

Traffic recording, TR

OPERATIONAL DIRECTIONS



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1

GENERAL

Traffic recording of a number of different measurement objects, e.g., voice extension or route, can be initiated. The maximum number of ongoing measurements in parallel is 250. For each measurement a measurement result is obtained that is stored in the program memory and also on a storage unit. The collection of measurement data from the measurement objects is initiated automatically at each quarter of an hour.

A congestion monitoring value can be initiated/alterd for the object route.

A special type of the traffic recording is performed for the Least Cost Routing (LCR) facility. Traffic recording for LCR cannot be initiated, interrupted or removed. It is active all the time and used counters are updated automatically and reset during a system reload as well as after each printout.

Results can be printed out. No dumping on a storage unit is available, therefore, results cannot be retrieved once printed.

1.1

CAPACITY AND LIMITATIONS

Measurement cannot be initiated on a subset of a previously initiated measurement.

A measurement object, for which the LIM parameter is specified upon measurement initiation, may be included in several simultaneous measurements. This is provided that the same LIM does not occur in more than one measurement. For example, if a measurement has been initiated on a number of voice extensions located in LIM 1 and LIM 2, then a new measurement on a voice extension can be initiated, provided that LIM 1 and LIM 2 are not included in the new measurement.

When initiating a measurement in which the DIR (directory number) parameter is indicated, a maximum of 255 DIR values can be stated in one and the same command. If a series of DIR values is given, a maximum of 255 series can be stated in each command.

When initiating a measurement specifying the BPOS (board position) or TRU (trunk line identity) parameter, a maximum of 8 BPOS values (or 32 TRU values) can be stated in one and the same command.

The data volume per measurement is 50 bytes per 15-minute period. Therefore, for example, for five measurements the data volume is seized at the following rate

$$5 \text{ (measurements)} \times 4 \text{ (quarters per hour)} \times 50 \text{ (bytes)} = 1000 \text{ bytes/hour}$$

A path to the local/network file system of the MX-ONE Service Node must be defined to indicate where to store data. See installation instructions for *TRAFFIC RECORDING*.

Similarly, the maximum storage space needed for 250 measurements for one month can be estimated as follows

$$250 \text{ (measurements)} \times 4 \text{ (quarters per hour)} \times 24 \text{ (hours per day)} \times 31 \text{ (days)} \times 50 \text{ (bytes)} = 36 \text{ Mbytes (approximately).}$$

The dumping process will fail if the file system capacity or user quota is exceeded. In this case, the data stored in the TM block internal memory will be lost. To prevent this situation from happening, it is recommended that the file system status and user quota usage be monitored periodically. An additional recommended measure is to delete the oldest traffic data files on a regular basis. Refer to section "Removal of outdated traffic recording files" for more information.

2 PREREQUISITES

The object under measure must be operational, and a path in the local/network file system must have been defined for storage purposes due to the finite storage capacity of the internal program memory. Finally the specific measurement(s) desired must be initiated. Do note that, should a valid path not be defined, then the traffic recording function will be inactive and it will not be possible to initiate any of the desired measurements. Refer to section "Capacity and limitations" for more information.

Dumping of measurement data to the desired location in the local/network file system takes place every time the internal memory is full, and also within 15 minutes past midnight.

The rate at which the internal memory gets filled up will depend on the number of simultaneous ongoing measurements initiated in the system. For instance, if only 12 parallel measurements are ongoing for 12 hours in a 24-hour period, then no dump will take place until the end of that 24-hour period. Do note that it is possible to order a printout of the traffic recording data at any moment via the *TRREP* I/O command.

When an attempt to dump traffic data takes place, the internal TM program memory will always be erased whether the dump attempt succeeds or not. If the file system space or user quota gets exhausted, the attempt will fail and an alarm will be issued.

When the system is reloaded, the measurement data in the internal memory is erased, while the data already dumped to the local/network file system remain intact.

3 AIDS

I/O terminal.

4 REFERENCES

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

Command descriptions Least cost routing, LC Traffic recording, TR

5 PROCEDURE

There are generally three steps involved in utilizing the traffic recording function. These are described as follows:

- Verify the free space in the file system and the user quota and check the correct operation of the xntpd service (Network Time Protocol Daemon, mandatory to synchronize the correct time among all the elements part of the MX-ONE solution).

