

MiVoice MX-ONE Fault Location

FAULT TRACING INFORMATION



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FAULT LOCATING, GENERAL

This section gives an introduction to the different services and tools that may be helpful in locating faults in the MX-ONE Service Node.

The following items can be checked to help locate a problem in the system:

- The alarm log – Use the command *alarm* to print (list) alarms in the alarm log.
 - To update the alarm log with an alarm or to put in extra information regarding a specific alarm, use the command *alarm_noticed*.
- The diagnostic history log – Use the command *trace*
 - Use trace **-print 0** to print the history log.
- Status for the system – Use the command *status*
 - Use status **-system** to see the operational history and queue.
 - Use status **-lim** to see the start phase history.
 - Use status **-unit** to see program unit status.
- The system log, see 2.1 System Logs on page 4
- Program unit messaging communication blocking information – Use the command *block_flags*
- Program unit information (version, type) – Use the command *pu_info*

The following utilities may also be useful during troubleshooting:

- The command *trace* allows the tracing of messaging communication within and between program units.
- The command *trigger* allows the examination of the incoming messages before reaching the application code in a program unit.
- The command *pu_name* translates from program unit number to program unit name.

Note: Using the trace and trigger utilities may degrade system performance.

When a fault has occurred, it may be necessary to recover the system, see 5 Recovery on page 32.

2

LOGS

2.1

SYSTEM LOGS

System logs used by MX-ONE Service Node is based on standard Linux/Unix syslog. This enables the end user's system administrator to determine different types of information can be stored in various log files.

Syslog system also provides protection against filling your hard drive with log files.

2.1.1

LOG ENTRIES

- By default, all log entries are stored in **/var /log/messages** and log entries associated to the telephony application are also stored in **/var/log/localmessages**.
- Each log entry consists of one line.
- Each log entry has the following information: date, time, node name (hostname), programs, name, process ID, and message text.

2.1.2

LOG CONFIGURATION

As a filter function to the above default setting, you can create your own log files based on facility and severity.

Each log entry has been assigned a function of the application program (i.e. the program that creates the log entry) and dependent on situation is also assigned a severity level.

The configuration of the Linux/Unix syslog added in **syslog-ng.conf** file.

Note: Log configuration are optional and are not defined but must be created manually after installation, to create these filters requires a good knowledge of Linux / Unix.

2.1.2.1

Facility

A facility level is used to specify what type of program is logging the message. This lets the configuration file specify that messages from different facilities will be handled differently. The following facilities are used in MX-ONE, see table 1.

Table 1 Facilities used in MiVoice MX-ONE

Facility	Severity	Defined in the configuration file
sesPu	Application program unit that belongs to the service system (SES)	Local4
acsPu	Application program unit that does not belong to the telephony system and other applications that do not belong to the service system (SES)	Local5
nonPu	Unix style commands or mdsh	Local6
	Admission Notice (e.g. failed log-ons)	auth

2.1.2.2

Severity Level

Severity level of logging. The levels in the configuration file and in the program code are identical (have the same names).

Table 2 Severity level

Severity level	Description
emergency	System is unusable
alert	Action must be taken immediately
critical	Critical condition
error	Error condition
warning	Warning state
notice	Event that is unusual, but no error condition
info	Information
debug	Debug message

2.1.3

LOG ACCESS

To view the relevant parts of a log, see the information in the manual pages. Type: **man syslog.conf man syslogd man 3 syslog**.

2.1.4

SAMPLE LOG CONFIGURATION

Note: This is an example of a configuration, however, not a recommended configuration.

- All messages with a severity equal to or higher than **notice** are stored in **/var/log/messages**.
- In addition, all messages from ACS with a severity equal to or higher than **info** are stored in **/var/log/acs**.
- In addition, all messages from SES with a severity equal to or higher than **info** are stored in **/var/log/ses**.
- In addition, all messages from non-PUs with a severity equal to or higher than **info** are stored in **/var/log/non-pu**.
- In addition, all debug messages from SES, ACS, and non-PUs are stored in **/var/log/eri_sn_debug**.

You can find the above lines in the `/etc/syslog-ng/syslog-ng.conf.in` file as:

```
*.notice /var/log/messages
local5.info /var/log/acs
local4.info /var/log/ses
local6.info /var/log/non-pu
local4,local5,local6.=debug /var/log/eri_sn_debug
```

2.2 MIVOICE MX-ONE SERVICE NODE MANAGER LOGS

2.2.1 LOG SETTINGS

When faults are traced in MX-ONE Service Node Manager, there are logging settings to be made as well as log locations to know.

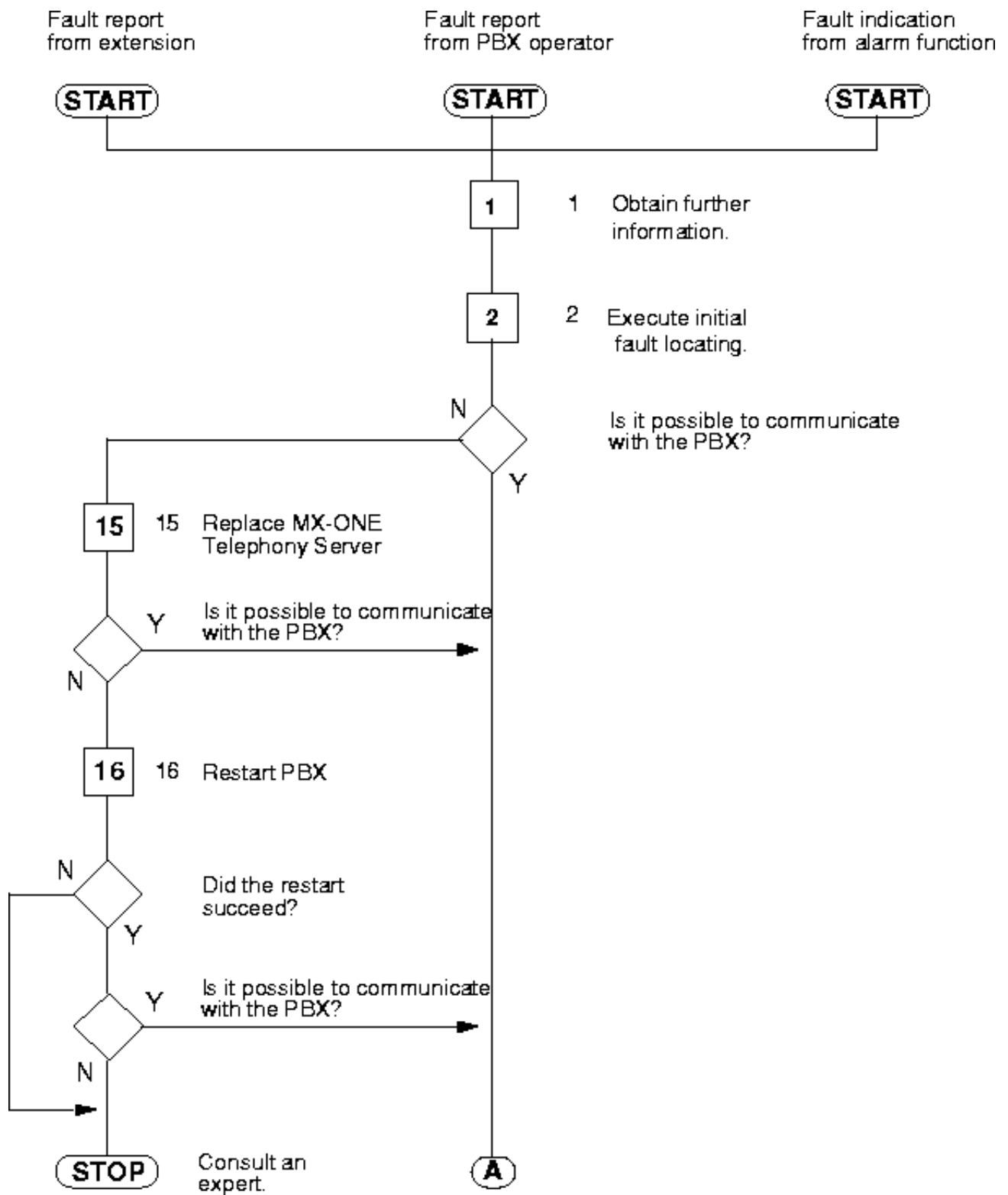
- To change logging level settings:
 - Edit the file `/opt/jboss/server/default/conf/log4j.xml`.
In the file there is a section towards the end that looks like this:

