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## GLOSSARY

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<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>ADM</td>
<td>Add Drop Multiplexer</td>
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<tr>
<td>DCC</td>
<td>Data Communication Channel</td>
</tr>
<tr>
<td>DCN</td>
<td>Data Communication Network</td>
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<tr>
<td>EML</td>
<td>Equipment Management Layer</td>
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<tr>
<td>EMS</td>
<td>Equipment Management System</td>
</tr>
<tr>
<td>GUI</td>
<td>Graphical User Interface</td>
</tr>
<tr>
<td>MIB</td>
<td>Management Information Base</td>
</tr>
<tr>
<td>MSP</td>
<td>Multiplex Section Protection</td>
</tr>
<tr>
<td>MS-SPRing</td>
<td>Multiplex Section Shared Protection Ring</td>
</tr>
<tr>
<td>NE</td>
<td>Network Element</td>
</tr>
<tr>
<td>NML</td>
<td>Network Management Layer</td>
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<tr>
<td>NMS</td>
<td>Network Management System</td>
</tr>
<tr>
<td>NUT</td>
<td>Non-preempted Unprotected Trail</td>
</tr>
<tr>
<td>PDH</td>
<td>Plesiochronous Digital Hierarchy</td>
</tr>
<tr>
<td>SDH</td>
<td>Synchronous Digital Hierarchy</td>
</tr>
<tr>
<td>SML</td>
<td>System Management Layer</td>
</tr>
<tr>
<td>SNCP</td>
<td>Sub-Network Connection Protection</td>
</tr>
<tr>
<td>STM</td>
<td>Synchronous Transport Module</td>
</tr>
<tr>
<td>TMN</td>
<td>Telecommunication Management Network</td>
</tr>
<tr>
<td>VC</td>
<td>Virtual Circuit: VC4, VC3, VC12</td>
</tr>
<tr>
<td>VC4-4C</td>
<td>4 concatenated VC4 circuits</td>
</tr>
<tr>
<td>VC4-4V</td>
<td>4 virtually concatenated VC4 circuits</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

Network Management has to bring to the Customers the most global view of their network. By ensuring that critical management information is always available, Network Management Platforms are powerful tools to evaluate the real time service level offered to the end-users of the network. They also have to drive the operators on reductions in operational costs.

IONOS NMS is the Network Management Platform designed and developed by SAGEM Communication to provide Network Element configuration, real time alarm monitoring, centralised access to all troubleshooting and Network Management functions for all SAGEM products. SDH products but also DWDM, SHDSL, FMX, Microwaves and other SAGEM equipment.

It has been designed such as :

- to offer to the customers, carriers and private companies the best service level with automated supervision
- to provision Services (Ethernet Multi-point to Multi-point for example, VLAN applications)
- to reduce the required skills of the operator personal by improving the management of network services
- to follow the next expansion of the customer’s network with a scalable architecture using truly distributed, client-server technology
- to facilitate the integration into the customer’s own management platform by integrating open interfaces

The global structure of IONOS NMS is given below :
1.1. **PRODUCT OVERVIEW**

**Ease of use**

IONOS NMS is a graphical, easy-to-use application for end-to-end network management, configuring, monitoring and controlling a SAGEM network infrastructure equipment.

With a comprehensive suite of Network Management tools, the operator can manage equipment, network links and services through a very intuitive graphical user interface: “Drag and drop your organisation on the NMS screen”.

**Adapted to your organisation**

Designed to bring a streamlined comprehensive network management solution for the Carriers and their customers at once, IONOS NMS integrates the last multi-tier computing technologies.

With Java-based applications providing the *same look and feel over the different models*, it can be configured to give at the same time a complete and *powerful access based on a thick client architecture* for the Telco Network Managers and a *very easy-to-use interface for thin clients* with synthetic information for Customers’ Network Managers.
A synthetic network view

With its dynamical structure of “Management Domains”, IONOS NMS provides the administrator with all the expected flexibility to group and give a synthetic vision of the network elements according to any important criteria like device type or location, customer virtual sub-network, fault status on equipment, link or service, etc. Multi users will have access only to the information they are authorised to manage, for instance due to their technical profile or administrative rights.

