

# Least Cost Routing, LC

OPERATIONAL DIRECTIONS



## NOTICE

The information contained in this document is believed to be accurate in all respects but is not warranted by Mitel Networks™ Corporation (MITEL®). Mitel makes no warranty of any kind with regards to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The information is subject to change without notice and should not be construed in any way as a commitment by Mitel or any of its affiliates or subsidiaries. Mitel and its affiliates and subsidiaries assume no responsibility for any errors or omissions in this document. Revisions of this document or new editions of it may be issued to incorporate such changes.

No part of this document can be reproduced or transmitted in any form or by any means - electronic or mechanical - for any purpose without written permission from Mitel Networks Corporation.

## TRADEMARKS

The trademarks, service marks, logos and graphics (collectively "Trademarks") appearing on Mitel's Internet sites or in its publications are registered and unregistered trademarks of Mitel Networks Corporation (MNC) or its subsidiaries (collectively "Mitel") or others. Use of the Trademarks is prohibited without the express consent from Mitel. Please contact our legal department at [legal@mitel.com](mailto:legal@mitel.com) for additional information. For a list of the worldwide Mitel Networks Corporation registered trademarks, please refer to the website: <http://www.mitel.com/trademarks>.

© Copyright 2016, Mitel Networks Corporation

All rights reserved

# 1

## GENERAL

The feature Least Cost Routing (LCR) is performed based on a number of program-mable data tables. These data tables are initiated, changed, erased and printed using commands. The LCR data tables include:

- External Number table (ENT)
- Number Length table (NLT)
- Destination Number tables (DNT1 and DNT2)
- Fictitious Destination table (FDT)
- Office Code Prefix table (OCPT)
- LIM Data

## 2

Other data related to LCR which reside in non-LCR data tables are:

- LCR access code (LAC) in *NUMBER ANALYSIS*
- Least Cost Routing Class of Service for ANALOG EXTENSION, IP EXTENSIONS, GENERIC EXTENSION and ROUTE DATA.
- OFF-HOOK Queuing threshold levels, LCR-only-indicator and Terminating Area Code (TERAC) for route in ROUTE DATA.

### 2.1 EXTERNAL NUMBER TABLE

Up to 50000 entries can be defined in this table. Each entry is defined as a block of data consisting of 4 data fields: ENTRY, TRC, PRE and CONF.

### 2.2 NUMBER LENGTH TABLE

Up to 1000 entries can be defined in this table. Each entry is defined as a block of data consisting of 7 data fields: ENTRY, TRC, PRE, MIN, MAX, CONF and ACF.

### 2.3 DESTINATION NUMBER TABLE

This table consists of 2 sub-tables. The Exceptions sub-table (DNT1) contains 5000 entries and the Number sub-table (DNT2) contains 5000 entries. Each entry is defined as a block of data consisting of 10 data fields: ENTRY, TRC, PRE, FRCT, TOLL, ACCT, CBCS, BTON, TNS and OSA.

Data fields ENTRY in DNT1 is first used for matching. If no match is found, the data field ENTRY in DNT2 is used.

### 2.4 FICTITIOUS DESTINATION TABLE

Up to 500 entries can be defined in this table. Each entry stores data field PRE.

### 2.5 OFFICE CODE PREFIX TABLE

Office code prefix is an optional function which applies for numbering plans of North American type.

There are 15 Office Code Prefix sub-tables (OCPT) and each of them contains up to 800 office codes, ranging from 200 to 999. Office codes inserted in such a table are marked as requiring a 1 prefix.

### 2.6 LIM DATA

Each LIM can be assigned a Data table which stores 2 data fields AC (own Area Code) and DEST (default external destination code in case of a mismatch).

## 2.7

## TRAFFIC MEASUREMENT

The traffic measurement is performed on the following:

- Number of call attempts per route choice
- Number of successful trunk seizures per route choice
- Number of calls seizing a record for On-hook queuing
- Number of queued calls being timed-out
- Accumulated queue-time

## 2.8

## TIME OF DAY

The LCR Time of day function is a supplement to the Least Cost Routing facility and can not be used separately.

The LCR Time of Day function is performed based on a Time/Day Table. It consists of data for 9 time/day zones, which form a matrix with 3 Day-groups and 3 Time-zones.

Days in a week are arranged by a default as follows:

First Day-group : Monday to Friday Second Day-group : Saturday Third Day-group : Sunday

Time-zones are not defined by a default and must be programmed in a way to cover a period of 24 hours per every used Day-group.

Data FDT1, FDT2, FDT3 are pointers to FDTn tables.

For example, the Time/Day table might look like the table in on page 5.

	group1	group2	group3	data
	↑	↑	↑	DAY
	MON-FRI	SAT	SUN	data
T-zone1	08:00-16:59 3	08:00-22:59 4	08:00-07:59 1	TIME1 FDT1
T-zone2	17:00-19:54 4	23:00-07:59 6	-----	TIME2 FDT2
T-zone3	19:55-07:59 7	-----	-----	TIME3 FDT3

**Figure 1: Time of day table**

When the LCR Time of Day function is introduced, the Fictitious Destination Table is divided into nine sub-tables, each with 72 entries.

These nine sub-tables correspond to the nine available Time/Day-zones in the above mentioned matrix.

For example, FDT might look like the table in on page 6.