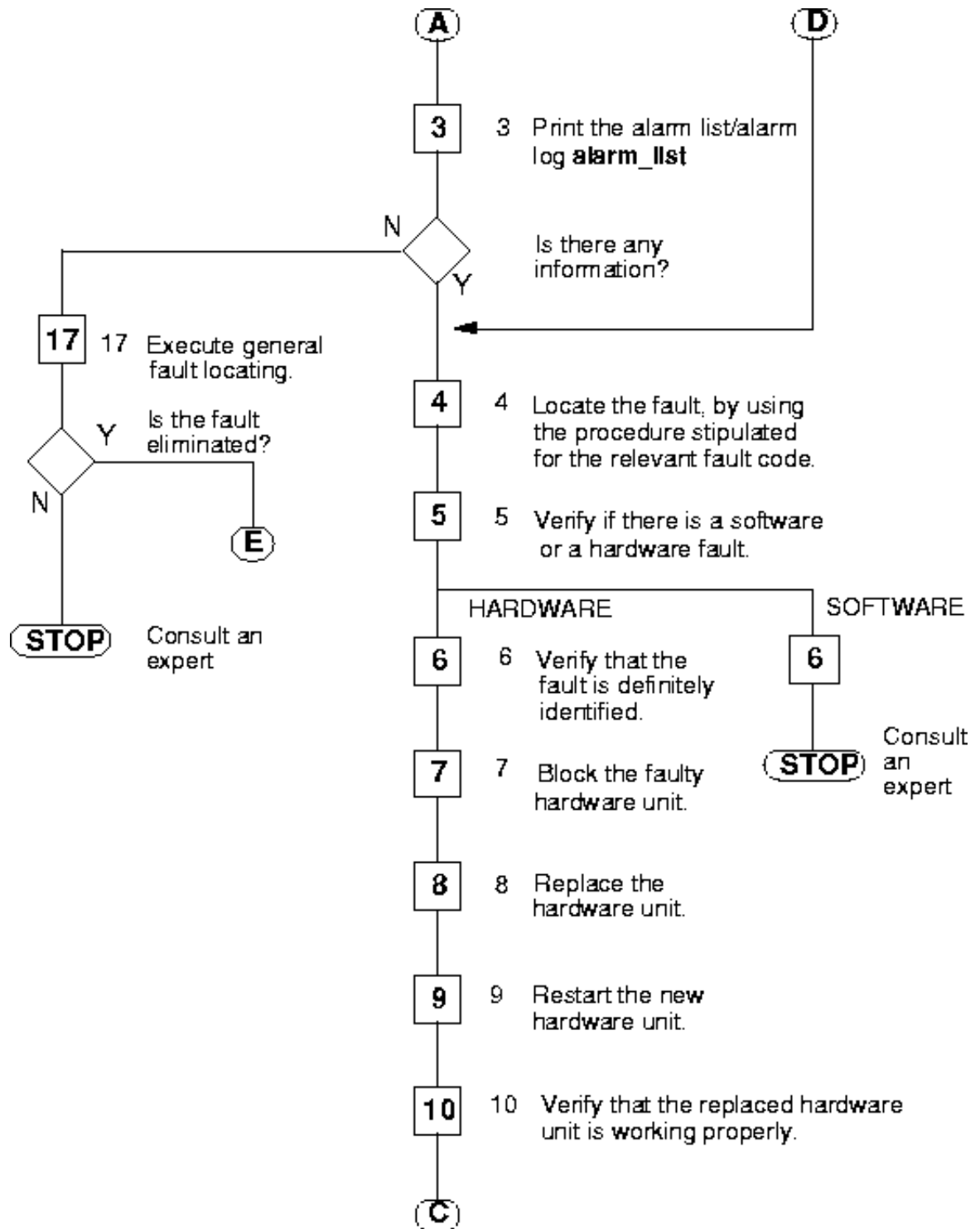

```
<category name="se.ericsson.ebc.emtsn">
<priority value="DEBUG" class="se.ericsson.ebc.emtsn.util.log.XLevel-Trace"/>
<appender-ref ref="WBM" />
</category>
```

 The priority value can be set to `[TRACE|DEBUG|INFO]`, where `TRACE` gives the most information.
- Logs to check out:
 - The log listed in step 1
 - All files in directory `/opt/jboss/server/default/log`

