

IP networking (H.323)

OPERATIONAL DIRECTIONS



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GENERAL

1.1

INTRODUCTION

The IP networking facility allows the routing of calls between two MX-ONE, or between an MX-ONE and another H.323-compliant system, following the main traffic principles of other types of routes.

The systems are connected through a TCP/IP network by means of a 10/100 Mbit/s Ethernet interface (1 Example of network configuration between MX-ONE on page 3). Call signaling and media, for example, voice, are transmitted through the TCP/IP network.

H.323 routes make use of the same RTP resources as the IP extensions, that is, the Media Gateway and MX-ONE Classic. The TCP/IP network is physically connected to the MX-ONE via a dual connection. One connection is made via the NIC of the MX-ONE Service Node, which is the central part of the MX-ONE. The second connection, the media connection, is made via Media Gateway or MX-ONE Classic. This is shown in the example of a network configuration in figure 1-1.

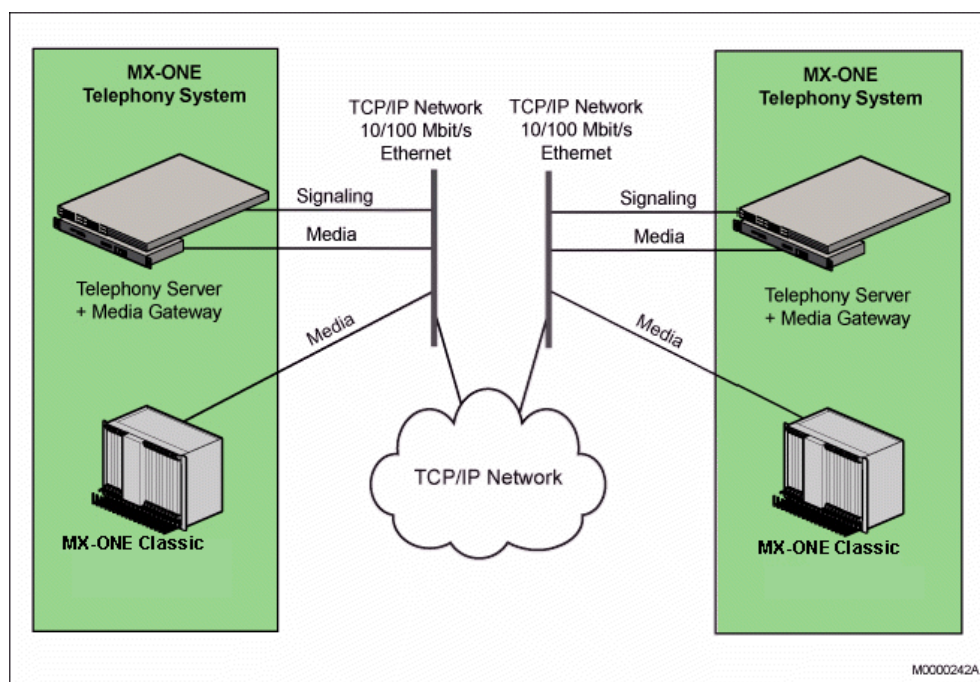


Figure 1: Example of network configuration between MX-ONE

An H.323 route is a set of H.323 trunk lines with the same traffic characteristics.

To be consistent with other types of routes, the concept of trunk line is kept for H.323 routes, although in the case of H.323 trunk lines there is no association with fixed physical connections in the hardware. Each H.323 trunk line is dynamically associated (on a per call basis) to one signaling channel in the MX-ONE Service Node and, if necessary, to one media channel in the Media Gateway or MX-ONE Classic.

Note: H.323 routes support IPv4 addresses (only), and there are no plans to support IPv6 addresses.

The way to initiate H.323 routes is the same as for other route types (by the commands *ROCAI*, *RODAI*, *ROEQI*, and so on). However, it is necessary to provide some extra information for H.323 routes:

- signaling and media are kept separated, that is, all H.323 signaling related to the call on a certain route will use the signaling connection established through the MX-ONE Service Node NIC. The actual media communication will be carried out directly between endpoints or, in the case of gateway calls, between the endpoint and the Media Gateway or MX-ONE Classic (1 Example of network configuration between MX-ONE on page 3).
- A network interface can be shared by a number of routes. A route identifier is therefore used in traffic to discriminate which route an incoming call is using.
At the same time, the identifier is used to authenticate if the incoming signaling associated to a given call on the route comes from a known source. This is a kind of password to control access to the system.

1.2

GLOSSARY

For a complete list of abbreviations and glossary, see the description for *ACRONYMS, ABBREVIATIONS AND GLOSSARY*.

2 PREREQUISITES

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3 AIDS

I/O terminal.

4 REFERENCES

In these operational directions, references are made to the following documents:

Command Descriptions:	<i>Route Data, RO</i> <i>Application System Parameters, AS</i> <i>in the Technical Reference Guide, MML commands</i>
	<i>media_gateway_interface</i> <i>license_status</i> <i>in the Technical Reference Guide, unix commands</i>
Operational Directions:	<i>Route Data</i>

5 PROCEDURE

5.1 INITIATION

The following work flow must be followed when initiating an H.323 route:

- Configuration of IP-related, system-wide data.
- Initiation of an H.323 route.