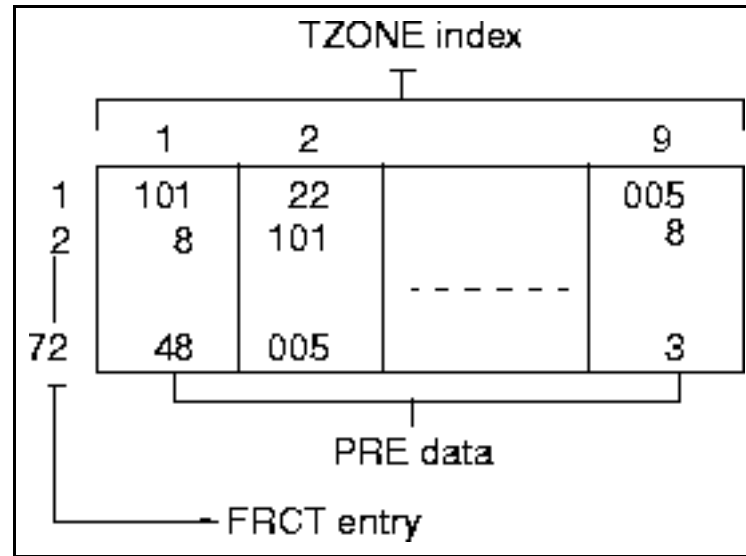


Figure 2: FDT, example

### 3

## PREREQUISITES

The number series for LCR access code must be initiated.

The Least Cost Routing Class of Service (LCR COS) must be initiated for extensions as well as for incoming tie lines. For PBX operators, LCR COS is set to the least restrictive level by a default.

External destinations that include affiliated route choices, OFF-HOOK Queuing threshold levels, LCR-only-indicator and terminating area code number must be initiated.

**Note:** If the external number length is not set with command `number_data_initiate`, see the operational directions for NUMBER ANALYSIS, NA, the number length used in the Number Length Table will be calculated through the whole LCR analysis using the prefix/truncated digits. The calculated number length will further in the external analysis be used as the external number length.

Every external destination in the fictitious destination table must be initiated as an external destination (ED).

The Least Cost Routing facility must be initiated.

A system time must be provided when table is in use. If not, the default value for Time-zone/Day-group is used.

**4****AIDS**

I/O terminal.



## **5 REFERENCES**

--

## 6

## PROCEDURE

### 6.1

### LEAST COST ROUTING DATA

During the initiation of LCR data, the following procedure shall be used:

1. Initiate ENT table data
2. Initiate NLT table data
3. Initiate FDT table data
4. Initiate DNT table data
5. Initiate OCPT table data (if applicable)
6. Other activities

A different order is required during the erasure of LCR data:

1. Erase ENT table data
2. Erase NLT table data
3. Erase DNT table data
4. Erase FDT table data
5. Erase OCPT table data (if applicable)
6. Other activities

The dialed number enters the ENT table first. After the analysis, a critical timing is initiated (if the number is marked as CONFLICT) or the number is rearranged and transferred to NLT (if a match is found) or the unchanged number is transferred to NLT (if a mismatch is found).

A similar procedure is applied when checking in NLT, regarding that the number is transferred to DNT1.

If a match in DNT1 is found, FDT is used for fetching an external destination for the External Analysis. If mismatch, DNT2 receives the number.

If a match in DNT2 is found, the same procedure as for DNT1 is applied. In the case of a mismatch, the call is routed to a pre-destined default destination.

As indicated above, the erasure of data in one table should be followed by the erasure of the corresponding data in the other tables.

For example, data in DNT can be initiated in such a way that only after rearranging of a dialed number in ENT or NLT, a match can be found in DNT. If the corresponding data in ENT or NLT is erased, the call will be routed to the default destination.

To obtain routing to the default destination, it is enough to erase data in the DNT table, but it is recommended to erase corresponding data in the other tables as well in order to achieve an easier handling and also saving of a table's storage space.

## 7

## EXECUTION

### 7.1

### EXTERNAL NUMBER TABLE (ENT)

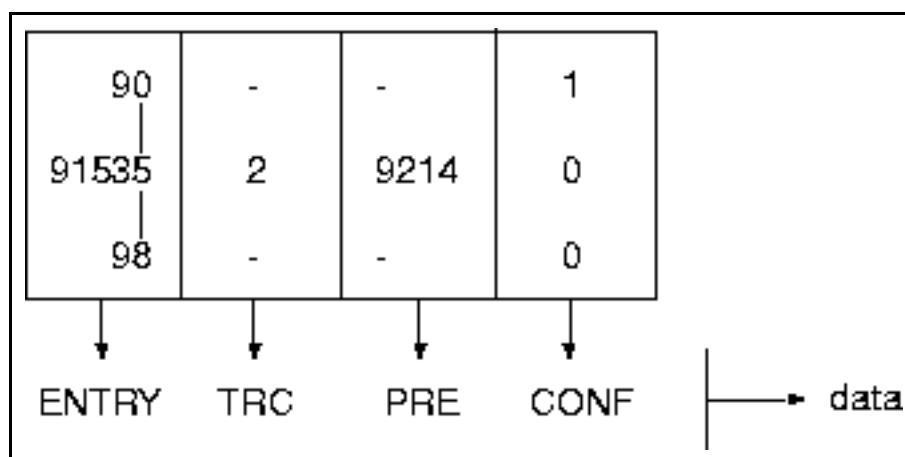
#### 7.1.1

#### INITIATION OF THE ENT TABLE DATA

##### General

The ENT can hold up to 50000 entries, each containing one to sixteen digits including the LAC.

