

MTAS Network Announcement Management Guide

MTAS

USER GUIDE

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1 Introduction

This document describes how to configure the Network Announcement (NA) service in 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 NA 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 NA service offers a possibility for an operator to play an announcement to a calling user when fault situations occur during a Multimedia Telephony (MMTel) session establishment, for example, a congestion or a wrong number. It is possible to configure if an announcement is played depending on the received SIP error status code (and SIP/Q.850 Cause code). The announcement can be either fixed audio, video, or an audio-video announcement.

The NA service also offers the Network Message function when it is enabled. NM gives the possibility for an operator to configure the content of the SIP response depending on present of Warning header in the response.

An overview of the entities involved in the NA service is shown in Figure 1.

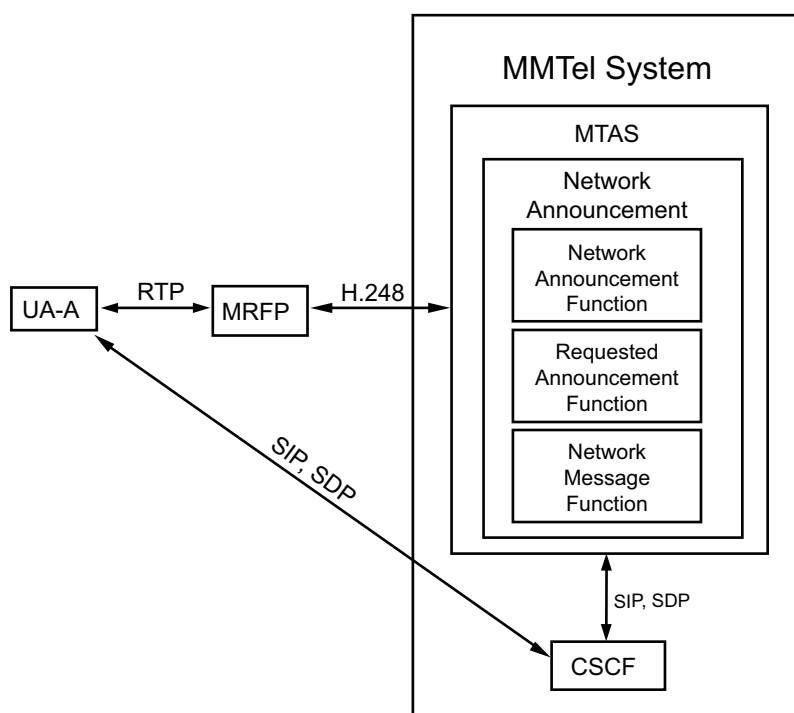


Figure 1 Entities Involved in Network Announcement Service

The MMTel system is an IMS-based system that provides multimedia services to both fixed and mobile devices. The MTAS is an application server within the MMTel system that provides services.

The NA function is part of the MTAS and is triggered when the MTAS is operating in the originating or terminating half-call. The MTAS communicates with the Media Resource Function Processor (MRFP) by the use of the H.248 protocol to control media stream resources. The MTAS communicates with the Call Session

Control Function (CSCF) by the use of the SIP and Session Description Protocol (SDP) protocols.

The NA service is triggered during the establishment of an MMTel session, in an originating or terminating MTAS when a SIP final response to an initial SIP INVITE in the range of 400–699 is about to be sent to the User Agent (UA-A).

The NM function is part of NA service. The NM function is triggered in originating MMTel AS when a SIP final response to an initial SIP INVITE in the range of 400–699 is about to be sent towards the User A.

[ITU-E.181](#) gives the general recommendation to provide all tones announcements as close to the originator as possible. MRF dimensioning consideration must be taken before activating NA on SIP responses that can cause mass signaling to MRF resources. For instance, SIP 500 and 503 responses that are received in network overload conditions.

The NA service also offers a possibility for a UA to request an audio announcement to be played to a user by sending an INVITE with a Request URI that is a preconfigured string identifying the required announcement. For example, an (MSAN/IAD) can wish to play an announcement when a user enters an invalid switching order code. The user can be the calling or called party on an existing call, but the request to play an announcement is always received by the MTAS as a new originating dialog request. This service is referred to as Requested Announcement (RA).

2.1 Subfunctions

This section describes the subfunctions included in the NA service.

2.1.1 Network Announcement Analysis

The NA function is triggered and an analysis is started when a SIP Error response is received from the terminating network during a MMTel session establishment. Input to the analysis is configuration data for the NA service and the media capabilities included in the SDP offer sent in the initial SIP INVITE.

