Surveillance, Observation and Monitoring, ZO

OPERATIONAL DIRECTIONS

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1 GENERAL

1.1 DESCRIPTION

The Surveillance Observation and Monitoring, SOM, comprises functions to observe and monitor traffic to or from certain objects for surveillance purposes. These objects can be individual extensions, group numbers, or destinations in a private or a public network.

The surveillance is controlled and administered from a Surveillance Control Centre, SCC. The PBX is connected to the SCC via Monitoring Trunk Lines, MTLs, and a data link. The MTLs are used to carry monitoring information from observed objects in the MX-ONE to the SCC. The data link carries administration data and observation information for observed objects.

The SOM functionality of MX-ONE is based on software. The SOM application keeps a data base with data of objects that are to be observed. All traffic associated with observed objects are intercepted and data are collected in the form of traffic events. The SOM also includes functions to monitor the observed object's speech channel. Observation data in the form of traffic events and monitoring information from the speech channel of the observed object, are then transmitted to the SCC.

Initiation of the data link, initiation of the MTLs and assigning these to Monitoring Trunk Groups (MTG) are done from a PC-client in the system.

Once the necessary hardware and connections have been set up in the MX-ONE, all further operation and maintenance are done directly from the SCC. The SCC controls the SOM application via the data link by sending of Control Orders. These are received and executed by the SOM, which will send acknowledgements, status and alarm messages back to the SCC in Control Messages.

The MTLs are based upon digital trunk lines, which are tied to the SOM application and mapped as MTLs by means of MML-commands.

The data link is set up on serial communication ports or Ethernet Interface (TCP/IP) in the MX-ONE Service Node. The data link can then be directly connected to the SCC or carried as semi-permanent connections via the trunk line interface used for MTLs.

If the SOM detects an unauthorized access through a PC-client to the configuration of MTLs and the data link, a control message will be sent as an alert of an unauthorized access attempt.

For information about the operational direction of SOM functionality using SIP proxy, see *SURVEILLANCE, OBSERVATION, AND MONITORING USING SIP PROXY - OPERATIONAL DIRECTION.*