Scalability

Available on Microsoft Windows XP and UNIX Solaris environment, IONOS NMS may run on commercial workstations and is fully scalable over a wide range of platforms with different computing power. Moreover, the client-server architecture is modular to allow distribution on computer networks. IONOS NMS is based on advanced technologies (Object Oriented Conception, Relational Data Base, Java portability, Web technology, SNMP manager, HTTP servers) to propose a modular and scalable management platform, with a distributed hardware and software architecture. This allows optimal cost effective fit for several sizes of managed network.

Database storage

The relational database-driven architecture warranties the flexibility and the global performance of the system.

All regular features available on database are provided: Import, Export, Backup and Restore.

1.2. Data Communication Network

IONOS NMS is connected to the management port of a specific NE: the « gateway NE » (GNE), via a Data Communication Network (DCN). The NE gateway, and all NE in the network, realise a routing function (RIP or OSPF).

The Data Communication Network can be composed by:

- An Ethernet network,
- A 2Mbit/s or more network, ended by routers,
- an IP network.

Inside SDH Networks, management information are carried on DCC bytes into STM-n frame overhead data or in a dedicated VC-12 in case of heterogeneous networks.

Inside TDM networks, management information are carried on dedicated bits of TS0 of the E1 frame or on dedicated bytes.
1.3. **Managed Networks and Products**

IONOS-NMS is an homogenous and efficient solution for networks integrating numerous SAGEM products:

- Any SDH network with SAGEM ADR range: **FOT 155C, ADR 155 C, ADR 2500 C, ADR2500eXtra, ADR155e, ADR155CPE, ADR10000**
- SAGEM **FSP2000, FSP3000** DWDM products
- Any TDM network with SAGEM FMX multiplexers
- Any MicroWaves network integrating SAGEM Link equipment – either PDH SAGEM Link **F** and SDH SAGEM Link **A**
- SAGEM TV transmitters and transposers
- SAGEM DSLAM 3@P 4xxx

**ADR155C** is an optical ADM designed to create point-to-point STM-1 spurts, STM-1/STM-4 rings or meshed networks, using path and section protection. GFP cards enable to transport Ethernet over SDH network according to standard specification.

**ADR2500C, ADR2500eXtra** are optical ADM designed to create STM-16 point to point links, STM-16 rings or meshed networks, transporting STM-4 and STM-1 flows, using path and section protection. GFP cards enable to transport Ethernet over SDH network according to standard specification.

**ADR10000** is MultiService NG SDH platform, it supports STM-16 and STM-64 interfaces, PDH interfaces, Ethernet interfaces (10/100/1000 interfaces) with large capacity for Metro applications.

**SAGEM FSP2000/FSP3000** is Coarse/Dense Wavelength Division Multiplexing product (CWDM/DWDM) designed for Multiservice optical networks, it multiplexes and transports high-speed data, storage, and voice applications. Numerous interfaces are available on the product: OC3/12/48/192, STM-1/4/16/64, Gigabit Ethernet, 10 Gigabit Ethernet, Fast Ethernet, ATM, ESCON, and so on.

The **FMX** is a digital cross-connect multiplexer equipped with a great variety of user interfaces: V24/V28 and RS485 asynchronous ports, V11 synchronous ports, 2M ports, Ethernet ports, 2B1Q ports for connecting remote CPEs. FMX9-S is also managed.

**SAGEM Link F** is a compact MicroWave, Multi rate from 2 E1 to 16 E1 available in all frequency band between 7 and 38 GHz, and different configuration 1+0, 1+1. It provides PDH interfaces and Ethernet interface.

**SAGEM Link A** is a high capacity MicroWave available in all frequency band between 6 and 38 GHz with common IDU for different frequency band and configuration. It provides SDH interfaces and Ethernet interface for various applications.

The **SAGEM DCN** equipment is a copper transmission system based on G.SHDSL standard. It includes chassis and stand alone units. V35/V11 n x 64kbit/s to 2Mbit/s data rate are available. The SDCN system provides extended reach thanks to repeaters.
SAGEM 3@P4xxx is a range of DSL Multiplexer.

IONOS NMS has been designed to manage all SAGEM equipment.
2. IONOS NMS ARCHITECTURE

2.1. GLOBAL ARCHITECTURE

The general architecture is built on a client-server architecture: the various IONOS clients can be installed on several physical machines connected to the same IONOS NMS server.