The configuration data for the Network Announcement service to play an announcement is selected in the following descending precedence:

- 1 The NA service of originating MTAS selects an announcement based on a combination of the SIP error status code + Q.850/SIP cause code.
- 2 An announcement is selected based on the SIP error status code.

2.1.2 Requested Announcement Analysis

The Requested Announcement function is triggered and an analysis is started when a SIP INVITE is received. Input to the analysis is configuration data for the



Requested Announcement service, the Request URI, and the media capabilities included in the SDP offer sent in the SIP INVITE.

For more information about announcement handling and attributes for the NA service, refer to [MTAS Announcement Management Guide](#).

2.1.3 Play Announcement

This subfunction is started if an announcement is to be played to the UA-A. An MRF/MRFP resource is used for playing the announcement.

For Network announcements, the SIP error response that is sent to the UA-A after the announcement has ended, is selected in the following descending precedence:

- 1 SIP error response specified by the `mtasNaAnnCauseRejectCode` attribute, if its Originating MTAS and the configuration data for the Network Announcement service is found using SIP error status code + Q.850/SIP cause code.
- 2 SIP error response specified by the `mtasNaAnnRejectCode` attribute (if it is Originating MTAS), or the `mtasNaAnnTRejectCode` attribute (if it is Terminating MTAS), and the configuration data for the Network Announcement service is found using the SIP error status code.
- 3 SIP error response specified by the `mtasMmtSendSipOrigResponse` or the `mtasMmtSendSipTermResponse` attributes.
- 4 SIP error response received. For Network announcements, the SIP error response that is sent to the UA-A after the announcement has ended can contain Q.850 or SIP cause and reason text that is to be included in a Reason header.

The Q.850 or SIP cause and reason text is selected in the following descending precedence:

- 1 The reason protocol, Q.850/SIP cause code, and reason text specified by the `mtasNaAnnCauseRejectReason` attribute, if its Originating MTAS and the configuration data for the Network Announcement service is found using SIP error status code + Q.850/SIP cause code. If present, the received Reason header is removed.
- 2 The reason protocol, Q.850/SIP cause code, and reason text specified by the `mtasNaAnnRejectReason` attribute (if it is Originating MTAS), or the `mtasNaAnnTRejectReason` attribute (if it is Terminating MTAS), and the configuration data for the Network Announcement service is found using SIP error status code. If present, the received Reason header is removed.
- 3 The reason protocol, Q.850/SIP cause code, and reason text received.

For Requested announcements, the early dialog with UA-A is released after the announcement has ended.



For more information about announcement handling and attributes for the NA service, refer to [MTAS Announcement Management Guide](#).

2.1.4 Network Message

This subfunction it is triggered, when enabled, in originating MMTel AS when a SIP final response to an initial SIP INVITE in the range of 400–699 is about to be sent towards the UA-A. The function performs an analysis to see if the response is to be updated depending on present of Warning header in the response and the configuration.

2.2 NA Interaction with Other Services

The NA interaction with other MTAS services is described in this section.

2.2.1 Communication Diversion

If the NA service is triggered in the terminating MTAS for originating or terminating session cases, the NA service checks if a Communication Diversion (CDIV) has been performed (the MTAS is in the transit mode). If so, no announcement is played.

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

2.2.2 Communication Completion

The NA service does not play terminating network announcements if the terminating user is provisioned with either of the following:

- Communication Completion No Reply (CCNR) service
- Communication Completion on Busy Service (CCBS)

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

2.2.3 Number Translation

The RA service can also be used with the Number Translation service to provide the customized final reject announcements at outgoing calls of the served user.



3 NA Configuration

The NA service is controlled by the *MtasNa* MO and its children. An overview of the NA MO structure shown in Figure 2. The structure makes it possible to customize whether an announcement is played and which announcements that are played when the NA function is triggered.

