

Remote Extension, RE

OPERATIONAL DIRECTIONS



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INTRODUCTION

The remote extension feature makes it possible to have public terminals as extensions in the MX-ONE Service Node. The feature is implemented as generic extensions in the exchange.

This document contains operational directions for remote extensions, that is, the procedures for initiating and removing remote extensions when TDM type of public trunks are used. For a detailed description of the remote extension feature, see the description for *REMOTE EXTENSION*.

There is also an alternative Remote extension implementation using public SIP trunk, see the Operational Directions *REMOTE EXTENSION OVER SIP*.

1.1

TARGET GROUPS

This document is intended for personnel performing initiation and removal of remote extensions (both mobile and fix).

1.2

GLOSSARY

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

2

PREREQUISITES

Verify with the command *license_status* that the MX-ONE system has a valid license for remote extensions. The status printout should be MOBILE-EXTENSION, which is the license that is valid for both mobile and fix remote extensions.

If a license is missing or needs to be upgraded, contact the purchase office where the MX-ONE system was bought. When a new license file is received, see the operational directions for *ADMINISTRATOR USER'S GUIDE* section LICENSE HANDLING.

The remote extension feature requires a larger number of DTMF tone receivers, as it can activate functions like Inquiry, Alternation, and Conference. The DTMF character * is used to simulate the R or earth button (on analog telephones). To detect the DTMF tone, a key code receiver has to be connected during speech state to receive orders from the remote extension

A trunk that supports remote extensions should be installed for connection to the PSTN or PLMN.

3

TOOLS

An I/O terminal is used to enter the commands.

4 WORKFLOW

4.1 INITIATING REMOTE EXTENSIONS

The following steps describe the workflow for initiating a remote extension:

Use R1 number when dial tone is wanted (normal remote extension). Use R3 number when no dial tone is wanted, used when CSTA application controls further actions; for example, make call request.

1. Initiate the R1/R3 access number and, if A-number is not received for the remote extension, the R2 access number in the number series, 5.1.1 Initiating Access Numbers in the Number Series on page 7.

Note that routes can be configured to allow remote extensions to access MX-ONE without using access numbers.

2. Initiate a remote extension, 5.2.1 Initiating a Remote Extension on page 8.
3. If desired, name the remote extension, 5.3.1 Initiating a Name Identity for the Remote Extension on page 9.
4. Initiate the personal number, 5.4 Personal Number on page 10
5. Initiate an individual authorization code (required for the remote extension, if no A-number is received), 5.5.1 Initiating an Individual Authorization Code on page 10
6. Initiate number conversion data, 5.6.1 Initiate Number Conversion Data on page 11
7. Initiate the Recorded Voice Announcements (RVAs), 5.7.1 Initiating a Recorded Voice Announcement on page 12
8. Initiate a route and trunks, 5.8 Route and Trunks on page 13
9. Initiate the original A-number, 5.9 Original A-Number on page 14
10. Increase the callback time, 5.10 Callback / Recall Time on page 14

4.2

REMOVING REMOTE EXTENSIONS

The following steps describe the workflow for removing a remote extension:

1. Remove number conversion data, 5.6.2 Removing Number Conversion Data on page 12
2. Remove the name for the remote extension, 5.3.2 Removing a Name Identity for the Remote Extension on page 9
3. Remove individual authorization data, 5.5.2 Remove an Individual Authorization Code on page 11
4. Remove the personal number, 5.4 Personal Number on page 10
5. Remove the remote extension, 5.2.2 Removing a Remote Extension on page 9

The following steps apply only when no more remote extensions are initiated in the system:

1. Remove the R1, R2, and R3 access numbers, 5.1.2 Removing a Number From a Series on page 8
2. Remove the Recorded Voice Announcements, 5.7.2 Removing a Recorded Voice Announcement on page 13
3. Remove the trunks, 5.8.3 Removing a Route or Trunk on page 14
4. Decrease the call back time, 5.10 Callback / Recall Time on page 14