IONOS-NMS dialogs with all equipment (NE equipment) by means of the SNMP protocol to send the alarm messages and to configure the end-to-end trails (« provisioning »). Each type of NE is characterized by a MIB (Management Information Base) hosting all information needed to configure equipment and the network.

IONOS NMS enable the operator to access to the HTTP embedded server of each NE (double click on the icon). The IONOS NMS Client launch the explorer of the Client workstation.
IONOS-NMS 4.4 - System Architecture

**CLIENT Platform**

- TFTP Client
- NE Software upgrade
- Generic functions

**IONOS-NMS Server**

- alarms of several servers
- Maintenance operations on servers

**IONOS-NMS Federator**

- IONOS-NMS Client
- Functions specific to equipment
- Internet Explorer

**Main SERVER / Backup SERVER Platform**

- TFTP Server
- NE software upgrade
- NE database backup-restore

- IONOS-NMS Server
- Topology
- Security
- Performance

- HTTP Proxy
- Access to NE equipment views corresponding to NMS user rights

- FTP Server
- NMS database from backup server

- FTP Client
- NMS database to backup server

**Equipment**

- TFTP Client
- NE software upgrade
- NE database backup-restore

- SNMP Agent
- Light config.
- Alarms
- Performance

- HTTP Server
- Full configuration
- Alarms
- Performance

**Twin : Backup Server / Main Server**

- FTP Server
- NMS database from main server

- FTP Client
- NMS database to main server

**Other vendor**

- HYPERVISOR

- CORBA

- RMI

- HTTP

- TFTP

- SNMP

- RMI

- HTTP

- TFTP
2.2. **SOFTWARE ARCHITECTURE**

IONOS-NMS is built on software modules implementing independent functional blocks developed in JAVA: each block only processes a function subset of the complete software.

The architecture is compliant with M301x specifications.

IONOS-NMS is based on a framework environment which supplies:

- an SNMP interface.
- basic internal services on which the main functions of the network elements manager are based (alarms, logs, etc.)
- a Client application based on use of Java Beans and providing the graphic interface elements (topology, etc.)

The main application, developed by SAGEM, integrates the network level functions.

IONOS NMS comprises the following modules:

- The *Client Application*, which contains the functions for data presentation to the operator (commonly called the client terminal).
- The *Server Application* which implements the main functions – including the management of the database.

The IONOS-NMS platform contains a Network element manager and a Network manager.

![Figure 1: IONOS-NMS software platform](image)

2.3. **HARDWARE PLATFORM ARCHITECTURE**

- **Server and Client machines**

  The Client Applications run on a **PC** whereas the Server Application run either on a **PC** or on a **UNIX** platform depending on performances required by the network and reliability required by the customer.
For small networks, the Client Application can run on the same PC platform as the server, in stand-alone mode.

The hardware platform thus remains flexible, open-ended and modular in terms of hard disk drive, RAM and computing power in order to grow with the system, which entirely depends on the number of network elements to be managed.

2.4. Functional Platform Architecture

A set of software tools (IONOS NMS PACK) enable to secure the NMS platform by activating mechanisms with two IONOS NMS servers. This architecture provides a redundancy N+1, so a very large availability.

Please refer to “Backup NMS product notes”
3. IONOS NMS GENERAL FEATURES

The IONOS NMS application provides all features as described in following chapter. Two IONOS NMS version exist:

- A comprehensive version - IONOS NMS Full which provides all features, including SDH provisioning,

- A specific version – called IONOS NMS Core exists also to match the needs of customer having no provisioning to perform. It is an optimised application for microwaves network or data multiplexer network.

Obviously, this application can be upgraded as soon as the customer implement SDH products.