3

FAULT LOCATION FLOW





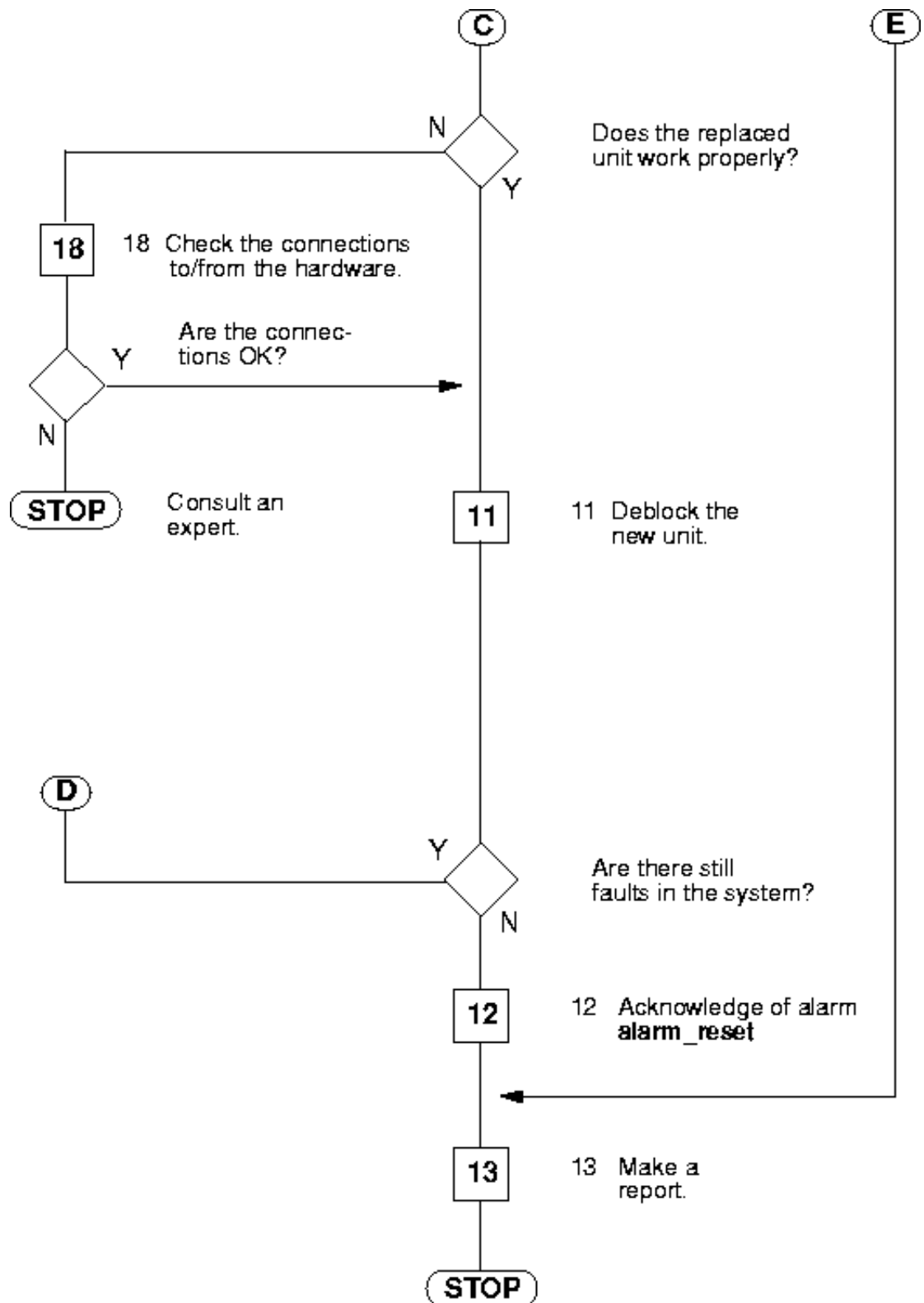


Figure 1: Fault Location Flow

3.1 SUBFLOW 1: COLLECTION OF FURTHER INFORMATION

3.1.1 GENERAL

When an alarm has been received from an installation, try to gather as much information as possible about the nature of the fault and the status of the installation.

This advance collection of data can, in certain cases, facilitate the elimination of the fault by the person reporting the fault, which means it is a handling (procedural) fault.

In other cases, the collection of this data means that the repairman can bring along the correct spare parts, tools, and instruments, and consequently, probably only one visit to the customer (installation) will be required.

3.1.2 COLLECTION OF DATA

3.1.2.1 *Fault report from extension*

Collect the following data:

- Type of extension
- Extension number
- Whether the fault has occurred once or several times.
- A detailed description from the person reporting the fault

With the person reporting the fault verify:

- That the correct procedure is being used.
- That the extension is authorized by category to use the facility in question.

From the logbook (or similar) obtain:

- The correct address of the installation (the customer's address)
- The customer's contact person for keys (if required) or other assistance
- Status of the PBX

3.1.2.2

Fault report from PBX operator

Collect the following data:

- A detailed description of the fault and at what stage and time the fault arose.
- Information if it is the only disturbance that has occurred.
- Information if the PBX operator knows whether any work has been done recently in the exchange.

If the PBX operator has obtained only one alarm class on the console, only relevant questions can be asked.

Ask the PBX operator:

- If the fault also affects other extensions with, for example, the same first digit.
- If the fault concerns external lines and whether the entire route has been put out of action.

Request help with the following:

- The correct address of the installation (the customer's address)
- The customer's contact person for keys (if required), or other assistance

Ascertain from the logbook (or similar):

- The status of the PBX

3.1.2.3

Alarm on alarm panel

If the PBX operator or other responsible person at the customer site is available, it is advisable to contact this person and request complementary information. For more information, see 3.1.2.1 Fault report from extension on page 10 or 3.1.2.2 Fault report from PBX operator on page 11.

If it is non-office hours, using operating routines ascertain how important the alarm class is.

Ascertain from the logbook (or something similar):

- The correct address of the installation (the customer's address)
- The customer's contact person for keys (if required) or other assistance
- The status of the PBX

3.2

SUBFLOW 2: INITIAL FAULT LOCATING

3.2.1

GENERAL

Carry out an initial fault locating before commencing proper fault locating.

With this procedure, in certain cases, it is possible to avoid disturbances in the telephony traffic caused by, for example, irrelevant device board replacements or blockings.

3.2.2

FAULT LOCATING

Attempt to make contact with the person responsible for the telephony traffic at the customer or, for small PBXes, the PBX operator. Question this person fully in order to obtain as complete a picture of the fault as possible.

Find out:

- If further faults have been reported.
- In case it is an extension fault, what the geographical locations of the extensions (cable fault to a certain building) are.

After this information is available fault locating in the exchange can start.

1. Examine the PBX fault diary/logbook to learn whether comments from previous visits by repair personnel can provide any guidance.
2. Commence fault locating by checking a number of peripheral matters:
 - Verify that power exists and if it does, verify the level.
 - Verify that no fuses have been blown.
 - Verify that the cabling has not been affected negatively.
 - Verify that no manual blockings have taken place.
3. Continue the fault locating process by using an I/O terminal.

3.3

SUBFLOW 3: PRINT ALARM LIST OR LOG

Enter the command *alarm* to print (list) alarms in the alarm log.

For detailed instructions about the use of the command or the interpretation of the print, or both, see the command *alarm*.

3.4

SUBFLOW 4: INDIVIDUAL FAULT CODE FLOWS

All fault locating directions for fault codes from the logbook can be found in their respective groups in 4 Fault Codes on page 16.

3.5

SUBFLOW 5: VERIFY IF SOFTWARE OR HARDWARE FAULT

The fault locating directions flows for the fault codes included in this version require no extra verification, that is, each flow for each fault code contains all measures.

3.6

SUBFLOW 6: VERIFY THAT THE FAULT IS UNAMBIGUOUS

The fault locating directions for the fault codes included in this version contain all the information necessary for the identification of the faulty unit.

3.7 SUBFLOW 7: BLOCK HW UNIT

The Hardware (HW) unit can be the Media Gateway, the MGU type of media gateway, or a printed board assembly (board) in the MX-ONE Classic.

Key the relevant command to block a faulty unit.

For detailed instructions concerning the blocking procedure, refer to the operational directions for *ADMINISTRATOR USER'S GUIDE*.

3.8 SUBFLOW 8: REPLACE HW UNIT

Before replacing the unit, make sure that:

- No functions are associated with it.
- There is no traffic on the unit.

For instructions concerning the replacement procedure, refer to the operational directions for *REPLACING MISCELLANEOUS HARDWARE* or for *REPLACING BOARDS IN MIVOICE MX-ONE MEDIA GATEWAYS*.

For detailed instructions concerning the installation of HW, refer to the installation instructions for *INSTALLING MIVOICE MX-ONE*, in section *HARDWARE INSTALLATION*.

3.9 SUBFLOW 9: RESTART HW UNIT

Key the relevant command to restart the new unit.

For detailed instructions concerning the blocking procedure, refer to the operational directions for *ADMINISTRATOR USER'S GUIDE*.

3.10 SUBFLOW 10: VERIFY FUNCTIONS OF REPLACED HW UNIT

To verify that the replaced unit is working properly, use normal routine procedures.

For detailed instructions concerning the verification of the connections, refer to the command description for *MEDIA GATEWAY*.

3.11 SUBFLOW 11: DEBLOCK HW UNIT

Key the relevant command to deblock a replaced unit.

For detailed instructions concerning the blocking procedure, refer to the operational directions for *ADMINISTRATOR USER'S GUIDE*.

3.12 SUBFLOW 12: ACKNOWLEDGE ALARM

Enter the command *alarm* to erase (reset) alarms in the alarm log.

For detailed instructions concerning the use of the command, refer to the operational directions for *ALARM HANDLING*.

3.13 SUBFLOW 13: REPORTING

3.13.1 GENERAL

The importance of reporting cannot be emphasized too frequently. A correct report is the best feedback to the responsible design instance. A good report is also an invaluable aid the next time fault elimination takes place.