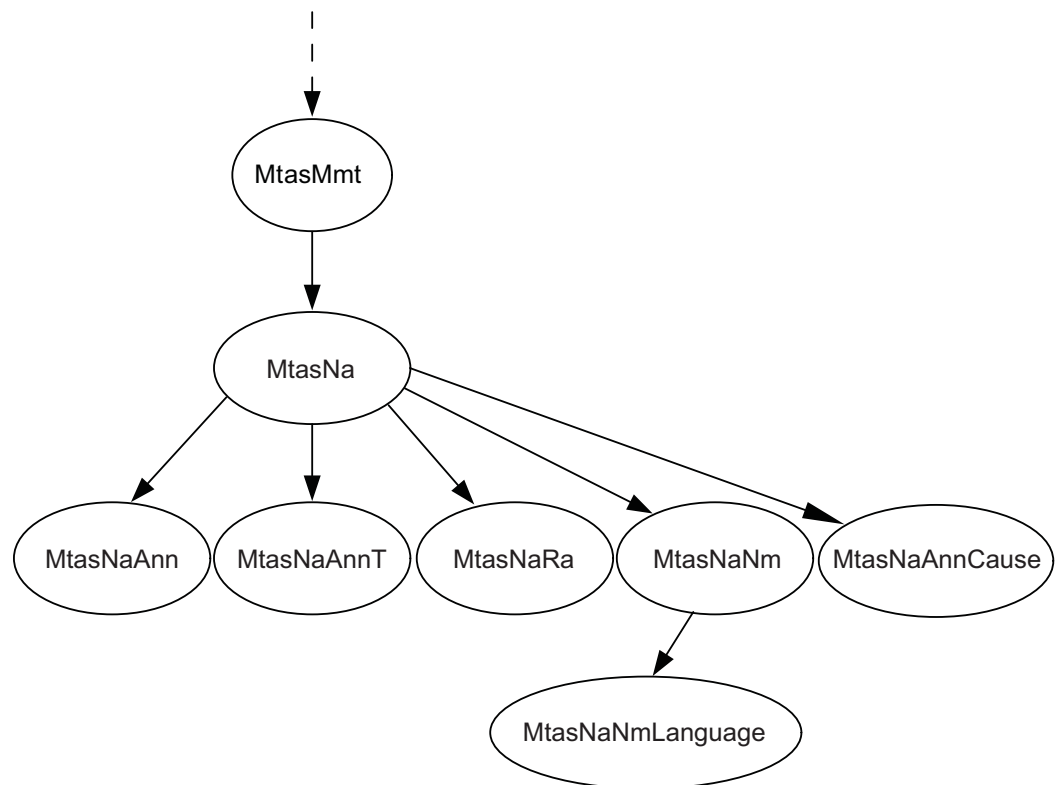


Figure 2 Network Announcement MO Structure

Configurable MOs and attributes related to the NA service are defined in Managed Object Model (MOM).

3.1 NA Administration State Configuration

The NA service is enabled by setting the *mtasNaAdministrativeState* attribute in the *MtasNa* MO to 1 (Unlocked).

If the *mtasNaAdministrativeState* is set to 0 (Locked), no NA service is provided by the MTAS.



3.2 NM Function Enable Configuration

The NM function is enabled by setting the `mtasNaEnableNm` attribute in the `MtasNa` MO to 1 (NETWORK_MESSAGE_FUNC_ENABLED).

3.3 MtasNaAnn MO Configuration

The `MtasNaAnn` MO defines the audio or video, or both, announcements to be played when a certain SIP error code is received in the originating MTAS from the terminating side, or when this certain SIP error code is generated internally in the originating MTAS.

3.3.1 Audio-Video Announcement Code for a Specific SIP Error Code Configuration

When an `MtasNaAnn` MO is created, it must have the same name as the SIP error code. The name is an integer in the range of 400–699.

To define the audio/video code for each `MtasNa` MO, the following attributes can be used:

Attribute	Description
<code>mtasNaAnnPlayAudioAnnouncement</code>	This attribute specifies whether an audio announcement is to be played when the final response is received.
<code>mtasNaAnnAudioCode</code>	This attribute specifies the audio announcement code to be played when the final response is received.
<code>mtasNaAnnPlayVideoAnnouncement</code>	This attribute specifies whether a video announcement code is to be played when the final response is received.
<code>mtasNaAnnVideoOnlyCode</code>	This attribute specifies the video announcement code to be played when the final response is received and the SDP offer contain video capabilities but not audio.
<code>mtasNaAnnAVAudioCode</code>	This attribute specifies the audio component of the audio-video announcement to be played when the final response is received.



Attribute	Description
mtasNaAnnAVVideoCode	This attribute specifies the video component of the audio-video announcement to be played when the final response is received.
mtasNaAnnCauseValue	This attribute specifies which Q.850 cause value and corresponding cause code that is to be included in a Reason header sent in the SIP 183 Session Progress, which is sent by the originating MTAS before the announcement is played. If this attribute indicates zero, no Reason header is included in the 183 Session Progress.

For more information on how to configure the attributes in the **MtasNaAnn** MO, refer to **Managed Object Model (MOM)**.