3.1. GRAPHIC USER INTERFACE (GUI) FUNCTIONS

Thanks to GUI (Graphic User Interface) the operator may :

- Copy & paste, drag & drop with mouse, rename resources
- Call contextual menus associated to resources
- Navigate between synoptic and configuration windows, navigate between alarms and synoptic window
- Have Network hierarchical views with a “Windows Explorer” look
- Move an element (equipment or sub-network) without removing links with other elements
- Disable or enable an Audio alarm
- See only one line per alarm (start, end, acknowledgement)
- Customise the colours (look and feel and icons)
- Ask for a Screen printing in all windows (print hidden parts of scrolled windows)
- Call a Help on line
- Add a Map as background image
- Multi-languages user GUI interface
3.2. **SYSTEM FUNCTIONS**

IONOS NMS integrates:

- Simplified procedures for software installation and upgrade of IONOS NMS
- Peripherals configuration from the management system (printers...)
- Local hot stand-by (RAID disks, ...)
- Compatibility with PATROL and TINA
- Management of domains profiles (geographical and functional)
- Export of logs (Alarms and Events) to text or Excel format
- Backup / restore on line of management system database (GUI command)
- Management of command scripts, planned commands and scripts
- CORBA Northbound interface with hypervisor system
- Applicative interface to integrate non SAGEM products (alarms only)
- Export of network topology and NE inventory in XML
- Interface for Netcool probe
- Interface for SNMP traps forwarding with filters
A set of software tools (IONOS NMS SECURE) enable to activate redundancy of the platform. For N Ionos NMS servers, a additional server is on stand by and can provide an alternate platform in case of failure of one server.

No automatic switching is allowed, manual operator can select to run backup server or regular server.

3.3. **SECURITY MANAGEMENT**

3.3.1 Definition

The Management System provides functions to the operator in order to manage the security of the Management System itself, as well as the NEs, exploiting the system mechanisms and the database facilities.

3.3.2 Functions

Security management performs the following functions:

- Management of users (with login and access password),
- Management of sub-networks for each operator,
- Log for user connection
3.3.2.1 Users Identification and password

Every user has to identify himself (user ID and password) before giving him access to any system function. Every log, unlog and user ID is stored in a user log file.

By default, the following profiles are configured:

- Administrator: all rights on all functions.
- Operator: he can create and remove equipment.
- Observer: he can only consult and acknowledge alarms.

3.3.2.2 Activity Log

Operator activity is stored in a log file with the given parameters:

- Activity type
- Activity result (parameter old and new values)
- User ID
- date and time

The log file may be read, filtered and sorted with the stored parameters by administrator users only.

3.3.2.3 Conflicts resolution between local and centralised managers

The concurrent access is free in “read mode”. At the contrary, “write mode” access is given to the first connected user.

The other users are given a busy state message.

3.4. Administrative Functions

The following administrative functions are available:

- Backup / restore of management system database (command line)
- Backup / restore of management system database (GUI command)

3.5. User Management

User administration is performed using the Admin View window.

This window enables:

- creation of new profiles, new groups and new users.
- operations on the profiles (add, delete, copy/cut, display and modify properties).
- operations on the groups (add, delete, copy/cut, display and modify properties).
- operations on the users (add, delete, copy/cut, display and modify properties).
- listing the network domains and their associated groups.
4. NETWORK MANAGEMENT FEATURES

4.1. CONFIGURATION MANAGEMENT

4.1.1 Definition

Configuration Management provides functions to identify, check, get and set data of the managed resources.

At network level, Configuration management performs Provisioning, Monitor and control the status, Data and software management.

4.1.2 Functions

Configuration management performs the following generic functions:

- Definition of the network hierarchy (sub-network concept)
- Configuration of “tributary to tributary” trails
- Management of trail activation state (reserved or activated)
- Configuration of virtual elements in order to manage equipment from other manufacturers
- NE inventory discovery, NE audit, NE configuration misalignment automatic detection, NE inventory alignment, NE configuration reactivation, NE date synchronisation

Specific functions for SDH are:

- Configuration of VC3, VC12, VC4, VC4-4C end-to-end trails
- Configuration of VC4 bearers
- Configuration of VC4-16C trails
- VC4 bearer split and merge function
- Discovery and association of trails from equipment configuration
- Configuration of SNCi protection on new trail/bearer and on an already created trail/bearer
- Configuration of SNCn protection on new trail/bearer and on an already created trail/bearer
- Configuration of SNCP, switch commands between normal and protected modes
- Swap SNCP normal and protection roles
- Multi-creation of trails
- NE insertion/extraction functions
- Add the notion of VC-group on GiGE and GFP cards
- Configuration of MSP protection
Network Management Features