5 PROCEDURES

5.1 NUMBER SERIES

5.1.1 INITIATING ACCESS NUMBERS IN THE NUMBER SERIES

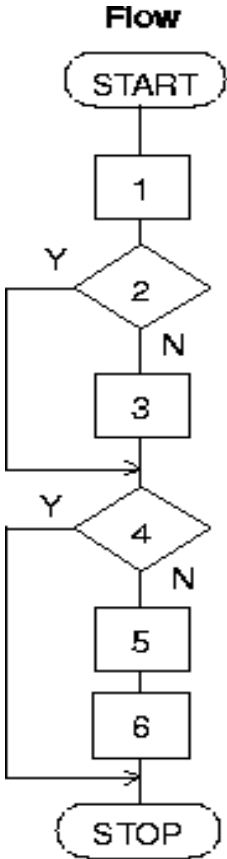
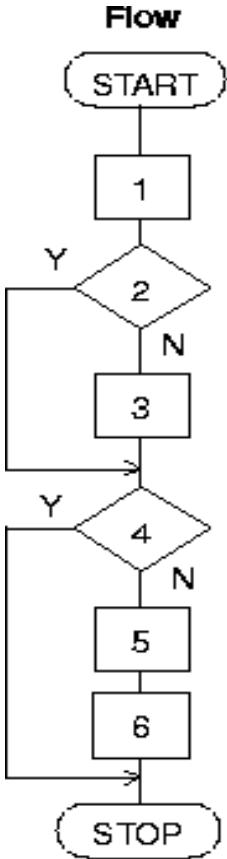
General

3 types of access numbers, called R1, R2, and R3 should be initiated for calls from a remote extension. These are access numbers within the direct in-dialing numbering plan that allow full access to the MX-ONE Service Node functionality. The R2 access number is not necessary if only fixed remote extensions exist in the system.

R1 and R3 number only differs with regard to dial tone. R1 number provides dial tone after completion. R3 does not provide dial tone after completion.

Routes can be configured to allow remote extensions to access MX-ONE without using access numbers. This function is managed on route level, using the **Route** task in MX-ONE Service Node Manager (Telephony>External Lines>Route). For more information on configuring routes, see parameter description for *ROUTE DATA*, *RO*.

Execution

		Measure/Question	Observation/ Comment
	1	Verify that the relevant numbers, R1 and R2, are not used by entering the command <i>number_print</i>	
	2	Is the R1 number to be initiated listed in the printout?	If YES, go to step 4.
	3	Initiate one access number with command <i>number_initiate</i> -numbertype r1. Normal remote extension. <i>number_initiate</i> -numbertype r3 when no dial tone is wanted after completion. This number, R1/R3, must be in the direct in-dialing numbering plan.	This number must be in the direct in-dialing numbering plan.
	4	Is the R2 number listed in the printout?	If YES, go to STOP.
	5	Initiate one access number with command <i>number_initiate</i> -numbertype r2.	This number must be in the direct in-dialing numbering plan.
	6	Enter the command <i>number_print</i> to verify the result.	

5.1.2

REMOVING A NUMBER FROM A SERIES

1. Enter the command *number_end* to remove the R1, R2 or R3 number from the number series.
2. Enter the command *number_print* to verify the result.

5.2

REMOTE EXTENSION

5.2.1

INITIATING A REMOTE EXTENSION**General**

A generic extension directory number is initiated as a remote extension by the *remote_extension* command.

Prerequisites

The directory number must be present in the extension number series (set by command *number_initiate*) and initiated as a generic extension (set by command *extension*) with an appropriate Common Service Profile (set by command *extension_profile*). See the operational directions for *GENERIC EXTENSION*.

Execution

1. Enter the command *extension -p -d* to verify the directory number data
2. Enter the command *remote_extension -i -d* to initiate the directory number as a remote extension.
3. Enter the command *remote_extension -p* to verify the result.

5.2.2

REMOVING A REMOTE EXTENSION

General

A generic extension directory number is ended as a remote extension by the command *remote_extension -e*. If the remote extension has an ongoing call, the removal will be denied. Once the remote extension has been removed, the directory number is ready to be assigned again to any type of generic extension.

