

# MTAS Abbreviated Dialing Management Guide

## MTAS

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### USER GUIDE

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# 1 Introduction

This document describes how to configure the Abbreviated Dialing session 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 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:

- *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 Abbreviated Dialing service enables a subscriber to call an assigned, stored number by dialing a short digit sequence.

The Abbreviated Dialing is handled on the originating MTAS node.

The number called has an Abbreviated Number (AN) in a range between the numbers (0) 0 and 99 (100 numbers in total) and this number is analyzed and changed to a stored number during an `INVITE` or `REFER`. Abbreviated numbers between 0-9 and 00-99 are supported. A range of valid abbreviated numbers to use is defined with CM attributes with the possible values between 00 and 99. The range for abbreviated numbers 0–9 and 00–09 are stored to the same number range as 0–9.

A list of stored, with or without an improvised identity presentation Supplementary Service Code (SSC) or carrier select code added numbers, for every user exists in the user data (stored number is defined as [`<SSC>`][`<CSC>`]`<ND>`, where SSC and Carrier Select Code (CSC) are optional). Provision is done on the CAI3G interfaces. Update of the user data is done with CAI3G on the `UT` interface.

### 2.1 Subfunctions

This section describes the following subfunctions:

- Abbreviated Dialing
- Abbreviated Dialing command syntax

#### 2.1.1 Abbreviated Dialing

The Abbreviated Dialing service is triggered by an incoming `INVITE` or `REFER` on an originating MTAS.

First analysis of the abbreviated number in the Request URI or “Refer-To:” header is performed according to the command syntax. Next, it is compared to the abbreviated numbers in the user data. If no abbreviated number is found as an exact match in the subscriber data list of the user to correspond to the abbreviated number, then the message is rejected, unless a Request-URI or “Refer-To: ” “telephone-subscriber”/“userinfo” string matches one of the preconfigured abbreviated number codes. It is then not considered by the MTAS to be an abbreviated number and is processed as a normal originating call, that is, the MTAS originating call processing continues.

The Request URI with its command syntax is parsed in the same way for the Abbreviated Dialing and the SSC services, also with the addition that

Abbreviated Dialing services could handle a standalone abbreviated number without any supplementary information blocks in the URI. For further description of parsing the Request URI for Abbreviated Dialing in the SSC, refer to *MTAS Supplementary Service Codes Management Guide*.

This service, like the SSC service, adds a `user=phone` if this parameter is missing from the embedded telephone number in a `sip:` SIP URI.

## 2.1.2 Abbreviated Dialing Command Syntax

The information for the control of an Abbreviated Dialing service is sent by the user with an Abbreviated Dialing code command.

The syntaxes for starting Abbreviated Dialing are stored in an MO attribute, as a list with different service commands. The attribute is defined as a list of strings where each string represents one of the possible Abbreviated Dialing command syntaxes. The string includes all necessary command parameters.

The service command syntax and various coding schemes are defined in the following documents:

- *MTAS Supplementary Service Codes Management Guide*
- [Subscriber Control Procedures for Supplementary Telephone Services, ITU-T Recommendations E.131](#)

### CM Attributes and Command Codes

There is a CM attribute for Abbreviated Dialing syntax code and two CM attributes to define a valid range for Abbreviated Dialing invocation in SSC, refer to *MTAS Supplementary Service Codes Management Guide*.

The configuration is performed with MO attributes for the syntax of SSC code commands. Those attributes are designed with a view to provide a flexible solution and to try to narrow the gaps between different coding schemes.

The values of code command parameters, except Supplementary Information (SI) fields, are configurable. For each rule, a separate attribute is created to describe allowed command syntaxes for that particular invocation of the service (as for Abbreviated Dialing) and service function (not used by Abbreviated Dialing). The attribute is a list of strings where each string specifies one of the allowed command syntaxes for the Abbreviated Dialing service function. Mandatory Supplementary Information fields are specified in the string exactly in the same way they can appear in the code command.

Supplementary Information fields, whose values are not configurable, are represented in the string with fixed string names. The fixed string names that are created for Abbreviated Dialing supported Supplementary Information fields are listed in Table 1.