- MSP switch commands between normal and protected modes
- Configuration of 2-fibers MS-SPRing protection (without NUT nor extra-traffic channels)
- MS-SPRing switch commands
- Configuration of MS-SPRing protection with NUT
- NE configuration upload for the whole network using a command line
- NE configuration upload/download from the GUI
- Software download per NE or per Sub-network

Specific functions for **DWDM** are:
- Management of WDM end-to-end optical path
- Management of WDM end-to-end optical path with description of transponder boards on intermediate NE
- Management of protected DWDM path (O_SNC)
- Optical path status calculation
- Software download per NE or per Sub-network

Specific functions for **Ethernet over SDH** are:
- Management of Ethernet Private Line based on VLAN (CIR, PIR, and CBS)
- Management of Ethernet Virtual Private Line based on VLAN (CIR, PIR, and CBS)
- Management of protected path using MSTP

Example of User interface:
Trail properties

Example of Trail Creation Window:
4.2. **Fault Management**

4.2.1 **Definition**

Fault management ensures that the deterioration in operating characteristic of the NEs caused by one or a set of abnormal conditions is kept to a minimum.

Fault management ensures that the NEs faults are reported on network trails.

In order to do this, IONOS NMS receives reports of alarms from the NEs. In general terms, the manager is able to verify the NE accessibility by a polling mechanism, to supervise the access network NEs to detect the occurrence of abnormal condition and to record the existence of an abnormal condition.

4.2.2 **Functions**

Fault management performs the following functions:
• Propagation of alarms occurred on a trail
• Management of protection mechanism
• Event correlation on trail

But also:
• Events supervision
• Alarm re-alignment (from NE)
• Alarm log
• Alarm display
  ➢ Alarm real time monitoring
  ➢ Coloured alarm animation of icons
  ➢ Alarm synthesis window
  ➢ Event log
  ➢ Logs exportation
  ➢ Alarms acknowledge and clearing

4.2.2.1  Events Supervision

Equipment access is controlled periodically with a polling mechanism (configurable polling interval) to check:

• Equipment accessibility,
• Equipment status,
• Equipment de-alignment between the current configuration and the configuration in the platform data,
• Eventual alarms loss.

Any condition change sends a notification and a graphical change on the network map.

4.2.2.2  Alarms Re-align function

This re-align function is automatically realised by polling the NEs status. So, every time a connection is cut and established, the system searches for all existing alarms inside the NE and update the network status.

4.2.2.3  Log function

The log function receives all alarms and events from supervision function or directly from the NEs. Filters and thresholds may be set in the NE before logging such events or alarms regarding the equipment.
4.2.2.4 Display function

The display function manages all kind of screen alarms displays, current log files and historical log files.

Generally, alarms are depicted with the following parameters:

- Alarm ID,
- Alarm type (communication, service quality, environment,...)
- Origin of the failure
- Alarm severity (major, minor, unknown)
- Time
- Alarm status (acknowledged, cleared,...)

Real Time Current alarms management

The manager monitors all alarms and events coming from all monitored NEs. The operator may enable or disable this monitoring on any NE. Every incoming alarm is immediately showed in a scrolling window, called the current alarms log.

Fault View

The alarms may be filtered with the following criteria:

- Resource ID
- Domain limitation
- Alarm type
- Severity
- Origin of the failure

The operator may acknowledge or clear an alarm. This action is recorded in the operator log file.

Synthetic alarm window

A synthetic alarms window gives to the operator a global view of the alarms in the network. He knows the number of active alarms.
Topography view animation

Icons depicting the NEs of the network are given a colour regarding their alarm status. Conventional colours have been used: green colour means NEs without any fault (or with a warning fault), yellow colour means a minor alarm and red colour means major alarm.

Specific pictograms are displayed in case of de-alignement between the NE and the database.

Historical logs

This logs contain the complete list of past events, alarms and their characteristics: arrival time, status change and remove. Alarms may be filtered on the screen or printed by selecting any parameters combination:

- status
- severity, type
- date and time
- origin
- equipment list in a given domain
Fault Log

The results may be shown on the screen, printed or exported in excel format. The size of the file is configurable, depending on the disk size.

Backup and Export functions

Backup and Export functions are performed on the IONOS NMS Server. Data can be modify and arrange on an external application.

Two formats are available: “Raw” or “CSV” format.