3.3.2 SIP Error Response Returned for Specific SIP Error Code Configuration

The following attributes can be used to modify the SIP Error response by NA service:

Attribute	Description
mtasNaAnnRejectReason	This attribute defines Reason header sent in the SIP error response. This attribute is in “<reason-protocol>;<reason-cause>;<reason-text>” format. The <reason-protocol> is Q.850 or SIP. The <reason-cause> is Q.850/SIP cause code that is to be included in a Reason header sent in the SIP error response and is in the range of 1–699. The <reason-text> is reason text that is to be included in a Reason header sent in the SIP error response and non-empty string.
mtasNaAnnRejectCode	This attribute defines which SIP error response the Network Announcement service sends when an announcement has been played.

For more information on how to configure the attributes in the **MtasNaAnn** MO, refer to **Managed Object Model (MOM)**.

3.4 MtasNaAnnCause MO Configuration

The **MtasNaAnnCause** MO is created using <status-code>&<reason-protocol>&<reason-cause>. The <status-code> is SIP error status code and is in the range of 400–699. The <reason-protocol> is Q.850 or SIP. The <reason-cause> is Q.850/SIP cause code in Reason header and is in the range of 1–699. Examples “404&Q.850&16” or “404&SIP&488”.



For **MtasNaAnnCause**, defined in the **MtasNa** MO, the following attributes can be used:

Attribute	Description
mtasNaAnnCauseAnnName	This attribute defines the name of the generic announcement, specified in an instance of MtasGaAnn , to be played in case when the final response is received. If this attribute is empty or does not specify an instance of MtasGaAnn , no announcement is played.
mtasNaAnnCauseRejectReason	This attribute defines Reason header sent in the SIP error response. This attribute is in “<reason-protocol>;<reason-cause>;<reason-text>” format. The <reason-protocol> is Q.850 or SIP. The <reason-cause> is Q.850/SIP cause code that is to be included in a Reason header sent in the SIP error response and is in the range of 1–699. The <reason-text> is reason text that is to be included in a Reason header sent in the SIP error response and non-empty string.
mtasNaAnnCauseRejectCode	This attribute defines which SIP error response the Network Announcement service sends when an announcement has been played.

For more information on how to configure the attributes in the **MtasNaAnnCause** MO, refer to the [Managed Object Model \(MOM\)](#).

3.5 MtasNaAnnT MO Configuration

The **MtasNaAnnT** MO defines the audio or video, or both, announcements to be played when a certain SIP error code is received in the terminating MTAS from the terminating side or when this certain SIP error code is generated internally in the terminating MTAS.

3.5.1 Audio-Video Announcement Code for a Specific SIP Error Code Configuration

When an **MtasNaAnnT** MO is created, it must have the same name as the SIP error code. The name is an integer in the range of 400–699.

To define the audio/video code for each **MtasNa** MO, the following attributes can be used:



Attribute	Description
mtasNaAnnTPlayAudioAnnouncement	This attribute specifies whether an audio announcement is to be played when the final response is received.
mtasNaAnnTAudioCode	This attribute specifies the audio announcement code to be played when the final response is received.
mtasNaAnnTPlayVideoAnnouncement	This attribute specifies whether a video announcement is to be played when the final response is received.
mtasNaAnnTVideoOnlyCode	This attribute specifies the video announcement code to be played when the final response is received and the (SDP) offer contain video capabilities but not audio.
mtasNaAnnTAVAudioCode	This attribute specifies the audio component of the audio-video announcement to played when the final response is received.
mtasNaAnnTAVVideoCode	This attribute specifies the video component of the audio-video announcement to played when the final response is received.
mtasNaAnnTCauseValue	This attribute specifies which Q.850 cause value and corresponding cause code that is to be included in a Reason header sent in the SIP 183 Session Progress, which is sent by the terminating MTAS before the announcement is played. If this attribute indicates zero, no Reason header is included in the 183 Session Progress.
mtasNaAnnTRejectReason	<p>This attribute defines the Reason header sent in the SIP error response. This attribute is in <reason-protocol>;<reason-cause>;<reason-text> format.</p> <ul style="list-style-type: none"> • The <reason-protocol> is Q.850 or SIP. • The <reason-cause> is Q.850/SIP cause code (if non-zero) that is to be included in a Reason header sent in the SIP error response and is in the range of 0–699. • The <reason-text> is reason text that is to be included in a Reason header sent in the SIP error response and can be an empty string.
mtasNaAnnTRejectCode	This attribute defines which SIP error response the Network Announcement service sends when an announcement has been played.