3.13.2 MEASURES

After the fault has been dealt with and an alarm acknowledgment has taken place all measures are to be documented.

- Document the fault in the diary or logbook according to existing routines.
- Write a detailed fault report.
- Send the fault report on the relevant instance so that Mitel receives a copy.

Before leaving the exchange room, the following measures must be taken:

- Obtain new prints in respect of the altered data and file these in accordance with the applicable routines.
- Inform the person in charge of the system about the measures that have been executed in the exchange.
- Set the alarm so that it is issued to the PBX operator and exterior alarm points.
- Finally, inspect the exchange room.

3.14 SUBFLOW 15: MEASURES TO TAKE IF IT IS NOT POSSIBLE TO COMMUNICATE WITH PBX

Before restarting the faulty MX-ONE Service Node check:

When connected via console:

- That the I/O terminal is set up correctly.
- That the cable between the I/O terminal and the MX-ONE Service Node is the one specified in the documentation, and that there is no visible damage.
- That power exists to the relevant units.

Should the above not have the desired effect, try the following:

- Change the virtual terminal (when using a console) and make a new attempt.
- Use the ping command to check if the server is alive.

As a last step, restart the MX-ONE Service Node (3.15 Subflow 16: Restart on page 14).

3.15 SUBFLOW 16: RESTART

Restart the MX-ONE Service Node, refer to the operational directions for *ADMINISTRATOR USER'S GUIDE*.

3.16

SUBFLOW 17: MEASURES TO INITIATE WHEN IRRELEVANT INFORMATION IS OBTAINED

If the information obtained from the I/O terminal is unusable, for example a nonexistent fault code or incomprehensible text. Check the following:

- That the I/O terminal is set correctly (consult the I/O terminal instructions).
- That the I/O terminal is set up correctly.
- That the cable between the I/O terminal and the MX-ONE Service Node is the one specified in the documentation, and that there is no visible damage.

If nothing seems wrong, the I/O terminal and the cable are to be replaced one by one. Check the function after each replacement.

As a last step, restart the MX-ONE Service Node.

3.17

SUBFLOW 17: GENERAL FAULT LOCATING

As general telephony fault locating can be used as an entry document, refer to the fault locating instructions for *GENERAL FAULT LOCATION*.

3.18

SUBFLOW 18: MEASURES WHEN REPLACED HW DOES NOT WORK

If the Media Gateway has been replaced but still does not function after verification, check whether:

- A restart of the new unit has been carried out to allow the exchange to discover the new unit.
- The NFS server is active on the MX-ONE Service Node.
- The front cable (if any) is connected correctly.
- The correct IP address is set on Media Gateway interface *eth0*. If not changed, address 192.168.1.1. is used.

MX-ONE Classic:

If a relevant board in the MX-ONE Classic has been replaced but the unit still does not function after verification, check whether:

- A restart of the new unit has been performed to enable the exchange to discover the new board.
- The device board is placed in the correct position.
- The front cable (if any) is connected correctly.
- A good contact with the backplane has been obtained. Check the board contacts in the backplane.
- The board receives the correct voltage.

4

FAULT CODES

The events that occur are stored in the system alarm log. Each type of event has its own unique fault code. For the fault code to be stored in the alarm log it is necessary that it be assigned an alarm class (1-4). The alarm class states which priority an alarm has. Alarm class four has the highest priority.

The alarm that has been acknowledged by the system has alarm class zero.

Table 3 Alarm classes

Alarm Class	Severity level
4	Critical
3	Alert
2	Warning
1	Information
0	Cleared

By command it is also possible to define how many alarms may occur in a specific alarm class before an alarm in the next alarm class (incrementation alarm) is generated.

The following alarm domains exist:

- 0** MX-ONE compatible alarm.
- 1** SES - Service System.
- 2** ACS - MX-ONE (Advanced Communications System).
- 3** Other MX-ONE Service Node.
- 4** WBM - Web Based Management.
- 5** Media Gateway.

The following is valid only for Domain 0 - MX-ONE compatible alarms. The fault codes are divided into two different alarm groups:

- SES** Operational and maintenance system (fault code 1-255).
- ACS** MX-ONE (fault code 257-511).

Fault codes 1-255 refer to the Service System (SES). For explanations, see 4.1.1 Service System, SES, fault codes 1 - 255 on page 17.

Fault codes 257-511 refer to the Advanced Communication System (ACS). For explanations, see 4.1.2 Advanced Communications System, ACS, fault codes 257 - 511 on page 20.

On delivery the fault codes are assigned an alarm class and an alarm class after system acknowledgment. An incrementation alarm has also been set.

4.1

DOMAIN 0 - MX-ONE COMPATIBLE ALARMS

4.1.1

SERVICE SYSTEM, SES, FAULT CODES 1 - 255

Code	Description	Severity
10	Control system disturbance counter at top, see fault locating directions for FAULT CODE 10.	1
11	Device board in wrong position, see the fault locating directions for FAULT CODE 11.	4
12	No connection with device boards in one magazine, see the fault locating directions for FAULT CODE 12.	4
	ADD INFO 1: Faulty DSU magazine (0 - 3).	
13	No connection with device boards in LIM, see the fault locating directions for FAULT CODE 13.	4
14	Activation of device board has failed, see the fault locating directions for FAULT CODE 14.	2
15	Device board faulty or missing, see the fault locating directions for FAULT CODE 15.	2
23	Rollback of ldap data successful, see the fault locating directions for FAULT CODE 23.	1
25	SLIP on PCM line, see the fault locating directions for FAULT CODE 25.	3
29	Alarm log almost full, see the fault locating directions for FAULT CODE 29.	4
30	Incrementation alarm for alarm class, see the fault locating directions for FAULT CODE 30.	1
31	Incrementation alarm for alarm class 1, see the fault locating directions for FAULT CODE 31.	2
32	Incrementation alarm for alarm class 2, see the fault locating directions for FAULT CODE 32.	3
33	Incrementation alarm for alarm class 3, see the fault locating directions for FAULT CODE 33.	4
34	LIM out of order, see the fault locating directions for FAULT CODE 34.	3
	ADD INFO 1: States if common functions exist in the LIM.	
	ADD INFO 2: States if it was a short disturbance on signaling PCM-line.	
35	Traffic handling common function out of order, see the fault locating directions for FAULT CODE 35.	4
36	Fault correcting common function out of order, see the fault locating directions for FAULT CODE 36.	3
37	Ordinary common function out of order, see the fault locating directions for FAULT CODE 37.	2
40	Exchange data reloaded, see the fault locating directions for FAULT CODE 40.	1
42	Restoration of exchange data has failed, see the fault locating directions for FAULT CODE 42.	3
	ADD INFO 1:	
	0 Inconsistency between exchange data and program code.	
	1 Directory was not found.	
	2 File was not found.	
	3 Not permitted to access file.	
	7 One or more program units failed to restore data.	