IONOS NMS enable the operator to collect data from NE and then export it in XML file. XML files can be easily translate in EXCEL format.

Trail functions

- List of alarms which have an impact of trail
- Trail status historical log
- Trail status current log (limited to a set of trails)
- Definition of trail failure severity on a trail basis
- Trail monitoring commands (in NE)
- Trail monitoring enhancement : enable the monitoring of extremities only (no monitoring on intermediate points)
4.3. **PERFORMANCE MANAGEMENT**

### 4.3.1 Definition
Performance Management has the following objectives:

- **trend analysis**: this function provides a preventive approach to fault localisation. This function requires continuous monitoring of the resources, storage on the network manager, in order to have an indication of the quality trend.
- **assurance of satisfactory quality**: before putting or returning into service traffic resources.

Performance Management, at Network Level, has the following objective:

- **Trail level performance management**: managing the trails performances by correlating NEs data performances in a completely transparent manner for the operator.

### 4.3.2 Functions
Performance counters are created and stored into the Nes (NEs Performance management can depend on the monitored NE type). IONOS NMS is able to collect Performances data on a regular basis.

Performance management performs the following functions:

- Start / stop of performance data collection related to trail extremities
- Performance data collection related to SDH path extremities (STM-n, bearers and trails)
- Performance data collection related to Microwave links (display by a separate application)
- Performance data collection related to Ethernet path extremities
- Export performance data using an XML or ASCII format

It is also possible to access by means of IONOS NMS Client to the NE (through the HTTP interface). It gives access to the performance parameters configuration and the operator may uploads these counters but not export it.

Display of performances is performed on a specific common external module.
Performance Temporal Graph
5. IONOS NMS SOLUTION

5.1. Ionos Solution Delivery

Ionos NMS platform is a solution based on SAGEM software, PC or SUN hardware and Services. SAGEM propose a turn-on-key solution enabling the customer to get quickly its overall software and hardware components ready for immediate use.

Several services are available according to the conditions of roll out of the network, the country in the world and the type of operating system

5.2. Ionos Product Delivery

IONOS NMS is delivered in different software packages according to the Network Size and the type of machine hosting the Ionos NMS application, a CD includes:

- a documentation
- IONOS NMS software
- Optional software and literature

A licence file is generated by SAGEM PARIS under receipt of the order, it works for the customer project as defined in the commercial offer (number of NE, type of machine, ..)

5.3. Hardware Product Delivery

IONOS NMS is delivered in several software packages according to the type of machines. For the small networks, the platform is based on PC hardware and for the larger networks it is based on UNIX (with mirroring and/or redundant PS).

The platforms are designed to support the required number of NEs (and trails) and the required number of clients platforms.

The PC or SUN machine can be:

- purchased by SAGEM, then installed and tested by SAGEM technicians,
- purchased by the customer under its existing contract for hardware, then installed and tested in SAGEM premises,
- purchased by the customer under its existing contract for hardware, then installed and tested in customer premises,

In all cases, PC or SUN machines must comply with SAGEM specification – otherwise installation or operating may work not properly.

5.4. Services Delivery

SAGEM Services organisation provides Services dedicated to Ionos NMS:
• Technical and Operational Consulting (Architecture of network, architecture of DCN, configuration, …)

• Training on the product (for operator and technician)

• Installation, Commissioning and Acceptance of Software and Hardware

• Support and technical assistance

Optionally, a specific training session does exist to train expert on Operating System to install basic configuration of SAGEM Ionos NMS.

Installation of software application such as SAGEM Ionos NMS requires a high level of knowledge and expertise on operating system, PC or SUN machine and protocols. Therefore, it strongly recommended to ask SAGEM to install Ionos NMS application.
6. APPENDIX

6.1. LIST OF PRODUCTS MANAGED BY IONOS NMS

Optical
FOT155C, ADR155c Px.y, ADR2500c, Px.y, ADR155e, ADR155CPE, ADR10000, FSP2000, FSP3000

Microwaves
SAGEM Link, SAGEM Link Light, SAGEM Link 2, SAGEM Link F, SAGEM Link A

Others
FMX, FMX9-S, DCN-SHDSL, TV Transmitter and transposer, SAGEM 3@P4400, SAGEM 3@P4450, 3@P4900.

