Alarm Handling

OPERATIONAL DIRECTIONS

Mitel®

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.

TRADEMARKS

1 GENERAL

The MX-ONE Service Node has a built in alarm log and alarm handling facility. Checking the alarm log should usually be the first step when trying to isolate a fault, malfunction or incorrect configuration.

It is good to make a habit of checking the alarm log often, as the alarm log might indicate service actions that are needed in order to avoid malfunction. The alarm log is distributed. The log is held in the program unit AL (Alarm Log).

There is also a program unit called ALDP (ALarm Device Program). ALDP handles actions configured for alarms and alarm input/output (see chapter 5 Alarm Input/Output on page 6).

Every alarm has a code, a domain, and a severity. The combination of a code and a domain identifies the alarm type and gives the alarm name (which is shown when listing alarms). The severity of the alarm can be from 4 (most critical) to 0 (alarm condition was detected, but does not exist any more, or it has been suppressed). The alarms can also have (and usually have) other optional information that assist in finding the cause of the alarm.

Every alarm instance is uniquely identified by its handle. The handle is a number that is automatically assigned to an alarm when it is stored in the alarm log.

A program unit that detects a fault or malfunction and sends an alarm is said to “raise” the alarm. When the alarm condition no longer exists the program unit will “clear” the alarm. A “cleared” alarm will remain in the alarm log, but with a severity of 0. When a system administrator removes an alarm from the log, it is said to “erase” or “reset” the alarm.

With the use of an SNMP agent, alarm information can be propagated to external systems. See the operational directions for *MX-ONE SERVICE NODE SNMP SUPPORT AND ALARM NOTIFICATION*.

2 VIEWING ALARMS

2.1 LISTING ALARMS

To get a short list of all alarms in the system, type: *alarm -p.*

To get full information about all alarms with severity 4 (most critical) type: *alarm -p -f full --alarm-severity 4*

The command alarm has a number of options to select what alarms to list, and how to list them. For a description of these options, type:
alarm -?

2.2 CONTINUOUSLY VIEW IMPORTANT ALARMS

Sometimes it is convenient to dedicate a terminal or terminal window to show a list of the most important alarms in the system. This is done with the command **alarm_top**.

The command *alarm_top* list alarms in order of importance on the screen, with the most important alarm first. The screen is updated as alarm are raised, cleared, or erased. The command consumes CPU-power, so remember to shut it down (by pressing the Q-key or the keys control-C) when it is no longer needed.

For more information about options for the command *alarm_top*, type: *alarm_top -?*

2.3 TO NOTICE ALARMS

The command *alarm_noticed* is used to update the alarm log with new information about the alarm for a Server. It is also possible to include other information in the message, for example who is working on solving the alarm.

To update the alarm log with information about alarm 17, and that Steve is working on it, type:

alarm_noticed --alarm-handle 17 -comment "I am working on it. Steve."

3 RESETTING ALARMS

To reset an alarm (that is, to erase an alarm from the alarm log), use the command **alarm**. As the reason for an alarm has been attended, the alarm should be reset, so that the alarm log only shows alarms that need attention.

To reset the alarm identified by handle 5, type:
alarm -e --alarm-handle 5

The command alarm accepts several options. For a description about what options you can use, type: *alarm -?*

4 ACTING ON ALARMS

It might come in very handy to define a command that should be run when an alarm is raised or cleared/erased. This is done by the command *alarm_action*. The command alarm_action can only be run as root user. The command to run can be any Unix or mdsh command. It can even be a shell script. The commands are run using mdsh (by ALDP) so the mdsh syntax rules apply.

It is possible to send an e-mail or SMS about alarms. The script below is an example on how to send e-mail about alarms (see a UNIX or Linux manual for more information about scripts):

```
#!/bin/bash
TO=”someone@aastra.com anotherOne@aastra.com”
(echo “alarm from MX-ONE Telephony System”
echo “Domain:   “ $1
echo “Code:     “ $2
echo “Severity: “ $3
echo “Handle:   “ $4
if [ $6 -eq 1 ] ; then echo “cleared” ; fi
if [ $5 -eq 1 ] ; then
   echo “Reset/erased”
else
   alarm -p -f detail --alarm-handle $4
fi
)|mail -s “alarm from MX-ONE Telephony System” ${TO}
```

To use this script in Server 1 (if the script is in the file /usr/local/bin/alarm_mail) enter the commands:

alarm_action -i --action-lim 1 --alarm-command “unix \ /usr/local/bin/alarm_mail %D %C %S %H %R %Z”

*alarm_action -i --action-lim 1 --inverse-selection *
*--alarm-command “unix /usr/local/bin/alarm_mail %D %C %S *
%H %R %Z”

For more information about the command *alarm_action*, and the possible options, type: *alarm_action -?*

Note: As usual the configuration will be stored persistently only if you do a data backup. Use the command *data_backup*.

Alarm actions are removed by the command:

alarm_action -e \ --action-lim <lim> --config-handle <handle>

5 ALARM INPUT/OUTPUT

If the MX-ONE is equipped with an optional alarm board (known as ALU1 or ALU2 boards), then alarms in the alarm log can trigger alarm outputs on the board(s), and alarm inputs on the board(s) can raise alarms in the alarm log of the MX-ONE.

Alarm inputs are also available on the MGU. The MGU alarm inputs behave and are used as the ALU alarm inputs with the following minor differences:

- The MGU alarm inputs are polled, and will have a noticeable delay (of some seconds) compared to the interrupt driven ALU alarm inputs.
- An ALU alarm input can be defined as “Serviceman present”, which is not possible for the MGU alarm inputs.

This is done by the command *alarm_input* and the command *alarm_output*.

For more information about these commands, type: *alarm_input -?* or *alarm_output -?*

6 SETTING UP ALARMS

6.1 ALARM LOG SIZE AND INCREMENT ALARMS

The default size of the alarm log is suitable for almost all systems, and users are recommended to use the default values. There are 4 so called increment alarms, that raise a higher severity alarm when there are too many lower severity alarms. The default number of lower priority alarms needed before the increment alarm is raised is suitable for almost all systems, and users are recommended to use the default values.

It is possible, but not recommended, to change the alarm log size, or the number of alarms needed for an increment alarm. This is done by the command *alarm_cfg*. After changing the configuration, you must type the command *alarm_cfg* with the *--reread* switch.

6.2 ALARM SEVERITY AND ALARM NAMES

In the MX-ONE Service Node the alarm sender knows the severity and alarm name of all alarms that it sends. This information if sent from the alarm sender to the alarm log.

With old MD110 compatible alarm senders the sender does not know the severity and name of the alarm. This information is instead read from System Database.

It is possible, but not recommended to edit these configurations, using the command *alarm_cfg*. After changing the configuration, you must type the command *alarm_cfg* with the *--reread* switch. By changing the severity of an alarm to 0 the alarm will be suppressed and it will not be stored in the alarm log, but it will be seen as a suppressed alarm in the alarm listings.