For example, see on page 11.



**Figure 3: ENT table**

ENT is used to distinguish conflicting numbers and to avoid conflict situations which may occur for markets using a complex Numbering Plan.

When one type of a call is represented by a number which is the same as the beginning of a number representing some other type(s) of call, and when it is not defined to use LCR facility, a critical timing must be used to decide that the last digit of the number is received.

There are three possible cases:

- 1) If time-out occurs, the number is to be rearranged according to the data in ENT. If the rearranged number is to a public destination, the LCR analysis will continue. If the rearranged number is an internal or external private number, complete or incomplete (that is, more digits to be expected) number, the number analysis will continue, according to the type of number dialed.
- 2) If more digits are dialed before time-out, the LCR analysis will continue.
- 3) If the number is not marked as a conflicting number, the number is to be rearranged according to the data in ENT, then analysis continues as in case 1 above.

Also, if the Numbering Plan defines a complex structure or a multiple definition of access codes to different districts in a country where the LCR facility is applied, it is required to transform them to one unique code.

According to this (for US application), the previous table can be explained as follows:

Digit 9 represents LAC.

Digits 9214 represent LAC + adjacent NPA AC (see below)

**Note:** If this number is a conflict number in NLT the number length will be calculated on the rearranged number's length (9214535).

Digit 0 after LAC can be call for: Operator, Operator assistance, International call or International call with operator assistance and can be followed with none, one or several digits. According to that, no digits are truncated or prefixed but the number is marked CONFLICT and if additional digits are dialed the analysis continues in the NLT table.

Digit 1 after LAC is for calls to adjacent Area Code in the Numbering Plan (NPA AC). If match, the first two digits must be truncated and the number be prefixed with LAC + AC. After that, the analysis continues in the NLT table.

Digit 8 after LAC is the first digit of an Area Code or Office Code (AC/OC). No digits are to be truncated or prefixed. Continue the analysis in the NLT table.

### **Prerequisites**

Refer to 3 Prerequisites on page 7. Prerequisites.

### **Execution**

**Table 1** Initiate ENT table data

		Measure/Question	Observation/Comment
<b>Flow</b> <pre> graph TD     START([START]) --&gt; 1[1]     1 --&gt; 2{2}     2 -- Y --&gt; 4[4]     2 -- N --&gt; 4     4 --&gt; 5[5]     5 --&gt; 3{3}     3 -- Y --&gt; 6[6]     3 -- N --&gt; 4     6 --&gt; 7[7]     7 --&gt; 6{6}     6 -- Y --&gt; 7     6 -- N --&gt; 4     7 --&gt; STOP([STOP])           </pre>	1	Key the command <i>LCDDP</i> to verify existence of data .	
	2	Do the data to be initiated already exist?	
	3	Are data correct?	
	4	Key the command <i>LCDDI</i> to initiate data .	
	5	Verify the result with command <i>LCDDP</i> .	
	6	Are all data that should be initiated inserted?	
	7	Proceed with initiation of corresponding data in other tables.	Refer to other sections

## 7.1.2

## ERASURE OF THE ENT TABLE DATA

**General**

Erasure of data in the ENT table is based on the field ENTRY.

dialed numbers enter this table first and if data are erased, analysis will continue in the NLT table.

Refer to 6 Procedure on page 10.

**Prerequisites**

-

**Execution**

Table 2 Erase ENT table data

		Measure/Question	Observation/Comment
<p><b>Flow</b></p> <pre> graph TD     START([START]) --&gt; 1[1]     1 --&gt; 2{2}     2 -- N --&gt; C((C))     2 -- Y --&gt; 3{3}     3 -- N --&gt; C     3 -- Y --&gt; 4[4]     4 --&gt; B((B))     3 -- Y --&gt; 2           </pre>	1	Key the command <i>LCDDP</i> to verify existence of data.	
	2	Are there any data in the table?	
	3	Are there data that should be erased in the table?	
	4	Key the command <i>LCDDE</i> to erase data.	

**Table 3 Erase ENT table data, cont.**

		Measure/Question	Observation/Comment
<b>Flow</b> <pre> graph TD     A((A)) --&gt; D5{5}     D5 -- N --&gt; B((B))     D5 -- Y --&gt; R6[6]     R6 --&gt; R7[7]     R7 --&gt; STOP([STOP])     C((C)) --&gt; R6                     </pre>	5	Are all data that should be erased removed?	
	6	Key the command <i>LCDDP</i> to verify the result .	
	7	Proceed with erasure of corresponding data in other tables.	Refer to other sections

### 7.1.3

## CHANGE OF THE ENT TABLE DATA

### General

There is no specific command to change data in a table. Change is performed by the command *LCDDI* with new values for data. Previous values will be replaced.

### Prerequisites

Refer to 3 Prerequisites on page 7. Prerequisites.

### Execution

Refer to the section Initiation of the ENT table data, 7.1.1 Initiation of the ENT table data on page 11.

### 7.1.4

## PRINT OF THE ENT TABLE DATA

Data from the table are printed by command *LCDDP*.

## 7.2

## NUMBER LENGTH TABLE (NLT)

### 7.2.1

## INITIATION OF THE NLT TABLE DATA

### General

Up to 1000, one to six digits entries, including LAC, can be put into NLT.  
For example, see on page 16.