6.2. EXAMPLE OF SAGEM PRODUCT CONFIGURATION

6.2.1.1 FOT 155C configuration
6.2.1.2 ADR 155C configuration
6.2.1.3 ADR 2500C configuration
6.2.1.4 ADR10000 Configuration

<table>
<thead>
<tr>
<th>Type</th>
<th>ADR10000</th>
<th>ADR10000</th>
<th>Total Alarm</th>
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<tbody>
<tr>
<td>IP</td>
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<td>128.0.1024</td>
<td>317</td>
</tr>
<tr>
<td>Eth IP</td>
<td>10.1.0.127.1</td>
<td>128.0.1024</td>
<td>60</td>
</tr>
<tr>
<td>1st Mask</td>
<td>255.255.0.0</td>
<td>255.255.0.0</td>
<td>6</td>
</tr>
</tbody>
</table>

- **Name**: ADR10000
- **Type**: ADR10000
- **IP**: 10.1.0.128
- **Eth IP**: 128.0.1024
- **1st Mask**: 255.255.0.0
- **Software Ver.**: Version 8.0.1B-R10B1
- **Location**: NF-DONITION
- **Description**: NE_PSM
- **Height**: ??
- **Sound**: ??
- **PDU Play**: 15s
- **PST**: ??
- **SN1**: ??
6.2.1.5 SDCN Configuration
6.2.1.6 SAGEM Link Microwave Configuration

IONOS NMS / SAGEM LINK PILOT interface
IONOS NMS / SAGEM LINK A interface (ODU Configuration and test)
6.2.1.7 SAGEM FSP 2000 User interface

FSP 2000 Equipment view
Window - Properties WDM Link / Alarms - example
6.2.1.8 SAGEM DSL EMS

6.2.1.8.1 Main View
6.2.18.2 ADSL parameter configuration

![Image of ADSL parameter configuration interface]

The image shows a section of the ADSL parameter configuration interface with detailed tables listing various ADSL profiles and their parameters. The parameters include Device, Name, DS Intervals, DS Max Shr, DS Max Rat, DS Min Rat, DS Target, US Intervals, and other related details.
6.2.1.8.3  Create ADSL Line profile

![Create ADSL line profile dialog box](image)

**Naming**
- **Name**: [Input Field]

**Down Stream**
- **DS Interdelay (ms)**: 32
- **DS Max Srr Mgn (0-31dB)**: 12
- **DS Target Srr Mgn (0-31dB)**: 6
- **DS Max Rate (1-255)32Kbps**: 255
- **DS Min Rate (1-255)32Kbps**: 1

**Up Stream**
- **US Interdelay (ms)**: 16
- **US Target Srr Mgn (0-31dB)**: 8
- **US Max Rate (1-32)32Kbps**: 32
- **US Min Rate (1-32)32Kbps**: 1

**Mode**
- **Service Mode**: multimode
- **Channel Mode**: interleaved

[Ok] [Cancel]
### 6.2.1.8.4 VLAN Management

![VLAN Management Screen](image)

**VLAN Management Table**

<table>
<thead>
<tr>
<th>VID</th>
<th>VLAN Name</th>
<th>Device</th>
<th>IP/Netmask</th>
<th>Untag Port</th>
<th>Tag Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>snmp</td>
<td>10.142.39.32</td>
<td>10.142.39.32</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>uplink</td>
<td>10.142.39.32</td>
<td>20.0.0.1255</td>
<td>0.2</td>
<td></td>
</tr>
</tbody>
</table>

**VLAN Configuration**

- **Name**: snmp
- **VLAN ID**: 1
- **Tag Port**: 
- **Untag Port**: 0.1
- **IP/Netmask**: 10.142.39.32/255.255.255.0

**Buttons**: Refresh, New, Save, Delete, Batch, Close
6.2.1.8.5  RADIUS Management
6.2.1.8.6 TRAP Parameter Configuration

![TRAP Parameter Configuration Window]

- **Trap Status**
  - Device: 3P@C 4400 Et(10.142.38.32)
  - Trap Status: enable(1)

- **Trap Receiver**
  - Device: 3P@C 4400 Et(10.142.38.32)
  - Trap Receiver: 10.142.63.87
  - Trap Version: v2(2)
  - Trap Community: public