*Table 1 Supplementary Information String Names*

String Name	Type of Supplementary Information
N	Number from 0 through 9 (affected by the CM range)
NN	Number from 00 through 99 (affected by the CM range)

## 2.2 Traffic View

The following steps are common for the handling of abbreviated numbers in the MTAS:

- Service Invocation – an event triggers the execution of Abbreviated Dialing service, that is, initial `INVITE` or a `REFER` that contains an abbreviated number according to the Abbreviated Dialing service code command configured.
- Evaluation of the abbreviated number – the MTAS searches the subscriber data list of the abbreviated numbers for the user.
- Replacement of the abbreviated number – if the abbreviated number exists then the MTAS replaces the abbreviated number with the number associated with the abbreviated number in the list of the user.

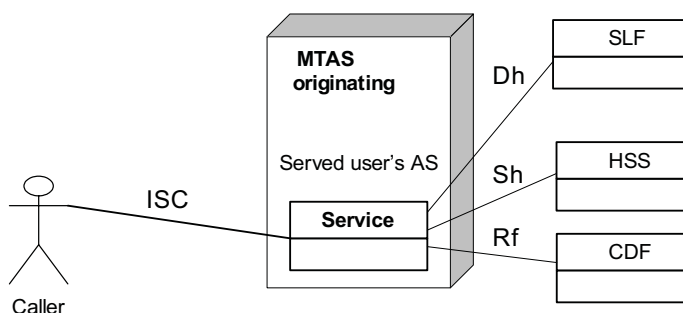
The execution of the function is triggered by an initial SIP `INVITE` or `REFER` request that contains either a tel URI or SIP URI which includes an abbreviated number fulfilling the Abbreviated Dialing command syntax.

The function verifies that the received abbreviated number exists in the abbreviated number list stored in the subscriber data and in the range defined.

The function replaces the abbreviated number with the stored number in subscriber data.

The function informs the Charging Data Function (CDF) when the Abbreviated Dialing service has been started.

A simplified traffic view for the handling of abbreviated numbers in the MTAS is shown in Figure 1.



*Figure 1 Traffic View for Handling of Abbreviated Numbers*

## 2.3 Configuration View

There are two levels of data management that are performed by the operator for an MTAS service, as follows:

- Node-level configuration
- Provision Subscriber Service data

Node-level configuration is performed by the operator who customizes the service function by using MO attributes specified for the function. This process includes configuration of service code command syntax and parameters and administrative state of the function.

Provisioning Subscriber Service data is performed by the operator through a Business Support System using the CAI3G protocol and it allows the operator to manage service data for a subscriber. This procedure, for example, includes a definition of whether the service is granted to the subscriber, withdrawn from a subscriber.

Service data is managed through the XML Data Management Server (XDMS) that provides the  $Ut$  interface (XCAP over HTTP) to the user and the CAI3G interface to the operator. The XDMS uses  $Sh$  (Diameter) to update the Home Subscriber Server (HSS). The user accesses the XDMS directly and the operator accesses it through a Business Support System. The user can able access the list, of abbreviated and stored numbers, and change services settings through the  $Ut$  interface.

A simplified view of the interfaces and protocols in relation to the configuration, provisioning, and managing of a service is shown in Figure 2.

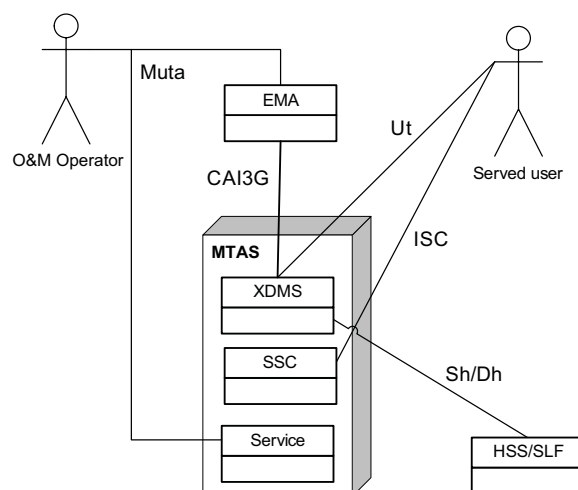


Figure 2 Configuration View of MTAS



## 2.4 Interaction with Other Services

This section describes how the Abbreviated Dialing interacts with other services.

### 2.4.1 Charging

The use of Abbreviated Dialing is reported in charging messages generated during the setup of a Multimedia Telephony (MMTel) session. Expanded number are saved in charging record for called party ID. The `requested-party-id` holds the number input to the MTAS.

