
        </mmt-data:user-configuration>
        <mmt-data:operator-configuration>
          <mmt-data:operator-service-data>
            <mmt-op:operator-call-return
              activated="true"/>
          </mmt-data:operator-service-data>
        </mmt-data:operator-configuration>
      </mmt-data:telephony-service-configuration>
    </ServiceData>
  </RepositoryData>
</Sh-Data>
```

Example 2 CAI3G Protocol of Call Return Provisioning

3.6.2

Subscriber Subscription Level Service Configuration

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



4 Performance Management

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





5 Fault Management

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