Prerequisites

If the remote extension has an ongoing call, the call must be ended.

Execution

1. Enter the command *remote_extension -p* to check that the directory number has been initiated as an IP terminal
2. Enter the command *remote_extension -e* to terminate the directory number as a remote extension.
3. Enter the command *remote_extension -p* to verify the result.

5.3

NAME IDENTITY FOR THE REMOTE EXTENSION

5.3.1

INITIATING A NAME IDENTITY FOR THE REMOTE EXTENSION

General

The command *name -i* is used to associate a name with an individual, and it is specified using the *--name1* and *--name2* parameters. See the command description for *NAME IDENTITY*.

Execution

1. Enter the command *name -p* to obtain a printout
2. Initiate a name identity for the remote extension. Enter the command *name -i*.
See the command description for *name*.
3. Enter the command *name -p* to verify the result.

5.3.2

REMOVING A NAME IDENTITY FOR THE REMOTE EXTENSION

1. Enter the command *name -e* to remove the name for the remote extension.

2. Enter the command *name -p* to verify the result.

5.4 PERSONAL NUMBER

The remote extension number should be the personal number. This number should be the first choice in the first list. This is done in order to minimize the extending time for the operator when extending to a remote extension (to the public network). For information about this procedure, see the operational directions for *PERSONAL NUMBER*.

5.5 INDIVIDUAL AUTHORIZATION CODE

5.5.1 INITIATING AN INDIVIDUAL AUTHORIZATION CODE

General

On a call from a remote extension to an access number of type R2, the MX-ONE Service Node waits for the user to enter the remote extension's directory number plus an individual authorization code, denominated the PIN code. After a successful validation of the PIN code, the remote extension is granted full accessibility to the MX-ONE Service Node.

Execution

Flow		Measure/Question	Observation/ Comment
<pre> graph TD START([START]) --> 1[1] 1 --> 2{2} 2 -- Y --> 3[3] 3 --> 4[4] 4 --> STOP([STOP]) 2 -- N --> STOP </pre>	1	Enter the command <i>remote_extension -p</i> to verify that the remote extension is initiated.	Only for mobile extension.
	2	Is it a remote extension without an individual authorization code?	If NO, go to STOP.
	3	Enter the command <i>auth_code</i> to initiate authorization data for the remote extension.	See the command description for <i>AUTHORIZATION CODE FOR EXTENSION</i> , (individual authorization code).
	4	Enter the command <i>auth_code</i> to verify the result.	

5.5.2

REMOVE AN INDIVIDUAL AUTHORIZATION CODE

Execution

1. Enter the command *auth_code* to remove the individual authorization code.
2. Enter the command *auth_code* to verify the result.

5.6

NUMBER CONVERSION DATA

5.6.1

INITIATE NUMBER CONVERSION DATA

General

The received calling party number should be validated and transformed to the remote extension number by means of the number conversion function. If multiple terminals are associated to the remote extension, a number conversion must be initiated for each terminal.

Execution

		Measure/Question	Observation/ Comment
Flow <pre> graph TD START([START]) --> 1[1] 1 --> 2{2} 2 -- Y --> 4[4] 2 -- N --> 3[3] 3 --> 4[4] 4 --> STOP([STOP]) </pre>	1	Key the command <i>remote_extension -p</i> to verify that it is a remote extension	
	2	Does the remote extension already have number conversion data?	If YES, go to STOP.
	3	Enter the command <i>number_conversion_initiate -conversiontype 6</i> to initiate a number conversion for the remote extension.	The parameter -pre must be equal with the remote extension number. The parameter -truncate must be equal to the number of digits in the parameter -entry. The number before and after conversion must NOT be the same.
	4	Enter the command <i>number_conversion_print</i> to verify the result.	

5.6.2

REMOVING NUMBER CONVERSION DATA

General

-

Execution

1. Enter the command *number_conversion_end* to remove the number conversion data for the relevant entry. Only the conversions with relevant entry and with conversion type 6 should be removed.
2. Enter the command *number_conversion_print* to verify the result.