For more information on how to configure the attributes in the `MtasNaAnnT` MO, refer to [Managed Object Model \(MOM\)](#).

3.6 MtasNaRa MO Configuration

An `MtasNaRa` MO defines the following SIPs:
The URI strings for which an announcement is to be played in an originating MTAS on receipt of the matching Request URI.

In case of SIP-embedded telephone numbers or tel URIs, the URI strings in `MtasNaRa` contains telephone number in user part and “Ericsson.com” in the domain part of URI.

Choose an URI name that does not look like a telephone number to avoid confusion with the user=phone error correction.

Use the highest version value of the `mtasNaRaVersion` attribute.

3.6.1 Audio Announcement Code for a Specific SIP URI Configuration

To define the audio code for each `MtasNaRa` MO, the following attributes can be used:

Attribute	Description
<code>mtasNaRaPlayAudioAnnouncement</code>	This attribute defines the audio announcement code to be played when the final response is received.
<code>mtasNaRaAudioCode</code>	This attribute defines the audio announcement code to be played when the final response is received.

For more information on how to configure the attributes in the `MtasNaRa` MO, refer to [Managed Object Model \(MOM\)](#).

3.7 MtasNaNm MO Configuration

An `MtasNaNm` MO is keyed with the warning text string specified in the [MTAS Fault Codes Catalogue](#).

To define network message for each `MtasNaNm` MO, the following attributes can be used:

Attribute	Description
<code>mtasNaNmCauseTextToPhrase</code>	This attribute defines the content of the Reason phrase in the status line depending on the cause text in the Reason header.



Attribute	Description
<code>mtasNaNmDefaultCauseText</code>	This attribute defines the default text in the Reason header when the provisioned language preference of the calling user is not available.
<code>mtasNaNmSuppressNetworkAnnouncement</code>	This attribute defines if the Network Announcement is suppressed for the Warning text configured in <code>MtasNaNm</code> key attribute.
<code>mtasNaNmRejectReason</code>	<p>This attribute defines the parameters of the Reason header sent in the SIP error response. This attribute is in <code><reason-protocol>;<reason-cause></code> format.</p> <ul style="list-style-type: none"> • The <code><reason-protocol></code> is Q.850 or SIP. • The <code><reason-cause></code> is Q.850/SIP cause code and is in the range of 0–699.
<code>mtasNaNmRejectCode</code>	This attribute defines the status code of Status the Network Announcement service sends when the Network Message function is enabled.

For more information on how to configure the attributes in the `MtasNaNm` MO, refer to [Managed Object Model \(MOM\)](#).

3.8 MtasNaNmLanguage MO Configuration

An `MtasNaNmLanguage` MO is keyed with the provisioned preferred language for the calling user.

To define network message text for each `MtasNaNmLanguage` MO, the following attribute can be used:

Attribute	Description
<code>mtasNaNmLanguageNmCauseText</code>	This attribute defines the cause text in the Reason header when Network Message function is enabled.

For more information on how to configure the attributes in the `MtasNaNmLanguage` MO, refer to [Managed Object Model \(MOM\)](#).

3.8.1 Example Configuration of Network Message

Preconditions:

- `mtasNaAdministrativeState` is unlocked.



- The 3PTY service rejects the initial INVITE with 403 Forbidden Warning: (399, "At least one 3PTY participant in the URI list is not put on HOLD by the 3PTY originator")
- `MtasNaNm` with the key "At least one 3PTY participant in the URI list is not put on HOLD by the 3PTY originator" exist. It is configured with:
 - `mtasNaNmCauseTextToPhrase` = 0 (Reason phrase in the status line is not changed).
- The calling user is provisioned with the preferred language-tag set to "en-us" in the common data.
- `MtasNaNmLanguage` with the key "en-us" exist.
 - `mtasNmCauseText` = Both 3PTY participants must be put on HOLD before creating a 3PTY call.
- `MtasNaNmLanguage` with the key "sv" exist configured with:
 - `mtasNmCauseText` = Tre parts samtalet kan inte sättas upp, minst en deltagare är inte parkerad.

mtasNaEnableNm is true

The following is sent to the caller:

Example 1:

```
403 Forbidden
Warning: (399, "At least one 3PTY participant in the URI list⇒
is not put on HOLD by the 3PTY originator")
Reason: SIP; cause=403; "Both 3PTY participants must be put⇒
on HOLD before creating a 3PTY call"
```

Example 2:

Set `mtasNaNmCauseTextToPhrase` = 2 (Add the cause text in Reason header to the reason phrase in the status line).