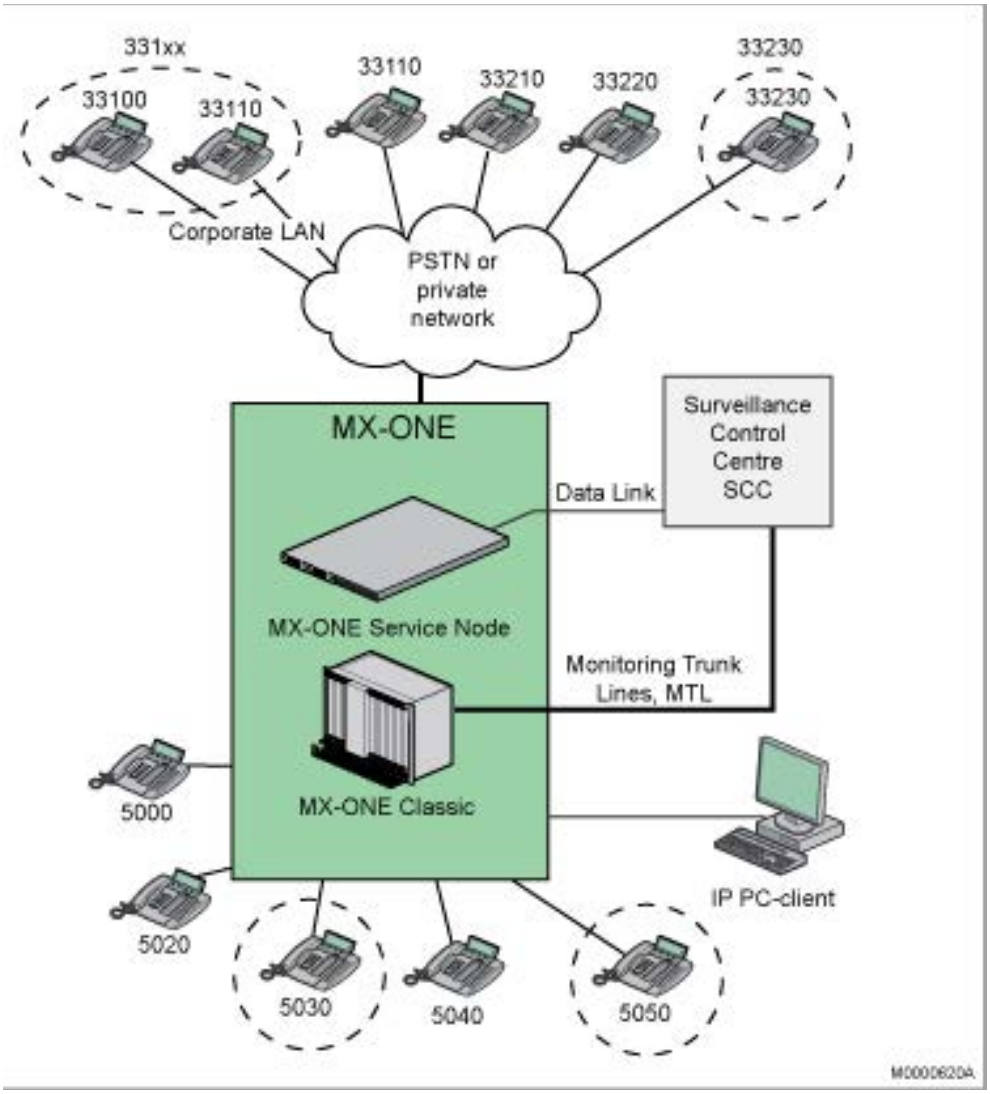

Figure 1: Overview of the SOM solution

The figure gives a brief overview of the SOM application in the MX-ONE. A PC-client with an mdsh shell is used to set up the hardware necessary for the interface to the SCC. All further administration of the SOM and set up of object records are done from the SCC via the data link. The MTLs are used to carry voice information from monitored objects. The figure shows that object records have been defined for two internal extensions 5030 and 5050. Two object records have also been set up for two different external destinations, one complete 33230 and one incomplete 331xx (range of destinations).

1.2 ACRONYMS

CCL Control ChanneL

ECL Event ChanneL

MTG Monitoring Trunk Group

MTL Monitoring Trunk Line

SCC Surveillance Control Centre

TLG Trunk Line Group

For further terms, see the description for *Acronyms, abbreviations and glossary*.

2 PREREQUISITES

The number of licenses required for using the SOM functionality is equal to the number of LIMs (servers) in the system.

Speech monitoring will not take place if the observed object is an IP end-point (extension or trunk using H.323 or SIP signaling) with direct media calls.

To facilitate SOM speech monitoring, the IP/SIP traffic has to be configured for forced gateway, i.e. to use a media gateway. See the relevant VAR parameter of the concerned trunk, or the --ext-serv of the generic extension profile.

3 TOOLS

A PC-client with an mdsh shell is needed for control and configuration of the exchange.

4 PROCEDURE

4.1 INITIATION OF SURVEILLANCE, OBSERVATION AND MONITORING

The following work flow shall be used when initiating the data link.

- Initiation of the data link.
- Initiation of the trunk line groups.
- Initiation of the multiplexed data link.

4.2 REMOVAL OF SURVEILLANCE, OBSERVATION AND MONITORING

The following work flow shall be used when removing trunk line groups.

- Removal of the multiplexed data link.
- Removal of the trunk line groups.
- Removal of the data link.

4.3 SOM O&M PASSWORD CHANGE

The following work flow shall be used when changing the SOM O&M password.

- SOM O&M password change.

5 EXECUTION

5.1 INITIATION OF THE DATA LINK

General

The V.24 ports, which normally are not used, must be enabled in the MX-ONE when serial communication ports are used as data link. See operational directions for *USER ACCOUNT MANAGEMENT*, section V.24 SERVICE. When Ethernet Interface is used as data link, it should be configured with unique IP and connected in LAN. The data channels, CCL and ECL, which compose the SOM data link, can then use these ports.