5.7

RECORDED VOICE ANNOUNCEMENTS

5.7.1

INITIATING A RECORDED VOICE ANNOUNCEMENT

General

An RVA can optionally be played to prompt the user to enter a PIN code (for R2 numbers). Also, a welcome announcement for individual calls can be provided to the calling party when the call is made to a remote extension. An RVA announcement is activated use the command *RACEI*. If the RVA is not activated, the user will by default hear the special dial tone.

Execution

For information on RVA commands and parameters, see the operational directions for *RECORDED VOICE ANNOUNCEMENT, RA*.

Flow		Measure/Question	Observation/ Comment
<pre> graph TD START([START]) --> D1{1} D1 -- Y --> P2[2] P2 --> P3[3] P3 --> STOP([STOP]) D1 -- N --> STOP </pre>	1	Is an RVA going to be initiated to prompt the user to enter PIN code?	If NO, go to STOP.
	2	Enter the command <i>RACEI</i> to state the vocal guidance traffic case and the vocal guidance announcement number.	See parameter description for <i>RECORDED VOICE ANNOUNCEMENT, RA</i> .
	3	Enter the command <i>RACEP</i> to verify the result.	

5.7.2

REMOVING A RECORDED VOICE ANNOUNCEMENT

When a remote extension is removed, it is not necessary to remove the RVA, but it is recommended if all remote extensions are removed. See the operational directions for *RECORDED VOICE ANNOUNCEMENT, RA*.

5.8

ROUTE AND TRUNKS

Initiating ISDN route and trunks differ from other trunk types, as described in the following subsections.

Routes can be configured to allow remote extensions to access MX-ONE without using access numbers. This function is managed on route level, using the **Route** task in MX-ONE Service Node Manager (Telephony>External Lines>Route). For more information on configuring routes, see *parameter description for ROUTE DATA, RO*.

5.8.1 INITIATING ISDN ROUTE AND TRUNKS

General

A direct route (mobile direct access) between the PLMN and the PBX offers possibilities for the public terminal (remote extension) to request PBX services in the same way as for other generic extensions.

In order to allow service requests by dialing a procedure, the direct access ISDN trunk should be initiated with a special value in the VARI parameter (command *RODAI*).

Execution

1. Initiate the ISDN route and trunks, see the operational directions for *ROUTE DATA*, RO, but the *RODAI* command shall state that this route is special for remote extensions by setting the eighth digit in the VARI parameter to an appropriate value (for example, VARI = xxxxxx1).
2. Enter the command *RODAP* to verify the result.

5.8.2 INITIATING ROUTE AND TRUNKS FOR OTHER TRUNK TYPES

General

The trunks offer the possibility to access the node where the remote extension is initiated within the private network.

Execution

To initiate the route and trunks, see the operational directions for *ROUTE DATA*, RO.

5.8.3 REMOVING A ROUTE OR TRUNK

See the operational directions for *ROUTE DATA*, RO.

5.9 ORIGINAL A-NUMBER

If it is possible to receive the original calling party number (A-number), the remote extension could show the calling party's number. The Original A-number feature gives the possibility to transfer the original calling party number with or without original type of number (TON), to an external party. To set up this feature, see the operational directions for *ORIGINAL A-NUMBER*.

5.10 CALLBACK / RECALL TIME

The standard time to answer a callback recall in MX-ONE Service Node is eight seconds. As the time to set up the connection to the remote extension can be longer than the standard time, the callback time should be increased use the command *ASPAC* (*PARNUM=29*).

5.11 TRANSFER SERVICE

The transfer service can be invoked by the user going on-hook or pressing a suffix digit. The transfer service is requested (on-hook or suffix digits) by use the command *ASPAC* (*PARNUM=217*). The suffix digit is also selected with *PARNUM = 217*.

5.12

INQUIRY

The Inquiry service can be invoked by the user by pressing a suffix digit procedure. The suffix digit procedure is set by the command *ASPAC* (*PARNUM* = 124).