Code	Description	Severity
	9 Time-out.	
	10 One or more program units responded incorrectly to restoration request.	
	11 The job was terminated by a job of higher priority.	
43	Program unit reloaded and restarted, see fault locating directions for FAULT CODE 43.	1
44	Reload of program code has failed, see the fault locating directions for FAULT CODE 44.	2
	ADD INFO 1:	
	3 Failed to execute file.	
	4 Time-out.	
	5 Incorrect response from program.	
45	LIM reloaded and restarted, see fault locating directions for FAULT CODE 45.	1
49	Restart of program unit has failed, see the fault locating directions for FAULT CODE 49.	2
	ADD INFO 1:	
	1 Phase 1.5	
	2 Restart phase 1	
	4 Restart phase 2	
50	Restart of LIM has failed, see fault locating directions for FAULT CODE 50.	3
	ADD INFO 1:	
	1 Phase 1.5	
	2 Restart phase 1	
	4 Restart phase 2	
	10 Start after data reload	
51	Device board individual manually blocked, see fault locating directions for FAULT CODE 51.	1
52	Device board manually blocked, see the fault locating directions for FAULT CODE 52.	1
53	Device board position already occupied, see the fault locating directions for FAULT CODE 53.	2
54	Program unit restarted, see the fault locating directions for FAULT CODE 54.	1
56	The system does not have an accessible backup, see the fault locating directions for FAULT CODE 56.	4
64	Recovery mode is set manual, see the fault locating directions for FAULT CODE 64.	4
65	Synchronization fault in LIM, see the fault locating directions for FAULT CODE 65.	4
	ADD INFO 1: States the type of fault on the synchronization.	
	ADD INFO 2: States the type of fault on the synchronization source.	
	ADD INFO 3: States the synchronization source of the LIM.	
66	Traffic handling common function faulty, see the fault locating directions for FAULT CODE 66.	3
67	Fault correcting common function faulty, see the fault locating directions for FAULT CODE 67.	2
68	Ordinary common function faulty, see the fault locating directions for FAULT CODE 68.	1
69	Common function is loaded in more than two LIMs, see the fault locating directions for FAULT CODE 69.	4

Code	Description	Severity
70	Too many side changes in the group switch, see the fault locating directions for FAULT CODE 70.	3
73	LIM restarted, see the fault locating directions for FAULT CODE 73. ADD INFO 1: 0 Normal LIM restart. 2 Disturbance counter at top. 6 Restart requested by application program. 9 Recovery from no contact with all device boards.	1
81	LIM manually blocked, see the fault locating directions for FAULT CODE 81.	1
82	High bit fault rate on PCM-link, see the fault locating directions for FAULT CODE 82.	3
88	Group Switch Module Clock Alarm, see the fault locating directions for FAULT CODE 88.	3
93	Backup of exchange data has failed, see the fault locating directions for FAULT CODE 93. ADD INFO 1: 0 Inconsistent exchange data. 4 Failed to create directory for exchange data files. 5 Failed to create exchange data file. 6 One or more program units in wrong state for backup. 9 Timeout. 10 One or more program units responded incorrectly to backup request. 11 The job was terminated by a job of higher priority.	2
97	Internal error on LSU board, see the fault locating directions for FAULT CODE 97. Additional text: States the type of LSU fault.	4
98	Signaling error in the LIM switch, see the fault locating directions for FAULT CODE 98. ADD INFO 1: States where the signaling error is encountered. ADD INFO 2: States the type of signaling error.	-
100	Internal error on DSU board, see the fault locating directions for FAULT CODE 100. Additional text: First: Faulty magazine (DSU board). Second: States the type of magazine (DSU fault).	3
101	Faulty clock processor, see the fault locating directions for FAULT CODE 101. Additional text: States the type of clock processor fault.	4
102	Power failure detected by DSU, see the fault locating directions for FAULT CODE 102. Additional text: First: States the magazine (DSU) number. Second: States missing voltage.	4
103	The DSU-board is blocked by command, see the fault locating directions for FAULT CODE 103. Additional text: States the DSU number.	1
104	Power failure detected by LSU, see the fault locating directions for FAULT CODE 104. Additional text: States the magazine (DSU) number.	4

Code	Description	Severity
112	Inconsistency between local backup and LIM memory, see the fault locating directions for FAULT CODE 112. ADD INFO 1: States the number of program units added since the last exchange data backup. ADD INFO 2: States the number of program units removed since the last exchange data backup. ADD INFO 3: States the number of program units loaded with a different program code since the last backup.	3
114	Device board has been activated, see the fault locating directions for FAULT CODE 114.	1
117	Hardware ID does not match license file, see fault locating directions for FAULT CODE 117.	4
118	License server out of order: Internal error or inconsistency, see fault locating directions for FAULT CODE 118.	4
120	Less than seven days of trial period left, see fault locating directions for FAULT CODE 120.	3
121	License server blocked: over license limit, see fault locating directions for FAULT CODE 121.	4
122	License counters out of synchronization, see the fault locating directions for FAULT CODE 122.	2

4.1.2

ADVANCED COMMUNICATIONS SYSTEM, ACS, FAULT CODES 257 - 511

Code	Description	Severity
259	Faulty FTU board, see the fault locating directions for FAULT CODE 259.	1
260	Fault on line to interworking PBX or public exchange, see the fault locating directions for FAULT CODE 260. ADD INFO 1: Individual pointer to TRS data individual. ADD INFO 2: Description of the type of line fault for external lines.	1
261	No connection with operator console, see the fault locating directions for FAULT CODE 261. ADD INFO 1: Individual pointer to OPS data individual.	3
263	Faulty MF sender or MF receiver, see the fault locating directions for FAULT CODE 263.	2
264	Faulty MF sender, see the fault locating directions for FAULT CODE 264.	2
265	Faulty MF receiver, see the fault locating directions for FAULT CODE 265.	2
267	Multi-Party resource faulty, see the fault locating directions for FAULT CODE 267.	1
268	Digital trunk out of order, AIS signal received, see the fault locating directions for FAULT CODE 268. ADD INFO 1: Individual pointer to TRS data individual.	4
269	Digital trunk, loss of frame synchronization, see the fault locating directions for FAULT CODE 269. ADD INFO 1: Individual pointer to TRS data individual.	4
270	Digital trunk, bit error in frame synchronization word, see the fault locating directions for FAULT CODE 270.	3

Code	Description	Severity
271	ADD INFO 1: Individual pointer to TRS data individual.	3
	Digital trunk, received alarm from remote end, see the fault locating directions for FAULT CODE 271.	
	ADD INFO 1: Individual pointer to TRS data individual.	
	ADD INFO 2: 0 Synchronization error in time slot 0.	
	1 Multiframe synchronization error in time slot 16.	
272	2 Yellow alarm (ITU-T).	4
	3 Remote multiframe alarm.	
	Digital trunk, loss of multiframe synchronization, see the fault locating directions for FAULT CODE 272.	
	ADD INFO 1: Individual pointer to TRS data individual.	
	Digital trunk, clock malfunction (slip), see the fault locating directions for FAULT CODE 274.	
274	ADD INFO 1: Individual pointer to TRS data individual.	2
	Statistic supervision, too short seizure of trunk, see the fault locating directions for FAULT CODE 275.	
	ADD INFO 1: Individual pointer to TRS data individual.	
	No connection with paging equipment, see the fault locating directions for FAULT CODE 276.	
	ADD INFO 1: Paging channel.	
277	Supervision value exceeded for paging equipment, see the fault locating directions for FAULT CODE 277.	2
	ADD INFO 1: Paging area.	
	ADD INFO 2: Mean waiting time.	
	ADD INFO 3: Defined value.	
	Digital trunk, unauthorized charging pulse, see the fault locating directions for FAULT CODE 280.	
280	ADD INFO 1: Individual pointer to TCS data individual.	1
	ADD INFO 2: Mean waiting time.	
	Quality error in interface to ICS computer, see the fault locating directions for FAULT CODE 281.	
	ADD INFO 1: Individual pointer.	
	Status error in interface to ICS computer, see the fault locating directions for FAULT CODE 282.	
282	ADD INFO 1: Individual pointer.	2
	Congestion value for Keycode Receiver reached, see the fault locating directions for FAULT CODE 283.	
	ADD INFO 1: Recorded congestion value in 1/100.	
	ADD INFO 2: Internal device record.	
	ADD INFO 3: Defined congestion value in 1/100.	
283	Congestion value for Tone Receiver reached, see the fault locating directions for FAULT CODE 284.	1
	ADD INFO 1: Recorded congestion value in 1/100.	
	ADD INFO 2: Internal device record.	
	ADD INFO 3: Defined congestion value in 1/100.	