Prerequisites

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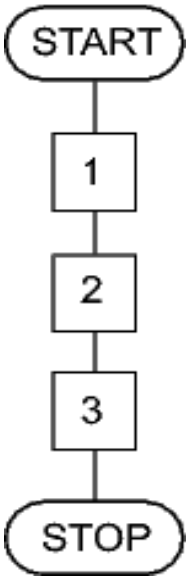
Execution

		Measure/Question	Observation/Comment
Flow  	1	Activate the V.24 ports or Ethernet Interface.	See the operational directions for *USER ACCOUNT MANAGEMENT*
	2	Key the command *ZODLI* to initiate the data link.	
	3	Key the command *ZODLP* to verify the initiation.	

5.2 INITIATION OF THE TRUNK LINE GROUPS

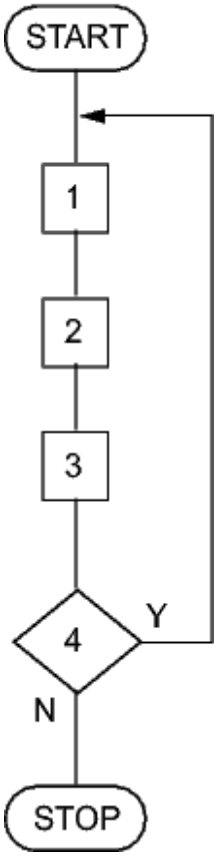
General

The trunk individuals that belong to the same PCM interface are defined as a TLG. Each TLG consists of a 30/32 channel PCM link. Time slot 0 is used for synchronization and time slot 16 is reserved for signalling purposes. The remaining thirty channels are used as MTLs. To be able to define a new TLG it is required that all trunk lines within the PCM interface are initiated.

Prerequisites

- The trunk line board intended for the surveillance function must be initiated.
- For direct media cases, IP/SIP traffic must be configured as forced gateway to support SOM speech monitoring.

Execution

		Measure/Question	Observation/Comment
	1	Use ordinary RO commands to initiate trunk line individuals of type TL99.	For more details, see the operational directions for *ROUTE DATA, RO* and parameter description for TL99.
	2	Key the command *ZOTGI* to assign the PCM interface as a TLG.	
	3	Key the command *ZOTGP* to verify the initiation.	
	4	Will another TLG be initiated?	

5.3 INITIATION OF THE MULTIPLEXED DATA LINK

General

The data link can be multiplexed into two MTLs in the PCM-interface. This

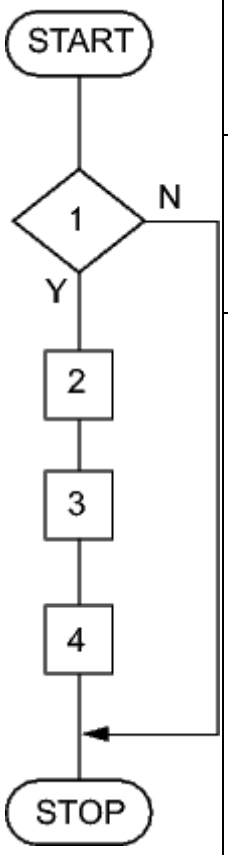
configuration is optional and can be used when separate connections for the data link to the SCC is to be avoided.

Prerequisites

The trunk line individuals on the trunk line board must be initiated.

The extension board for the digital extensions used to connect the data link must be initiated.

Execution

		Measure/Question	Observation/Comment
Flow 	1	Shall the data link be multiplexed into two MTLs?	
	2	Key the command *ZOTGI* to assign the PCM interface as a TLG.	For more details, see the operational directions for *DIGITAL KEY SYSTEM TELEPHONE, KS*.
	3	Key the command *SEMII* to connect the two digital extensions with two trunk line individuals.	For more details, see the operational directions for *STATIC SEMIPERMANENT CONNECTIONS, SE*
	4	Key the command *SEMIP* to verify the initiation.	