- Define the path for storing the traffic data files and initiate the desired traffic recording measurement(s).
- Wait for the traffic data to be collected and order presentation of results.

6 EXECUTION

6.1 TRAFFIC RECORDING

6.1.1 INITIATION OF TRAFFIC RECORDING

General

The initiation command used depends on which measurement object traffic recording is to be initiated.

Prerequisites

The maximum number of concurrently ongoing measurements is 250.

A valid file system path to store the traffic data files must have been initiated via *TRDPI*.

Execution

Key in the appropriate command to initiate traffic recording on one, or some, of the following measurement objects:

<i>TRCBI</i>	Initiate traffic recording on common bell group
<i>TRCFI</i>	Initiate traffic recording DECT
<i>TRCOI</i>	Initiate traffic recording on conference
<i>TRCRI</i>	Initiate traffic recording MFC receiver
<i>TRCSI</i>	Initiate traffic recording MFC sender
<i>TRDDI</i>	Initiate traffic recording on dial tone delay
<i>TRDPI</i>	Initiate traffic recording on data processing
<i>TREXI</i>	Initiate traffic recording on voice extension
<i>TRIPi</i>	Initiate traffic recording on IP extension (SIP or H.323, GW RTP)
<i>TRKRI</i>	Initiate traffic recording on key code receiver (only for LIMs/MGWs with MX-ONE Classic)
<i>TRKSI</i>	Initiate traffic recording on key code sender (only for LIMs/MGWs with MX-ONE Classic)
<i>TRMBI</i>	Initiate traffic recording mobility
<i>TRMHI</i>	Initiate traffic recording measurement halt
<i>TROMI</i>	Initiate traffic recording on the manned-time for PBX operators
<i>TROPI</i>	Initiate traffic recording on PBX operator
<i>TRPBI</i>	Initiate traffic recording on internal (PBX) group hunting group number
<i>TRPGI</i>	Initiate traffic recording on paging equipment
<i>TRPEI</i>	Initiate traffic recording print and erase
<i>TRROI</i>	Initiate traffic recording on route

TRRSI	Initiate traffic recording route supervision value
TRTLI	Initiate traffic recording on external lines
TRTRI	Initiate traffic recording on tone receiver (only for LIMs with MX-ONE Classic)

To check which measurements are initiated enter:

TRDIP	List and verify initiated measurements
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6.1.2

INTERRUPTION OF TRAFFIC RECORDING

General

A traffic recording can be halted without erasure of collected traffic data for the stated measurement. If continuance of the same measurement is desired after it is halted then the measurement must first be ended and then re-initiated. If a measurement is ended, data collected earlier for that measurement will become inaccessible. See also the section Ending traffic recording in this document.

Prerequisites

Execution

Key the command *TRMHI*.

6.1.3

ENDING TRAFFIC RECORDING

General

The data in the directory for each measurement object are used to form unique search keys when printout of the measurement data of a measurement object is requested. When traffic recording is ended the directory data of the ended measurement will be erased, which means that the measurement data collected for this measurement will become inaccessible.

Prerequisites

Execution

Key the command *TRMEE*.

Key the command *TRDIP* to verify that the measurement has been removed from the directory.

6.1.4

ACTIVATE/DEACTIVATE TRAFFIC RECORDING

General

Traffic recording operations can be deactivated and reactivated by entering a command. Prior to a deactivation request all measurements must be ended. After the deactivation command, all traffic recording commands except the request to activate traffic recording will be rejected. They will not be accepted until the command to activate traffic recording is entered.

If a valid path for traffic recording data exists in the system, then activation requests without path will be accepted. Should the activation request contain a new valid path, the existing one will be overwritten and the request accepted as well.

If no valid path exists yet, then the activation request must include such a valid path.

Prerequisites

See Ending traffic recording before a deactivate request. All measurements must be ended.

Execution

Key the command as appropriate:

TRDPE Traffic recording data processing end

TRDPI Traffic recording data processing initiate

6.1.5

PRINTOUT OF THE INITIATED TRAFFIC RECORDING PATH

General

It is possible to get the current value of the path for storage of the traffic data files via I/O command. The resulting printout will also show whether the traffic recording function is active or not.