5.13

HANDLING OF ETE-DTMF MODE

The command *ASPAC* with *PARNUM*=123 sets the handling of ETE-DTMF mode for the remote extension. The two options are to interpret the DTMF tone as a service request or as a tone that should be re-transmitted to the connected party.

5.14

STATUS PRINTOUT

To get a status printout, see the operational directions for *SYSTEM USER INFORMATION*.

6

EXAMPLES

6.1

EXAMPLE 1

This section includes an example showing the steps to initiate a remote extension.

R1 and R3 number provide the same service, except that R1 provides dial tone and R3 does not.

The example contains variables, as listed in the following table (with example values):

Table 1 Remote extension, example 1

Variable	Example Value
<R1_number>	8001
<R2_number>	8002
<R3_number>	8003
<Remote_extension_number> (directory number)	1111
<Public_number>	649421891
<Route_access_code>	00
<External_number_length>	11 (route access code + public number length)
<PIN_number>	1234
<Time>	30
<Suffix_transfer> (suffix digit for the transfer service)	11 (# key)
<Suffix_inquiry> (suffix procedure for inquiry)	A (* key)
<ETE-DTMF mode>	1

- Initiation of extension categories**

```
extension_profile -i --csp 1 --ext-cdiv 11500000 --ext-npres 001 --ext-roc 000001
--ext-serv 107071112000 --ext-traf 1100151515
```
- Initiation of the R1 and R2 numbers in the number series and other necessary number series for remote extensions**

```
number_initiate -numbertype r1 -number <R1_number>
number_initiate -numbertype r2 -number <R2_number>
number_initiate -numbertype r3 -number <R3_number>
number_initiate -numbertype ex -number <Remote_extension_number>
```
- Initiation of a remote extension**

```
extension -i -d <remote_extension_number> --lim 1 --csp 1
remote_extension -i -d <remote_extension_number> --remote-number
<external destination code + public number>
```
- Naming of the remote extension**

```
name -i -dir <Remote_extension_number> --name1 "DAVID" \ --name2
"ARKENSTONE"
```


- **Initiation of a personal number**
`call_list -i -d <remote_extension_number> --dest-number <remote_extension_number> --position 1 --list 1 --ringing_time <time>`
- **Initiation of an individual authorization code**
`auth_code -i --dir <Remote_extension_number> --auth-code <PIN_number> --csp 1 -code <Remote_extension_number>`
- **Initiation of number conversion data**
`number_conversion_initiate -entry <Route_access_code> <Public_number> -conversiontype 6 -truncate <External_number_length> -pre <Remote_extension_number>`
- **Initiation of a RVA to request R2 PIN**
`RACE!:VOCT=16,VOCGU=20;`
- **Increasing callback / recall time**
`ASPAC:PARNUM=29,PARVAL=30;`
- **Initiation of the suffix digit for Transfer**
`ASPAC:PARNUM=217,PARVAL=11;`
- **Initiation of the suffix procedure for Inquiry**
`ASPAC:PARNUM=124,PARVAL=A;`
- **Selecting the ETE-DTMF mode**
`ASPAC:PARNUM=123,PARVAL=1;`

6.2

EXAMPLE 2

Multiplicity can be added to example 1 by the following commands.

Table 2 Remote extension, example 2

Variable	Example Value
<Remote_extension_number> (directory number)	1111
<Public_number 2>	070112233
<Public_number 3>	073311224
<Remote_access_code>	00
<External_number_length>	11 (route access code + public number length)

- **Initiation of number conversion data**
`number_conversion_initiate -entry <Route_access_code> <Public_number 2> -conversiontype 6-truncate <External_number_length> -pre <Remote_extension_number>`
- **Initiation of number conversion data**
`number_conversion_initiate -entry <Route_access_code> <Public_number 3> -conversiontype 6 -truncate <External_number_length> -pre <Remote_extension_number>`

7

TERMINATION

Inform the department or person responsible for telephony matters if any alteration is made.

If any exchange data have been changed, a dump to backup media must be performed, see the operational directions for *ADMINISTRATOR USER'S GUIDE*.