TAB = NLT						
900	-	-	3	3	0	0
9711	-	-	8	8	1	1
9911	1	-	4	4	0	0
9999	-	-	8	11	0	1
↓	↓	↓	↓	↓	↓	↓
ENTRY	TRC	PRE	MIN	MAX	CONF	ACF
						→ data

**Figure 4: NLT table**

NLT is used to distinguish conflict numbers and to avoid conflict situations which may occur for markets with a complex Numbering Plan.

When the Number Plan allows the same access code to different districts and to different areas within own district it is required to distinguish destinations to which a call will be routed. This is done by a help of minimum and maximum number lengths, as well as by a conflict number indicator.

Additional, there are cases when own area code must always be prefixed on dialed number, that is, there is no area code which could match the part of a dialed number after LAC.

According to this (for US application) the previous table can be explained as follows:

Digit 9 represents LAC.

Received number series 9711 refers to the external number which is possibly a conflict number, so if a time out after MIN number of digits is received, prefix with the own AC. If CONF=1, critical timing will be initiated after MIN number of digits is received. In this case own area code will be prefixed since ACF=1, otherwise not (ACF=0).

**Note:** If a number is marked as conflict and exists as an entry in ENT, MIN number length is calculated on the rearranged number. If the number does not exist in ENT as an entry MIN number length is calculated on dialed number.

Received number series 9999 must always be prefixed with own AC.

#### Prerequisites

Refer to 3 Prerequisites on page 7. Prerequisites.

#### Execution



**Table 4** Initiate NLT table data

		Measure/Question	Observation/Comment
<b>Flow</b> <pre> graph TD     START([START]) --&gt; 1[1]     1 --&gt; 2{2}     2 -- Y --&gt; 4[4]     2 -- N --&gt; 3{3}     3 -- Y --&gt; 4     3 -- N --&gt; 1     4 --&gt; 5[5]     5 --&gt; 6{6}     6 -- Y --&gt; 7[7]     6 -- N --&gt; 1     7 --&gt; STOP([STOP])           </pre>	1	Key the command <i>LCDDP</i> to verify existence of data .	
	2	Do the data to be initiated already exist?	
	3	Are data correct?	
	4	Key the command <i>LCDDI</i> to initiate data .	
	5	Verify the result with command <i>LCDDP</i> .	
	6	Are all data that should be initiated inserted?	
	7	Proceed with initiation of corresponding data in other tables.	Refer to other sections

## 7.2.2

## ERASURE OF THE NLT TABLE DATA

**General**

Erasure of data in the NLT table is based on the field ENTRY.

dialed numbers enter this table after an analysis in the ENT table and if data are erased, analysis will continue in the DNT tables.

Refer to 6 Procedure on page 10. Procedure.

**Prerequisites**

-

## Execution

Table 5 Erase NLT table data

		Measure/Question	Observation/Comment
<p><b>Flow</b></p> <pre> graph TD     START([START]) --&gt; 1[1]     1 --&gt; 2{2}     2 -- N --&gt; 4[4]     2 -- Y --&gt; 3{3}     3 -- N --&gt; 4     3 -- Y --&gt; 4     4 --&gt; 5{5}     5 -- N --&gt; 1     5 -- Y --&gt; 6[6]     6 --&gt; 7[7]     7 --&gt; STOP([STOP])           </pre>	1	Key the command <i>LCDDP</i> to verify existence of data .	
	2	Are there any data in table?	
	3	Are there data in the table that should be erased?	
	4	Key the command <i>LCDEE</i> to erase data .	
	5	Are all data that should be erased removed?	
	6	Key the command <i>LCDDP</i> to verify the result .	
	7	Proceed with erasure of corresponding data in other tables.	Refer to other sections

## 7.2.3

## CHANGE OF THE NLT TABLE DATA

**General**

There is no specific command to change data in a table. Change is performed by the command *LCDDI* with new values for data. Previous values will be replaced.

**Prerequisites**

Refer to 3 Prerequisites on page 7. Prerequisites.

**Execution**

Refer to the section Initiation of the NLT table data, 7.2.1 Initiation of the NLT table data on page 15.

7.2.4 PRINT OF THE NLT TABLE DATA

Data from the table are printed by command *LCDDP*.