Code	Description	Severity				
285	<p>Congestion value for CS (MFC) reached, see the fault locating directions for FAULT CODE 285.</p> <p>ADD INFO 1: Recorded congestion value in 1/100.</p> <p>ADD INFO 2: Internal device record.</p> <p>ADD INFO 3: Defined congestion value in 1/100.</p>	1				
286	<p>Congestion value for CR (MFC) reached, see the fault locating directions for FAULT CODE 286.</p> <p>ADD INFO 1: Recorded congestion value in 1/100.</p> <p>ADD INFO 2: Internal device record.</p> <p>ADD INFO 3: Defined congestion value in 1/100.</p>	1				
287	<p>Congestion supervision value reached for PCM-Line, see the fault locating directions for FAULT CODE 287.</p> <p>ADD INFO 1: Recorded congestion value in 1/100.</p> <p>ADD INFO 2: Internal device record.</p> <p>ADD INFO 3: Defined congestion value in 1/100.</p>	1				
288	<p>Congestion value for conference reached, see the fault locating directions for FAULT CODE 288.</p> <p>ADD INFO 1: Recorded congestion value in 1/100.</p> <p>ADD INFO 2: Internal device record.</p> <p>ADD INFO 3: Defined congestion value in 1/100.</p>	1				
289	<p>Congestion value for common bell reached, see the fault locating directions for FAULT CODE 289.</p> <p>UNIT The program unit that administers the common bell function.</p> <p>ADD INFO 1: Recorded congestion value in 1/100.</p> <p>ADD INFO 2: Internal device record.</p> <p>ADD INFO 3: Defined congestion value in 1/100.</p>	1				
290	<p>Congestion value for route reached, see fault locating directions for FAULT CODE 290.</p> <p>ADD INFO 1: Recorded congestion value in 1/100.</p> <p>ADD INFO 2: Route number subjected to congestion monitoring.</p> <p>ADD INFO 3: Defined congestion value in 1/100.</p>	1				
292	<p>Traffic recording data dump could not be executed, see the fault locating directions for FAULT CODE 292.</p> <p>ADD INFO 1: States the reason for the fault.</p>	1				
293	<p>Traffic recording internal memory data erased, memory full, see the fault locating directions for FAULT CODE 293.</p> <p>Attempt to dump traffic recording data failed and data in internal memory is lost.</p> <p>ADD INFO 1: States the reason for the fault.</p>	1				
294	<p>Traffic recording internal memory data erased, midnight dump, see the fault locating directions for FAULT CODE 294.</p> <p>ADD INFO 1: States the reason for the fault.</p>	1				
295	<p>Calendar time activation request denied, see the fault locating directions for FAULT CODE 295.</p> <p>ADD INFO 2:</p> <table><tr><td>0</td><td>No absolute individual free.</td></tr><tr><td>1</td><td>No repetition individual free.</td></tr></table>	0	No absolute individual free.	1	No repetition individual free.	1
0	No absolute individual free.					
1	No repetition individual free.					

Code	Description	Severity
	2 Incorrect ordering signal.	
	3 Clock invalid.	
	4 Request already initiated.	
	5 The passive calendar clock is being updated.	
296	Congestion value for Keycode Sender reached, see the fault locating directions for FAULT CODE 296. ADD INFO 1: Recorded congestion value in 1/100. ADD INFO 3: Defined congestion value in 1/100. ADD INFO 2: Internal device record.	1
297	Loss of power (-60 V), see the fault locating directions for FAULT CODE 297. ADD INFO 1: Recorded congestion value in 1/100.	1
298	Character error in the interface to information computer system, see the fault locating directions for FAULT CODE 298. ADD INFO 1: Individual pointer.	1
299	Digital trunk, wrong pattern received in idle state, see fault locating directions for FAULT CODE 299. ADD INFO 1: Pointer to the interface.	1
300	Digital trunk, seizure acknowledgment not received, see the fault locating directions for FAULT CODE 300. ADD INFO 1: Pointer to the interface.	1
301	Digital trunk, wrong bit pattern received after disconnection, see the fault locating directions for FAULT CODE 301. ADD INFO 1: Pointer to the interface.	1
302	Digital trunk, wrong bit pattern received in registration state, see the fault locating directions for FAULT CODE 302. ADD INFO 1: Pointer to the interface.	1
303	ISDN Data link alarm, see the fault locating directions for FAULT CODE 303. ADD INFO 1: Pointer to the interface. ADD INFO 2:	2
	0 0 = G fault, Unsuccessful data link establishment.	
	1 1 = H fault, No Data Link (DL)-RELEASE acknowledgment.	
	2 2 = Maximum retransmit count exceeded.	
	3 J fault, Invalid received sequence number.	
	4 K fault, Frame reject response.	
	5 A fault, Unexpected supervisory response	
	6 B, C, D, E fault, Unexpected Unnumbered acknowledgment (UA) or Disconnected Mode (DM) response.	
	7 F fault, Set Asynchronous Balanced Mode Extended (SABME) from peer received.	
	8 Q fault, Blocking received.	
	9 R fault, Disconnected Mode (DM) response received.	
	10 I fault, No response on Receiver Ready (RR) or Receiver Not Ready (RNR).	
	11 O fault, Received information field > N201 (260 Octets).	

Code	Description	Severity
	12 12= L fault, Undefined control field.	
	13 N fault, Received frame with incorrect length.	
	14 M fault.	
	15 P fault, N2X4, Maximum number of retransmissions of RNR frames exceeded	
	18 TEI removal received.	
	26 TEI removal received.	
305	Blocked trunkline by a manual switch on the board, see the fault locating directions for FAULT CODE 305. ADD INFO 1: Faulty TRS individual pointer.	1
306	Incoming call, the line pulses are not in range, see the fault locating directions for FAULT CODE 306. ADD INFO 1: Faulty TRS individual pointer.	1
307	Outgoing call, the line pulses are not in range, see the fault locating directions for FAULT CODE 306. ADD INFO 1: Faulty TRS individual pointer.	1
308	Analogue trunk, unauthorized charging pulse, see the fault locating directions for FAULT CODE 308. ADD INFO 1: Individual pointer to TCS data individual.	-
309	ISDN Data link alarm, bit error in bit stream (CRC-4), see the fault locating directions for fault code 309. The TLU-board has discovered a bit error in the incoming bit stream (CRC-4). ADD INFO 1: Pointer to interface ADD INFO 2: Bit error rate 0 => 1 / errored seconds 1 => 1 * 10 ^{EE -3} / severed errored seconds 2 => 1 * 10 ^{EE -6} / degraded minutes	1
310	ISDN excessive bipolar violation, see fault locating directions for FAULT CODE 310. ADD INFO 1: Pointer to TLU data individual.	1
311	ISDN failed signal state, see the fault locating directions for FAULT CODE 311. ADD INFO 1: Pointer to TLU data individual.	3
312	ISDN digital trunk, loss of signal, see the fault locating directions for FAULT CODE 312. ADD INFO 1: Pointer to TLU data individual.	3
313	ISDN excessive out of frame, see fault locating directions for FAULT CODE 313. ADD INFO 1: Pointer to TLU data individual.	1
314	ISDN bit error rate, see the fault locating directions for FAULT CODE 314 ADD INFO 1: Pointer to TLU data individual.	2
317	ISDN errored seconds, see the fault locating directions for FAULT CODE 317. ADD INFO 1: Pointer to TLU data individual.	2
319	Static semipermanent connection disturbance, see fault locating directions for FAULT CODE 319. ADD INFO 1: Specifies the failed connection's record pointer in the program unit SSM.	3