5.2 REMOVAL

The following work flow must be followed when removing an H.323 route:

- Removal of an H.323 route.

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EXECUTION

6.1 CONFIGURATION OF IP-RELATED, SYSTEM-WIDE DATA

6.1.1 JITTER BUFFER

General

IP packets do not always take exactly the same amount of time to be transferred from their source to their destination; there is a variance in these times which is known as jitter. While jitter is usually low, it can be significant in heavily loaded networks.

High jitter causes a significant decrease in voice quality. To alleviate the negative effects of jitter, the FW/SW controlling the DSPs in the Media Gateway and MX-ONE Classic make use of a jitter buffer. Incoming RTP packets are kept in the buffer until it becomes full. The full buffer is then sent over to processing.

The jitter buffer is adaptive by default, but there is a trade-off for the size value. A too short buffer will cause voice packets to be dropped, whereas a too long buffer will introduce a noticeable delay in the voice communication.

A configurable static jitter buffer is also supported. To change the adaptive jitter buffer into a static one requires high knowledge of the system effects so such modification of the jitter buffer should only be performed by system experts.

6.1.2 CODECS RESTRICTION IN TRANSIT CALLS

General

It is possible to restrict the CODEC to be used in transit calls, where subsequent transcodings can spoil the speech signal quality. The use of the G.711 CODEC is best suited for this kind of calls and is set as default.

Prerequisites

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Execution

Key the command *ASPAC* with *PARNUM* = 236 to change the value of the application system parameter. *PARVAL*= 0 - no restriction, 1 - apply restriction.

Key the command *ASPAP* with *PARNUM* = 236 to verify the result.

6.1.3 CHANGE OF THE SERVICE DISCRIMINATOR FOR AUDIO AND SIGNALING

General

It is possible to assign different priorities to packets in an IP network by means of the Differentiated Services (DS) field, formerly known as Type of Service (ToS), in the IP packet header. The Differentiated Services (DS) field is also called Diffserv. Audio and signaling packets are assigned to a higher priority than ordinary, non-real-time data traffic.

The Diffserv value is not meant to be modified by the user. Its value is defined in the *system.conf* file, which is distributed to all LIMs at system initiation.

6.2

H.323 ROUTE

6.2.1

INITIATION OF AN H.323 ROUTE

General

The way to initiate H.323 routes is the same as for other route types (with the commands *ROCAI*, *RODAI*, *ROEQI*, and so on). However, it is necessary to provide some extra information for the configuration of H.323 routes. This extra information can be given at any moment with the *media_gateway_interface* command once the *ROCAI* and *RODAI* commands have been entered.

Note: Other route features/characteristics are initiated as for other types of routes, see operational directions for *ROUTE DATA* .

Prerequisites

The H.323 route must have been previously initiated as any other type of route, see operational directions for *ROUTE DATA*.

A license for each H.323 trunk line to be initiated (EXTERNAL-LINE-H323) must be available. Use the command *license_status*.

If the H.323 route has been initiated with network services support, a license for each H.323 trunk line to be initiated (EXTERNAL-LINE-H323-SERV license) must be available. Use the command *license_status*.

Execution

Key the RODAP command to verify that the route has been defined as H.323 (TYPE = TL65).

A unique local route identifier should usually be provided. See the description for *IP NETWORKING* to know when it is admissible not to provide one. Key the *media_gateway_interface* command to print the identifiers of all the system H.323 routes.

Key the *media_gateway_interface* command to provide the IP additional information for an H.323 route.

Note: Those parameters that are not entered in the *media_gateway_interface* command will take a default value (in case of the CODECS parameter) or will remain with no associated value (in case of the IP address and the route identifiers)

Key the *media_gateway_interface* command to verify the result.

6.2.2

REMOVAL OF AN H.323 ROUTE

General

An H.323 route is removed as any other type of route.

Note: The *ROUTE* command also removes the additional information for the H.323 route. So, no other specific command is needed.

Prerequisites

See operational directions for *ROUTE DATA*.

Execution

See operational directions for *ROUTE DATA*.

6.2.3

ALTERATIONS OF THE ADDITIONAL H.323 ROUTE INFORMATION

General

Once additional information for an H.323 route has been initiated (by the *media_gateway_interface* command), it is possible to change that information via the *media_gateway_interface* command. It is also possible to remove the value given to certain parameters (IP address, route identifiers) and to restore the default value of others (CODECs) by using some special values.

Prerequisites

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Execution

Key the command *RODAP* to verify that the route has been defined as H.323 (TYPE = TL65).

Key the command *media_gateway_interface* to print the current values.

If the local route identifier is to be provided, make sure that it is unique all through the system. If it is to be reset, make sure that there is no other route with any local route identifier.

If it is desired to reset the IP address, key the command *RODDP* to check that no destinations are still attached to the route.

Key the command *media_gateway_interface* to change the additional information for an H.323 route.

Key the command *media_gateway_interface* to verify the result.

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TERMINATION

Inform the system or IT department manager if any alteration is made.

If any system data have been changed, a data backup operation must be performed.