7.3 DESTINATION NUMBER TABLE (DNT)

7.3.1 INITIATION OF THE DNT TABLE DATA

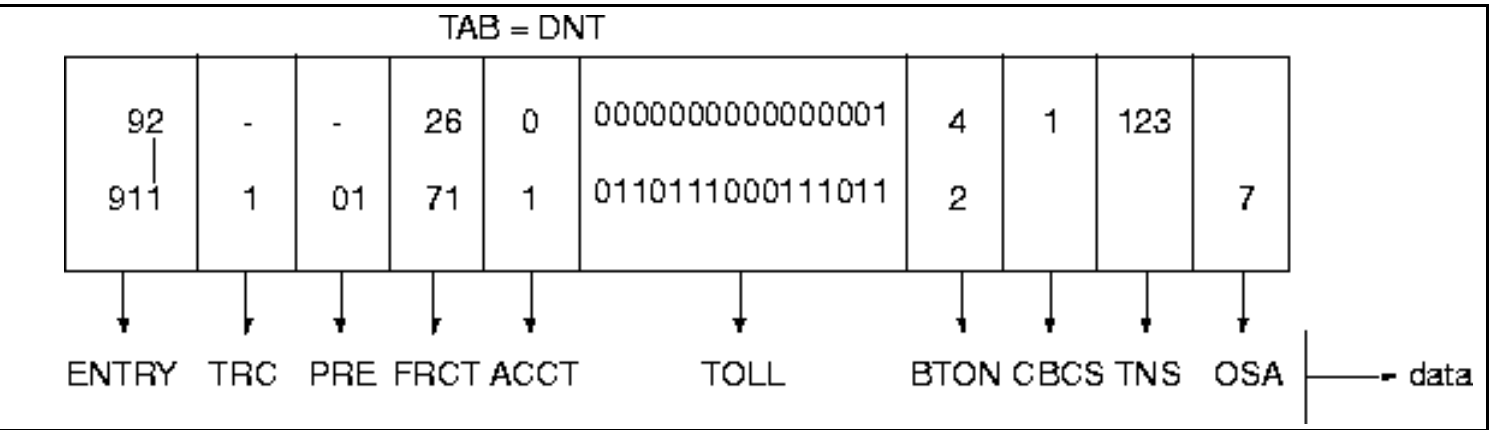
**General**

The DNT table is divided into two sub-tables, exceptions sub-table (DNT1) and number sub-table (DNT2).

Up to 5000, one to sixteen digits entries, including LAC, can be put into DNT1.

Up to 5000, one to eight digits entries, including LAC, can be put into DNT2.

For example, see on page 19.



**Figure 5: Destination number table, DNT**

Digit 9 represents LAC.

The system has no way to distinguish between eight or sixteen digits ENTRY because sixteen digits ENTRY can be represented with less digits. The user must be familiar with the Numbering Plan and choose the right value for parameter TAB: TAB=DNT1 (16 digits ENTRY) or TAB=DNT2 (8 digits ENTRY).

**Prerequisites**

Refer to 3 Prerequisites on page 7. Prerequisites.

**Execution**

**Table 6 Initiate DNT table data**

		Measure/Question	Observation/Comment
<p><b>Flow</b></p> <pre> graph TD     START([START]) --&gt; 1[1]     1 --&gt; 2{2}     2 -- Y --&gt; 4[4]     2 -- N --&gt; 4     4 --&gt; 5[5]     5 --&gt; 3{3}     3 -- Y --&gt; 6[6]     3 -- N --&gt; 4     6 --&gt; 7[7]     7 --&gt; STOP([STOP])     5 --&gt; 6{6}     6 -- Y --&gt; 7     6 -- N --&gt; 4           </pre>	1	Key the command <i>LCDDP</i> to verify existence of data .	
	2	Do the data to be initiated already exist?	
	3	Are data correct?	
	4	Key the command <i>LCDDI</i> to initiate data .	
	5	Verify the result with command <i>LCDDP</i> .	
	6	Are all data that should be initiated inserted?	
	7	Proceed with initiation of corresponding data in other tables.	Refer to other sections

## 7.3.2

## ERASURE OF THE DNT TABLE DATA

**General**

Erasure of data in the DNT tables is based on the field ENTRY.

dialed numbers enter the DNT1 table after an analysis in NLT. If data are erased, then DNT2 will be checked. If data in DNT2 is also erased, the call will be routed to the default destination.

Refer to 6 Procedure on page 10. Procedure.

**Prerequisites**

-

**Execution**

**Table 7 Erase DNT table data**

		Measure/Question	Observation/Comment
<p><b>Flow</b></p> <pre> graph TD     START([START]) --&gt; 1[1]     1 --&gt; 2{2}     2 -- N --&gt; 4[4]     2 -- Y --&gt; 3[3]     3 --&gt; 4{4}     4 -- N --&gt; 5[5]     4 -- Y --&gt; 6[6]     5 --&gt; 1     6 --&gt; 7[7]     7 --&gt; STOP([STOP])         </pre>	1	Key the command <i>LCDDP</i> to verify existence of data .	
	2	Are there any data in table?	
	3	Are there any data that should be erased in table?	
	4	Key the command <i>LCDDP</i> to erase data .	
	5	Are all data that should be erased removed?	
	6	Key the command <i>LCDDP</i> to verify the result .	
	7	Proceed with erasure of corresponding data in the other tables.	Refer to other sections

### 7.3.3

## CHANGE OF THE DNT TABLE DATA

### General

There is no specific command to change data in a table. Change is performed by the command *LCDDI* with new values for data. Previous values will be replaced.

### Prerequisite

Refer to 3 Prerequisites on page 7. Prerequisites.

### Execution

Refer to the section Initiation of the DNT table data, 7.3.1 Initiation of the DNT table data on page 19.

#### 7.3.4 PRINT OF THE DNT TABLE DATA

Data from the table are printed by command *LCDDP*.

## 7.4 FICTITIOUS DESTINATION TABLE (FDT)

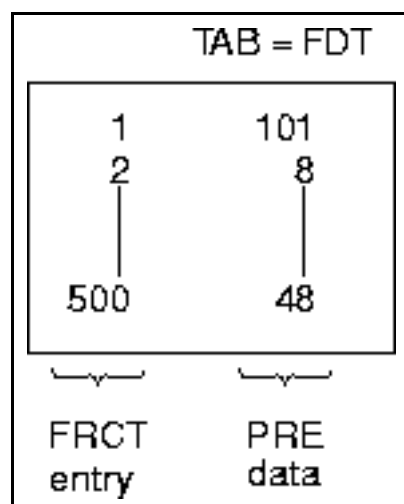
### 7.4.1 INITIATION OF THE FDT TABLE DATA

#### General

The FDT table is a table with 500 entries. Each of these entries can store up to 20 digits to be used for prefixing the analyzed number.