Offline charging events are also raised when the Abbreviated Dialing subscriber activates, deactivates, and modifies the Abbreviated Dialing service using the `Ut` interface.

For details of how the use of Abbreviated Dialing is reported for online charging and offline charging respectively, refer to the following documents:

- *Diameter Offline Charging in MTAS*
- *Diameter Online Charging in MTAS*

### 2.4.2 Supplementary Service Codes

The SSC code for improvised identity presentation is supported in front of a normalized number stored in the subscriber data, which replace an abbreviated number in a Request URI on `INVITE`. When an SSC code for improvised identity presentation is present in the stored number, then the SSC code will be handled after the invocation of the Abbreviated Dialing service by the SSC service.

For more information about the SSC service, refer to *MTAS Supplementary Service Codes Management Guide*.

### 2.4.3 Carrier Select

The Carrier Select (CS) code is supported in front of a normalized number stored in the subscriber data, which replace an abbreviated number. The parsing of CS codes is done after the handling of abbreviated number in the CS service.

For more information about the CS service, refer to *MTAS Carrier Select and Carrier Pre-Select Management Guide*.

### 2.4.4 Outgoing Communication Barring

The Outgoing Communication Barring (OCB) service acts on the expanded number.



For more information about the OCB service, refer to *MTAS Barring and Dial Plan Services Management Guide*.



## 3 Abbreviated Dialing Service Configuration

The Abbreviated Dialing is controlled by the *MtasAbDial* Managed Object (MO). An overview of the Abbreviated Dialing MO structure is shown in Figure 3.

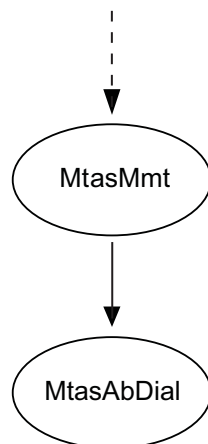


Figure 3 Abbreviated Dialing MO Structure

Configurable MOs and attributes related to the Abbreviated Dialing services are defined in the *Managed Object Model (MOM)*.

### 3.1 Supplementary Service Codes Configuration

Configuration of the SSCs is described in *MTAS Supplementary Service Codes Management Guide*.

### 3.2 Abbreviated Dialing Administrative State Configuration

The Abbreviated Dialing service is enabled by setting the `mtasAbDialAdministrativeState` attribute in the `MtasAbDial` MO to 1 (Unlocked). If the `mtasAbDialAdministrativeState` is set to 0 (Locked), no Abbreviated Dialing service is provided by the MTAS.

### 3.3 Wholesale for Abbreviated Dialing Configuration

The Abbreviated Dialing service supports Wholesale. Abbreviated Dialing is configurable on Virtual Telephony Provider level.

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

- The `vtasAbDialAdministrativeState` attribute in the *VtasAbDial* MO.



- The `mtasAbDialAdministrativeState` attribute in the *MtasAbDial* MO.

For more information about the Wholesale service, refer to *MTAS Wholesale Support Management Guide*.

## 3.4 Service Data Configuration

This section describes how to configure the service data.

### 3.4.1 Operator Subscription Level Service Configuration

The operator can provision or withdraw the Abbreviated Dialing subscription for the subscriber by setting the user data using the CAI3G protocol. The operator can also manage the list of Abbreviated numbers and the stored numbers.

For more information about the CAI3G protocol and the schema definition, refer to *MTAS CAI3G Interface*.

### 3.4.2 Subscriber Subscription Level Service Configuration

The user can activate or deactivate the Abbreviated Dialing subscription for the subscriber by setting the user data using the `Ut` interface. The operator can also manage the list of Abbreviated numbers and the stored numbers, refer to *MTAS Ut Interface*.

### 3.4.3 Service-Specific Checks Performed at XDMS

The XDMS rejects an update if any of the following checks fails:

- The XDMS checks the Abbreviated number to be in the range specified by CM parameters.
- The XDMS checks that the stored number is normalized. Stored number is defined as [`<SSC>`] [`<CSC>`] `<ND>`, where SSC and CSC are optional.



## 4 Performance Management

Measurements related to the Abbreviated Dialing services are detailed in *Managed Object Model (MOM)*.







## 5 Fault Management

The Abbreviated Dialing service has no alarms.