The following is sent to the caller:

```
403 Forbidden: Both 3PTY participants must be put on HOLD⇒
before creating a 3PTY call
Warning: (399, "At least one 3PTY participant in the URI list⇒
is not put on HOLD by the 3PTY originator")
Reason: SIP; cause=403; "Both 3PTY participants must be put⇒
on HOLD before creating a 3PTY call"
```

Example 3:

The calling user is provisioned with the preferred language-tag set to "sv" in the common data.



Set `mtasNaNmCauseTextToPhrase` = 1 (Reason phrase in the status line is replaced with the cause text in the Reason header).

The following is sent to the caller:

```
403 Forbidden: Tre parts samtalet kan inte sättas upp,⇒
minst en deltagare är inte parkerad
Warning: (399,"At least one 3PTY participant in the URI list⇒
is not put on HOLD by the 3PTY originator")
Reason: SIP; cause=403; "Tre parts samtalet kan inte⇒
sättas upp, minst en deltagare är inte parkerad"
```

Example 4:

Preconditions:

- `MtasNaNm` instance with the key "The Quick Brown Fox" is configured.
- `MtasNaNmLanguage` with the key `en-us` exists and is configured with `mtasNaNmLanguageNmCauseText` = Jumps Over The Lazy Dog.

Configuration:

1. Set `mtasNaNmRejectReason` to "Q.850;16".
2. Set `mtasNaNmRejectCode` to 480.

The 3PTY service rejects the initial INVITE with 403 Forbidden Warning: (399, "The Quick Brown Fox")

The following SIP error response is sent to the caller:

```
480 Temporarily Unavailable
Warning: 399 "The Quick Brown Fox"
Reason: Q.850; cause=16; "Jumps Over The Lazy Dog"
```

`mtasNaEnableNm` is false

The following is sent to the caller:

```
403 Forbidden
Warning:(399,"At least one 3PTY participant in the URI list⇒
is not put on HOLD by the 3PTY originator")
```

3.9 SIP Error Response Code Configurations

For SIP error response sent to the UA-A based on the configurations, see Section 2.1.3 Play Announcement on page 5.



3.10 Cause Value Configuration

The MTAS can be configured to include a Q.850 cause value and corresponding cause code in a Reason header that is inserted in the SIP 183 Session Progress provisional response sent to the UA-A, generated by the NA service.

To specify the cause value for the originating MTAS, modify the attributes `mtasNaAnnCauseValue`, see Section 3.3.1 Audio-Video Announcement Code for a Specific SIP Error Code Configuration on page 8.

To specify the cause value for the terminating MTAS, modify the attributes `mtasNaAnnTCauseValue`, see Section 3.5.1 Audio-Video Announcement Code for a Specific SIP Error Code Configuration on page 10.

If the attribute is set to 0, no cause value is included in the SIP 183 Session Progress provisional response.

The MTAS can also be configured to include a Q.850 or SIP cause, corresponding cause code, and reason text in the Reason header, which is inserted in the SIP error response sent to the UA-A, generated by the NA service. Configure as follows:

- To specify the cause value for the originating MTAS, modify the attributes `mtasNaAnnRejectReason` and `mtasNaAnnCauseRejectReason` as specified in Section 3.3.2 SIP Error Response Returned for Specific SIP Error Code Configuration on page 9 and Section 3.4 `MtasNaAnnCause` MO Configuration on page 9.
- To specify the cause value for the terminating MTAS, modify the attribute `mtasNaAnnTRejectReason` as specified in Section 3.5.1 Audio-Video Announcement Code for a Specific SIP Error Code Configuration on page 10.

For details, see Section 2.1.3 Play Announcement on page 5.

3.11 NA Administrative State Configuration

The CDIV service is enabled by setting the `mtasNaAdministrativeState` attribute in the `MtasNa` MO to 1 (Unlocked). If the `mtasNaAdministrativeState` is set to 0 (Locked), no NA service is provided by the MTAS.

3.12 Wholesale for NA Configuration

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

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

- The `vtasNaAdministrativeState` attribute in the `VtasNa` MO.
- The `mtasNaAdministrativeState` attribute in the `MtasNa` MO.



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

3.13 Service Data Configuration

No service data for the NA service is configured for the subscriber data.





4 Performance Management

Measurements related to the NA service are detailed in MTAS Performance Measurements.





5 Fault Management

Alarms related to the NA service are listed in MTAS Alarm List.