The FRCT parameter in the DNT tables refers to an entry in FDT.

For example, see on page 22.



**Figure 6: Fictitious destination table, FDT**

#### Prerequisites

Refer to 3 Prerequisites on page 7. Prerequisites.

#### Execution

Table 8     Initiate FDT table data

		Measure/Question	Observation/Comment
<pre> graph TD     A((A)) --&gt; START([START])     START --&gt; 1[1]     1 --&gt; 2{2}     2 -- Y --&gt; 3[3]     2 -- N --&gt; 3     3 --&gt; 4[4]     4 --&gt; B((B))                     </pre>	1	Check that chosen external destination exists and that associated data are correct.	See operational directions for <i>ROUTE DATA</i> .
	2	Exist external destination and are associated data correct?	
	3	Initiate or change data for external destination.	See operational directions for <i>ROUTE DATA</i> .
	4	Key the command <i>LCDDP</i> to verify existence of data.	

**Table 9** Initiate FDT table data, cont.

		Measure/Question	Observation/Comment
<p><b>Flow</b></p> <pre> graph TD     A((A)) --&gt; B((B))     B --&gt; D5{5}     D5 -- Y --&gt; D6{6}     D5 -- N --&gt; P7[7]     D6 -- Y --&gt; P8[8]     D6 -- N --&gt; P7     P7 --&gt; P8     P8 --&gt; D9{9}     D9 -- Y --&gt; P10[10]     D9 -- N --&gt; A     P10 --&gt; STOP([STOP])           </pre>	5	Exist already data that should be initiated?	
	6	Are the data correct?	
	7	Key the command <i>LCDDI</i> to initiate data .	
	8	Verify the result with command <i>LCDDP</i> .	
	9	Are all data that should be initiated inserted?	
	10	Proceed with initiation of corresponding data in the other tables.	Refer to other sections

## 7.4.2

## ERASURE OF THE FDT TABLE DATA

**General**

Erasure of data in the FDT tables is based on the field FRCT.

FDT is checked after a match is found in DNT1 or DNT2. FDT data are connected with erasure of DNT data, and cannot be erased if referenced from DNT data.

Refer to 6 Procedure on page 10. Procedure.

**Prerequisites**

-

**Execution**



**Table 10 Erase FDT table data**

		Measure/Question	Observation/Comment
<p><b>Flow</b></p> <pre> graph TD     START([START]) --&gt; 1[1]     1 --&gt; 2{2}     2 -- N --&gt; 4[4]     2 -- Y --&gt; 3{3}     3 -- N --&gt; 4     3 -- Y --&gt; 4     4 --&gt; 5{5}     5 -- N --&gt; 1     5 -- Y --&gt; 6[6]     6 --&gt; 7[7]     7 --&gt; STOP([STOP])         </pre>	1	Key the command <i>LCDDP</i> to verify existence of data .	
	2	Are there any data in table?	
	3	Are there data to be erased in the table?	
	4	Key the command <i>LCDDP</i> to erase data .	
	5	Are all data that should be erased removed?	
	6	Key the command <i>LCDDP</i> to verify the result .	
	7	Proceed with erasure of corresponding data in the other tables.	Refer to other sections

### 7.4.3

### CHANGE OF THE FDT TABLE DATA

#### General

There is no specific command to change data in the table. Change is performed by the command *LCDDI* with new values for data. Previous values will be replaced.

#### Prerequisites

Refer to 3 Prerequisites on page 7. Prerequisites.

#### Execution

Refer to the section Initiation of FDT table data, 7.4.1 Initiation of the FDT table data on page 22.

#### 7.4.4 PRINT OF THE FDT TABLE DATA

Data from the table are printed by command *LCDDP*.

### 7.5 OFFICE CODE PREFIX TABLE (OCPT)

#### 7.5.1 INITIATION OF THE OCPT TABLE DATA

##### **General**

The OPCT table is used only for numbering plans of North American type. It is divided into 15 sub-tables, referring to a maximum of 5 different destinations for all routes in the system.

To each route there should be affiliated a sub-table number and every sub-table defines which OCs that shall be prefixed with digit 1 on dialed number.

Every sub-table can store up to 800 OCs counted from 200 to 999 (possible OC numbers).

Initiation of data is performed in two steps.

1. The number of the used sub-table is stored in Route Data Table and affiliated to the route number.
2. OCs are inserted in the sub-table to indicate that the OC number must be prefixed with digit 1.

##### **Prerequisites**

-

##### **Execution**

**Table 11 Initiate the OCPT table data**

		Measure/Question	Observation/Comment
<p><b>Flow</b></p> <pre> graph TD     START([START]) --&gt; 1[1]     B((B)) --&gt; 1     1 --&gt; 2{2}     2 -- Y --&gt; 3[3]     2 -- N --&gt; 3     3 --&gt; 4[4]     4 --&gt; 5{5}     5 -- Y --&gt; 6[6]     5 -- N --&gt; 6     6 --&gt; 7[7]     7 --&gt; A((A))     A --&gt; B         </pre>	1	Verify that the route exists.	See operational directions for <i>ROUTE DATA</i> .
	2	Does the route exist?	
	3	Initiate the route.	See operational directions for <i>ROUTE DATA</i> .
	4	Key the command <i>LCOPP:ROU= ...</i> to verify the existence of data.	Control of route to sub-table affiliation.
	5	Are data correct?	
	6	Key the command <i>LCOP/:ROU= ...,OCPT=..</i> to set route to sub-table affiliation.	
	7	Verify the result with command <i>LCOPP:ROU=...</i>	Control of route to sub-table affiliation.