Code	Description	Severity
320	Telephony calls throttled, see the fault locating directions for FAULT CODE 320. ADD INFO 1: Server processor status. 0 Less than Yellow level of signaling response time delay. No rejection of calls. 1 Level1. Yellow to Red level of signaling response time delay. New internal calls are rejected. 2 Level 2. More than Red level of signaling response time delay. All new calls are rejected.	4
321	IP address blocked, see the fault locating directions for FAULT CODE 321.	3
324	Faulty TMU board, see fault locating directions for FAULT CODE 324. ADD INFO 1: Shows faulty function on the TMU board, or if the TMU board has been placed on an invalid board position.	2
330	No signaling link active within signaling link set, see the fault locating directions for FAULT CODE 330. ADD INFO 1: States the individual pointer to the TRS data individual, that is, the signaling link set. ADD INFO 2: States the signaling link set number. ADD INFO 3: States the cause of becoming out of service. B0 - B3: 0 Reception of consecutive LSSUs. 1 Intolerably high signal unit error rate. 2 Alignment unsuccessful. 3 Excessive delay of acknowledgments. 4 Two out of three unreasonable backward sequence numbers or FIB. 5 Layer 1 failure. 6 Time out T6 (remote congestion). 7 Board activation. 8 Excessive pause between consecutive signal units.	3
332	Excessive delay of acknowledgment message, see the fault locating directions for FAULT CODE 332. ADD INFO 1: Shows whether the message is for a board or a trunk individual. ADD INFO 2: States the pointer of the board or trunk individual. ADD INFO 3: States the code of the sent message.	2
333	Digital trunk group, excessive number of blocked lines, see the fault locating directions for FAULT CODE 333. ADD INFO 1: States the blocking group number. ADD INFO 2: States the calculated threshold value of blocked lines.	1
334	Digital transmission system faulty, see the fault locating directions for FAULT CODE 334. ADD INFO 1: States the pointer of the board individual.	2
336	Lost data from/to information computer system, see the fault locating directions for FAULT CODE 336. ADD INFO 1: Individual pointer.	3

Code	Description	Severity
	ADD INFO 2: Shows direction and type of lost data. <ul style="list-style-type: none"> 0 A message was not sent from the PBX to the information computer system. 1 A network message waiting message was not processed by the PBX due to network congestion. 2 A network waiting message was not processed by the PBX due to RM record congestion. ADD INFO 2: Shows information system identity. (Only used for ADD INFO 1 = 1 or 2.)	
337	Digital trunk, call setup message received for unassigned circuit, see the fault locating directions for FAULT CODE 337.	1
	ADD INFO 1: States the circuit identification code. ADD INFO 2: States the signaling link set number.	
339	Quality error in ANCD communication, see the fault locating directions for FAULT CODE 339.	2
	ADD INFO 1: Individual pointer. ADD INFO 2: <ul style="list-style-type: none"> 0 Faulty signal length. 1 Faulty checksum. 2 Faulty order. 	
345	Information Computer, faulty communication channel, see the fault locating directions for FAULT CODE 345.	2
	ADD INFO 1: Individual pointer.	
346	Information Computer output buffer overflow, see fault locating directions for FAULT CODE 346.	2
	ADD INFO 1: Individual pointer.	
347	Synchronization fault for DECT fixed part, see fault locating directions for FAULT CODE 347.	2
	ADD INFO 1: Pointer to faulty individual. ADD INFO 2: Description of the type of fault. <ul style="list-style-type: none"> 0 Loss of communication on RING I/F. 1 Loss of synchronization on RING I/F. 2 Loss of communication on BUS I/F. 3 Loss of synchronization on BUS I/F. 4 Unplugged RING cable transmitter side. 5 Unplugged RING cable receiver side. 6 Unplugged BUS cable, transmitter or receiver, or both. 12 Faulty operation of Automatic Cable Delay Measurement (ACDM). 	
348	Synchronization disturbance for DECT fixed part, see the fault locating directions for FAULT CODE 348.	2
	ADD INFO 1: Pointer to disturbance marked individual ADD INFO 2: Reload of Delay Compensation Counter Register when Initiating board, no measure. Manual restart of board, no measure. Broken or missing cable, or faulty LSU switch.	

Code	Description	Severity
	<p>Synchronization distortion caused by bad or disturbed cable. Very noisy environment requires shielded cables.</p> <p>Too long synchronization cable or too thin wires.</p> <p>Other media for DECT synchronization than copper is not approved.</p> <p>Repeaters in the DECT synchronization ring are not approved.</p>	
349	<p>Faulty RFP for DECT fixed part, see fault locating directions for FAULT CODE 349.</p> <p>ADD INFO 1: Pointer to faulty individual.</p> <p>ADD INFO 2: Description of the fault type.</p> <p>2 RFP initiated but not connected.</p> <p>4 RFP faulty.</p> <p>ADD INFO 3: Faulty Radio Fixed Part Number (RPN).</p>	2
350	<p>CSTA, faulty communication channel, see the fault locating directions for FAULT CODE 350.</p> <p>ADD INFO 1: Individual pointer to link group individual.</p>	2
358	SMS, faulty communication channel, see the fault locating directions for FAULT CODE 358.	2
359	<p>Routing Server, Faulty IP Connection to Satellite, see fault locating directions for FAULT CODE 359.</p> <p>ADD INFO 1: Description of the fault:</p> <p>0 First initiated IP connection is faulty.</p> <p>1 Second initiated IP connection is faulty.</p> <p>ADD INFO 2: Digits 1 - 4 in destination code to satellite.</p> <p>ADD INFO 3: Digits 5 - 8 in destination code to satellite.</p> <p>ADD INFO 4: Digits 9 - 10 in destination code to satellite.</p>	2
360	Routing Server, PNR table has been split, see fault locating directions for FAULT CODE 360.	2
362	Device board is at alarm level 2, see fault locating directions for FAULT CODE 362.	1
363	<p>IP device board, major fault, see the fault locating directions for FAULT CODE 363.</p> <p>ADD INFO 1: Individual pointer to device board.</p> <p>ADD INFO 2: Description of the type of alarm:</p> <p>1 Faulty connection.</p> <p>3 Network overflow.</p> <p>7 Network configuration error.</p> <p>8 SysCom message lost.</p> <p>9 SysCom backplane error.</p> <p>10 Configuration parameter invalid.</p> <p>11 EEPROM error.</p> <p>12 Default GW not reachable</p>	3
364	<p>IP device board, minor fault, see the fault locating directions for FAULT CODE 364.</p> <p>ADD INFO 1: Individual pointer to device board.</p> <p>ADD INFO 2: Description of the type of alarm:</p> <p>0 Unacceptable quality of service.</p>	3

Code	Description	Severity
	2 Jitter buffer overflow.	
	4 Network delay.	
	5 Faulty DSP.	
	6 Playout delay.	
	ADD INFO 3: Number of the faulty DSP (only valid when ADD INFO 2 =5).	
365	Device Fault, see the fault locating directions for FAULT CODE 365.	1
	ADD INFO 1: Type of fault	
	1 Ring lead on ELU34 is grounded.	
366	Inconsistency between defined ITYPE and active terminal, see the fault locating directions for FAULT CODE 366.	1
	ADD INFO 1: Directory number, Connected ITYPE.	