5.4 REMOVAL OF THE MULTIPLEXED DATA LINK

General

Multiplexing of the data link into two MTLs is optional so removal of a multiplexed data link can only be done if this type of connection to the SCC is used.

Prerequisites

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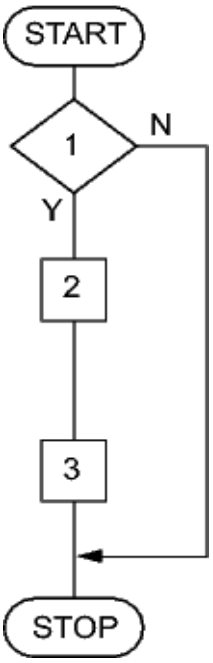
Execution

		Measure/Question	Observation/Comment
Flow  	1	Is the data link multiplexed into two MTLs?	
	2	Key the command *SEMIE* to remove the semipermanent connection for the data channels.	For more details, see the operational directions for *STATIC SEMIPERMANENT CONNECTION, SE*.
	3	Use the ordinary KS commands to remove the digital extensions for the data link.	For more details, see the operational directions for *DIGITAL KEY SYSTEM TELEPHONE, KS*

5.5 REMOVAL OF THE TRUNK LINE GROUP

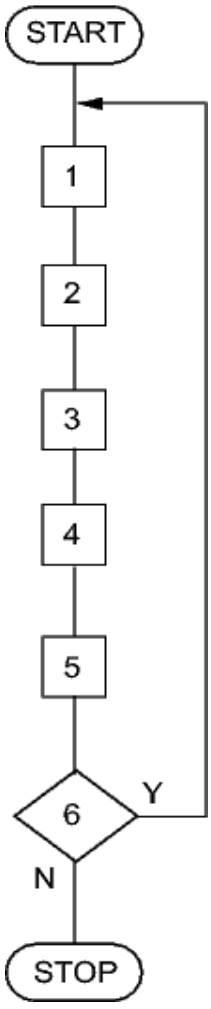
General

The command *ZOTGE* is used to remove a trunk line group.

Prerequisites

The SOM application must be in passive state, which must be done from the SCC, in case of removal of the trunk line groups.

Execution

		Measure/Question	Observation/Comment
Flow  	1	Key the command *ZOTGE* to remove the trunk line group.	
	2	Key the command *ZOTGP* to verify the removal.	
	3	Key the command *ROEQE* to remove the trunk individuals.	For more details, see the operational directions for *ROUTE DATA, RO*
	4	Key the command *ROEDP* to verify the result.	
	5	Key the command *ROUTE* to terminate the route.	
	6	Will another TLG be removed?	

5.6 REMOVAL OF THE DATA LINK

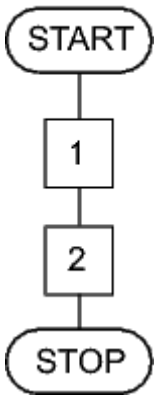
General

The command *ZODLE* is used to remove the SOM data link.

Prerequisites

The SOM application must be in passive state, which must be done from the SCC, in case of removal of the SOM data link.

Execution

		Measure/Question	Observation/Comment
Flow 	1	Key the command *ZODLE* to remove the data link and its channels.	
	2	Key the command *ZODLP* to verify the removal.	

5.7 SOM O&M PASSWORD CHANGE

General

The SOM O&M password is used to protect the SOM facility from unauthorized access. For that reason all MML-commands in the command group ZO are protected by a password. The password will consist of 6 up to 12 alphanumeric characters.

The default password for the command group ZO is GALAXY.

Prerequisites

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Execution

Key the command *ZOPWC* to change the password.

5.8 PRINT THE DATA LINK DATA

Key the command *ZODLP* to print the SOM data link data.

5.9 PRINT THE TRUNK GROUP DATA

Key the command *ZOTGP* to print the trunk line groups.

6 TERMINATION

If exchange data have been altered and no more commands are to be keyed, a dump to backup media shall be performed.