Table 12 Initiate the OCPT table data, cont.

		Measure/Question	Observation/Comment
<b>Flow</b> <pre> graph TD     A((A)) --&gt; 8[8]     8 --&gt; 9{9}     9 -- Y --&gt; 8     9 -- N --&gt; 10[10]     10 --&gt; 11{11}     11 -- Y --&gt; 12[12]     11 -- N --&gt; B((B))     12 --&gt; 13{13}     13 -- Y --&gt; STOP([STOP])     13 -- N --&gt; B           </pre>	8	Key the command <i>LCOPP:OCPT= ...</i> to verify the existence of data.	Control of OC prefix with 1 data.
	9	Are the data correct?	
	10	Key the command <i>LCOP1:OCPT= ...,OC=...</i> to set OC prefix with 1 data.	
	11	Are all OC data set?	
	12	Key the command <i>LCOPP:OCPT= ...</i> to verify the data.	Control of OC prefix with 1 data.
	13	Are all route data set?	

## 7.5.2

## ERASURE OF THE OCPT TABLES DATA

**General**

Erasure of data is performed in two steps.

The first is to erase route-sub-table affiliation in the Route Data Table.

The second is to erase OC data in the sub-table, which means that the OC number must not be prefixed with digit 1.

**Prerequisites**

-

**Execution**

Table 13 Erase OCPT tables data

	Measure/Question	Observation/Comment	
<p><b>Flow</b></p> <pre>graph TD; START([START]) --&gt; 1[1]; 1 --&gt; 2{2}; 2 -- N --&gt; A((A)); 2 -- Y --&gt; 3{3}; 3 -- Y --&gt; 4[4]; 3 -- N --&gt; 4[4]; 4 --&gt; 5[5]; 5 --&gt; 6[6]; 6 --&gt; B((B)); D((D)) --&gt; 1; C((C)) --&gt; 6;</pre>	1	Key the command <i>LCOPP:ROU= ...</i> to verify the existence of data.	Control of route to sub-table affiliation.
	2	Are there any sub-table affiliated to the route?	
	3	Are data correct?	
	4	Key the command <i>LCOPE:ROU= ...</i> to erase route to sub-table affiliation.	
	5	Verify the result with command <i>LCOPP:ROU=...</i>	Control of route to sub-table affiliation.
	6	Key command <i>LCOPP:OCPT=...</i> to verify the existence of data.	Control of OC prefix with 1 data.

Table 14 Erase OCPT tables data, cont.

	Measure/Question	Observation/Comment	
<p><b>Flow</b></p> <pre>graph TD     A((A)) --&gt; D7{7}     D7 -- Y --&gt; A     D7 -- N --&gt; P8[8]     P8 --&gt; D9{9}     D9 -- Y --&gt; P10[10]     P10 --&gt; D11{11}     D11 -- Y --&gt; STOP([STOP])     D11 -- N --&gt; C((C))     D9 -- N --&gt; C     B((B)) --&gt; D((D))     D --&gt; C     </pre>	7	Are data correct?	
	8	Key the command <i>LCOPE:OCPT= ...,OC=...</i> to erase OC prefix with 1 data.	
	9	Are all OC data erased?	
	10	Key command <i>LCOPP:OCPT=...</i> to verify the result.	Control of OC prefix with 1 data.
	11	Are all route data erased?	

## 7.5.3

## CHANGE OF THE OCPT TABLES DATA

**General**

There is no specific command to change data in a table. Change is performed by erasing data with *LCOPE* and inserting new data with *LCOPI*.

**Prerequisites**

Refer to 3 Prerequisites on page 7. Prerequisites.

**Execution**

Refer to the sections Erasure of OCPT table data, 7.5.2 Erasure of the OCPT tables data on page 28, and Initiation of OCPT table data, 7.5.1 Initiation of the OCPT table data on page 26.

## 7.5.4 PRINT OF THE OCPT TABLES DATA

### **General**

Two different data can be printed.

- OCs which are marked to be prefixed with digit 1 are printed.  
Key the command *LCOPP:OCPT= ...*
- The sub-table number affiliated to the route is printed.  
Key the command *LCOPP:ROU= ...*

## 7.6 OTHER ACTIVITIES

### 7.6.1 INITIATION OF LIM DATA

#### **General**

Initiation of LIM data is not dependent on initiation of other data in LCR analysis.

#### **Prerequisites**

-

#### **Execution**

Table 15 Initiate LIM data

		Measure/Question	Observation/Comment
<p><b>Flow</b></p> <pre> graph TD     START([START]) --&gt; 1[1]     1 --&gt; 2{2}     2 -- N --&gt; 7[7]     2 -- Y --&gt; 3[3]     3 --&gt; 4{4}     4 -- N --&gt; 5[5]     4 -- Y --&gt; 3     5 --&gt; 6{6}     6 -- Y --&gt; 3     6 -- N --&gt; 7     7 --&gt; STOP([STOP])           </pre>	1	Verify chosen external destination for the default destination.	See operational directions for <i>ROUTE DATA</i> .
	2	Are there any data?	If not, see operational directions for <i>ROUTE DATA</i> to initiate a new external destination .
	3	Key the command <i>LCLDP</i> to check values of LIM data .	
	4	Are there any data to change?	
	5	Key the command <i>LCLDI</i> to initiate LIM data .	
	6	Is there more LIMs to check? See Note.	
	7	Verify the result with command <i>LCLDP</i> .	