4.2

DOMAIN 1 - SES

Code	Description	Severity
1	High CPU load, see the fault locating directions for FAULT CODE 1:1.	3/4
2	Alarm block, AL, could not read configuration file, see the fault locating directions for FAULT CODE 1:2.	4
3	Configuration of SMDR database access is invalid, see the fault locating directions for FAULT CODE 1:3.	4
	ADD INFO 1: Output number.	
4	Write to SMDR database failed, see the fault locating directions for FAULT CODE 1:4.	4
	ADD INFO 1: Output number.	
5	Connect to SMDR database failed, see the fault locating directions for FAULT CODE 1:5.	4
	ADD INFO 1: Output number.	
6	Speech quality value at red level, see the fault locating directions for FAULT CODE 1:6.	3
7	Speech quality value at yellow level, see the fault locating directions for FAULT CODE 1:7.	2
8	Call information output queue almost full, see the fault locating directions for FAULT CODE 1:8.	2
	ADD INFO 1: Output number.	
9	Safety backup passed, see fault locating directions for FAULT CODE 1:9.	9
10	Safety backup failed, see the fault locating directions for FAULT CODE 1:10.	-
11	Faulty PCM Line, see the fault locating directions for FAULT CODE 1:11.	3
12	Faulty GJUG board, see the fault locating directions for FAULT CODE 1:12.	3
13	Faulty GSM, see the fault locating directions for FAULT CODE 1:13.	3
14	Group switch has been ordered to resynchronize too many times, see the fault locating directions for FAULT CODE 1:14	1
15	GSM is manually blocked, see the fault locating directions for FAULT CODE 1:15.	1

Code	Description	Severity
16	GJUG multiple is manually blocked, see the fault locating directions for FAULT CODE 1:16.	1
17	Group Switch side is manually blocked, see the fault locating directions for FAULT CODE 1:17.	1
18	Clock Controlling Line Handling, see the fault locating directions for FAULT CODE 1:18.	1
19	Faulty time switch in group switch, see the fault locating directions for FAULT CODE 1:19.	3
21	Backup of ldap data has failed, see the fault location directions for FAULT CODE 1:21.	-
22	Rollback of ldap data has failed, see the fault location directions for FAULT CODE 1:22.	2
23	Rollback of ldap data successful, see the fault location directions for FAULT CODE 1:23.	1
24	Cannot write to master LDAP, see the fault locating directions for FAULT CODE 1:24.	4
25	Broken connection to master LDAP, see the fault locating directions for FAULT CODE 1:25.	4
26	Broken connection to local LDAP, see the fault locating directions for FAULT CODE 1:26.	4
27	Local LDAP out of order, see the fault locating directions for FAULT CODE 1:27.	4
28	Master LDAP out of order, see the fault locating directions for FAULT CODE 1:28.	4
29	Local LDAP server not running, see the fault locating directions for FAULT CODE 1:29.	4
30	There are analyzed core files to report, see the fault locating directions for FAULT CODE 1:30.	-
31	Too much memory paging, see the fault locating directions for FAULT CODE 1:31.	3
32	Slow event response, see the fault locating directions for FAULT CODE 1:32.	3
33	Inter-LIM connection is lost, see the fault locating directions for FAULT CODE 1:33.	3
34	Config mirror has failed, see the fault locating directions for FAULT CODE 1:34.	-
36	High load in program unit, see the fault locating directions for FAULT CODE 1:36.	-
37	Data backup needed, run data_backup, see the fault locating directions for FAULT CODE 1:37.	3/4
38	Linux Software Raid alert, see the fault locating directions for FAULT CODE 1:38.	-
39	Not enough free space on disk partition, see the fault locating directions for FAULT CODE 1:39.	-
40	Mandatory directory missing, see the fault locating directions for FAULT CODE 1:40.	4
50	Board version control, see the fault locating directions for FAULT CODE 1:50.	2
51	Trace stopped, see the fault locating directions for FAULT CODE 1:5.	1
52	No contact with external database. See the fault locating directions for FAULT CODE 1:52.	2

4.3

DOMAIN 2 - ACS

Code	Description	Severity
1	Certificate Expiration Notification, see the fault locating directions for FAULT CODE 2:1.	-
2	Certificate Expiration Alarm, see the fault locating directions for FAULT CODE 2:2.	-
4	SIP trunk heart beat failed, see the fault locating directions for FAULT CODE 2:4.	4
5	SIP trunk failed to REGISTER, see the fault locating directions for FAULT CODE 2:5.	2
7	CSTA Server, faulty communication channel, see the fault locating directions for FAULT CODE 2:7.	2
	ADD INFO 1: <ul style="list-style-type: none"> 2 XML 3 TR87 (XML via SIP) 	
8	CSTA Server, Load regulation reports overload, request denied. See the fault locating directions for FAULT CODE 2:8.	1
9	CSTA Server reports too many unsent messages in the output buffer, see the fault locating directions for FAULT CODE 2:9.	2
10	CSTA Server reports increasing number of unsent messages in the output buffer, see the fault locating directions for FAULT CODE 2:10.	1
	ADD INFO 1: <ul style="list-style-type: none"> 1 More than 2500 messages are in the queue, waiting for an external application to read them. 2 More than 25000 messages are in the queue, waiting for an external application to read them. 	
11	Emergency call event. See the fault locating directions for FAULT CODE 2:11. Additional text: Emergency call from "12345" to number "112", SeqNumber "1".	1

4.4 DOMAIN 3 - OTHER MIVOICE MX-ONE SERVICE NODE

Code	Description	Severity
1	LIM is running on standby server, see the fault locating directions for FAULT CODE 3:1.	3
2	Standby server is out of order, see the fault locating directions for FAULT CODE 3:2	3
3	Standby cluster has failed to synchronize data, see the fault locating directions for FAULT CODE 3:3	3

4.5 DOMAIN 4 - WBM - WEB BASED MANAGEMENT

Code	Description	Severity
-	-	-

4.6 DOMAIN 5 - MEDIA GATEWAY

Code	Description	Severity
1	No contact with Media Gateway, see the fault locating directions for FAULT CODE 5:1.	4
9	MGU power problem, see the fault locating directions for FAULT CODE 5:9.	4
13	Temperature problem in 3U backplane, see the fault locating directions for FAULT CODE 5:13.	3
15	Fan failure in 3U unit, see the fault locating directions for FAULT CODE 5:15.	3
16	Media Gateway software version incompatible with MX-ONE Service Node, see the fault locating directions for FAULT CODE 5:16.	4
18	MGU external alarm A, see the fault locating directions for FAULT CODE 5:18.	-
19	MGU external alarm B, see the fault locating directions for FAULT CODE 5:19.	-
20	MGU lost connection to the LAN that is set in the configuration parameter lan_active. Default this parameter is set to LAN0, see the fault locating directions for FAULT CODE 5:20. The other LAN port is not monitored and will not raise any alarm.	2
22	MGU default gateway unreachable, see the fault locating directions for FAULT CODE 5:22.	2
24	VLANs with same GW MAC address, see the fault locating directions for FAULT CODE 5:24.	2
25	File error for Voice announcement data, see the fault locating directions for FAULT CODE 5:25.	1
26	Media server license issue, see the fault locating directions for FAULT CODE 5:26.	4
29	Faulty Media Gateway configuration, see the fault locating directions for FAULT CODE 5:29.	4
30	No contact with Media Server, see the fault locating directions for FAULT CODE 5:30.	4

5

RECOVERY

Note: Only perform a recovery when all other possible solutions have been tested. For information on how to recover the system, refer to the operational directions for *ADMINISTRATOR USER'S GUIDE*.