Prerequisites

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Execution

Key the **TRDPP** command.

6.1.6

PRINTOUT OF THE TRAFFIC RECORDING DIRECTORY

General

Information on the directory data of a traffic recording can be printed out. Data that are printed out include the type of measurement object, time and date when the measurement commences and ends. The format depends on the type of measurement object as well as the period requested when the command is entered.

Prerequisites

Execution

Key the command **TRDIP**.

6.1.7

PRINTOUT OF TRAFFIC RECORDING RESULT

General

Results of a traffic recording data collection can be obtained. Depending on the type of measurement object different measurement data are printed out. For example, the traffic intensity in Erlangs, the total number of calls, etc., are printed for the voice extension measurement object.

Prerequisites

Execution

Key the command **TRREP**.

To obtain the LCR traffic recording results, key the command **LCTMP**.

6.1.8 PRINT OUT AND ERASE TRAFFIC RECORDING RESULT

General

The following sequence is mainly used when an application on a PC is utilized to automatically pull data from the system using command *TRREP*. In this case the PC application will generate the required commands: they should not be entered manually. The PC application, in this case, can be used for data collection, storage, post processing, and/or presentation of traffic recording data.

Other external applications (e.g. performance manager software, like the Mitel Performance Analytics platform) can optionally be connected.

Prerequisites

The internal clocks of all the MX-ONE elements, including the external application, must be synchronized using the Network Time Protocol (NTP).

Execution

TRDIP Read in directory to PC

TRPEI (*) Inform traffic recording function that an external device is about to start reading the traffic recording data

TRREP:MENO=X; Read all traffic recording data for measure number x

TRPEE (*) Inform the traffic recording function that the external device has finished reading the data and now it can erase the data in the internal buffer.

Note: Commands not to be entered manually, and only to be used by an external device which automatically extracts TR data from the exchange.

6.2 CONGESTION MONITORING

6.2.1 INITIATION/ALTERATION OF CONGESTION MONITORING VALUE

General

Congestion monitoring denotes monitoring of the relationship between the total number of specified types of calls and the number of these calls that result in congestion. When the congestion monitoring value, i.e., the relationship value stated per mille (o/oo) is attained, an alarm will be issued to the alarm log. As default value the congestion monitoring value is set at 1000 o/oo.

Prerequisites

Route shall have been initiated.

Execution

Key the command *TRRSI* if the congestion monitoring value for a route is to be initiated or altered.

Key the command *TRRSP* to obtain verification.

6.2.2 PRINTOUT OF CONGESTION MONITORING VALUE

General

Information concerning the congestion monitoring value for a route can be obtained.

Prerequisites

Execution

Key the command *TRRSP* if the congestion monitoring value for a route is to be printed out.

6.3

REMOVAL OF OUTDATED TRAFFIC RECORDING FILES

General

The data stored in the internal memory of the TM block will be lost if dumping fails because the local/network file system has no space left, or the user quota has been exceeded. To avoid losing the newly-collected traffic data, it is recommended to delete the old traffic data files on a regular basis. The format of the data files name is DXYZZZ where X=dump number, Y=year number and ZZZ=day number of the year. For example, the name of the second dump file of January 29, 2004 is D1 4029.

Note: The first dump number is 0.

To remove any outdated traffic recording files, it is recommended that the corresponding traffic recording function should be ended. If the corresponding measurement is not ended, COMMAND LOST may occur when the traffic recording result print (*TRREP*) is keyed.

Prerequisites

The current user must have write permission on the traffic recording directory.

Execution

List the stored traffic files and remove the outdated ones using the usual file system commands such as **ls** and **rm**, or tools such as explorer and file manager.

6.4

SYSTEM TIME

General

The system time can never be changed by command. The Network Time Protocol is always active and guarantees that all the elements part of the MX-ONE solution have the same correct time.

Prerequisites

Execution

7

TERMINATION

If traffic recording or congestion monitoring has been initiated, removed or altered, then a new dump should be executed in order to retain the altered directory data if the system is reloaded.

If a system reload takes place, the measurement data in the internal TM memory will be lost, but the data already stored in the file system will remain intact.