## 7.6.2

## ERASURE OF LIM DATA

**General**

Erasure of data is based on the field LIM.

Numbers routed to default destination in LIMs without data will not be prefixed.

Erasure of LIM data is not dependent on erasure of other data in LCR analysis.



**Prerequisites**

-

**Execution**

**Table 16 Erase LIM data**

		Measure/Question	Observation/Comment
<b>Flow</b> <pre> graph TD     START([START]) --&gt; 1[1]     1 --&gt; 2{2}     2 -- Y --&gt; 3[3]     2 -- N --&gt; 4{4}     3 --&gt; 4     4 -- Y --&gt; 3     4 -- N --&gt; 5[5]     5 --&gt; STOP([STOP])                     </pre>	1	Key the command <i>LCLDP</i> to verify existence of LIM data .	
	2	Are there any LIM data?	
	3	Key the command <i>LCLDE</i> to erase LIM data .	
	4	Are there other LIMs to check? See Note.	
	5	Verify the result with command <i>LCLDP</i> .	

7.6.3

CHANGE OF LIM DATA

**General**

There is no specific command to change data in a LIM. Change is performed by the command *LCLDI* with new values for data. Previous data will be replaced.

**Prerequisites**

-

**Execution**

Refer to the section Initiation of LIM data, 7.6.1 Initiation of LIM data on page 31.

#### 7.6.4 PRINT OF LIM DATA

LIM data is printed by command *LCLDP*.

#### 7.6.5 INITIATION AND CHANGE OF TRAFFIC MEASUREMENT DATA

##### **General**

No data should be initiated or changed.

Traffic measurement counters are updated automatically by the system after every call attempt and every successful trunk seizure per route choice and also for every call requested for On-hook queuing.

##### **Prerequisites**

-

##### **Execution**

-

#### 7.6.6 ERASURE AND PRINT OF TRAFFIC MEASUREMENT DATA

##### **General**

The user should control start and stop time of a measurement to obtain useful results.

Besides the number of seizure attempts and successful seizures, an information about accumulated ON-HOOK Queuing time, number of queuing requests and number of requests that reached time out, is provided.

Erase of traffic measurement counters can be ordered by setting an affiliated parameter to a defined value.

##### **Prerequisites**

Refer to 3 Prerequisites on page 7. Prerequisites.

##### **Execution**

**Table 17 Erase and print Measurement data**

		Measure/Question	Observation/Comment
<p><b>Flow</b></p> <pre> graph TD     START([START]) --&gt; 1[1]     1 --&gt; 2{2}     2 -- N --&gt; STOP([STOP])     2 -- Y --&gt; 3[3]     3 --&gt; 4[4]     4 --&gt; 5[5]     5 --&gt; 6[6]     6 --&gt; 7{7}     7 -- Y --&gt; 3     7 -- N --&gt; STOP                     </pre>	1	Verify chosen external destination.	See operational directions for <i>ROUTE DATA</i> .
	2	Are there any data?	
	3	Key the command <i>LCTMP</i> to print the traffic measurement data and, optionally, to reset measurement counters.	System time is provided in the printout.
	4	Wait for chosen time period.	
	5	Check (system) time for an end of measurement.	
	6	Key the command <i>LCTMP</i> to print the traffic measurement data and, optionally, to reset measurement counters .	
	7	Are there more measurements?	

## 7.7

## INITIATION OF TIME/DAY TABLE DATA

### General

One Time-zone for each Day-group is generated as a default. If the user wants to define a second Time-zone, ONLY the beginnings of the new first and second zones must be defined.

The end of the first zone is one minute before the beginning of the second zone.

Also, the end of the second zone is one minute before the beginning of the first zone.

#### Prerequisites

The Least Cost Routing function must be initiated.

#### Execution

**Table 18 Initiate Time or Day table data**

		Measure/Question	Observation/Comment
<p><b>Flow</b></p> <pre> graph TD     START([START]) --&gt; 1[1]     1 --&gt; 2{2}     2 -- Y --&gt; 3[3]     2 -- N --&gt; 4{4}     3 --&gt; 4     4 -- Y --&gt; 5[5]     4 -- N --&gt; 2     5 --&gt; STOP([STOP])           </pre>	1	Key the command <i>LCTDP</i> to check values of Time-zones and FDT subtables .	
	2	Time-zone values correct?	
	3	Key the command <i>LCTDI</i> to initiate Time/Day data .	
	4	All data set?	
	5	Verify the result with command <i>LCTDP</i> .	

## 7.8

## ERASURE AND CHANGE OF TIME/DAY TABLE DATA

#### General

No data should be erased or changed in the table. Only possibility is to initiate new data by the command *LCTDI*. Old values will be replaced.

#### Prerequisites

-

### **Execution**

Refer to the section Initiation of Time/Day table data, 7.7 Initiation of Time/Day table data on page 35.

## **7.9**

### **PRINT OF TIME/DAY TABLE DATA**

Data from the table is printed by command *LCTDP*.

## 8

# TERMINATION

If exchange data have been altered a dump to backup media must be done.