

NGN NMS

(Network Management System)

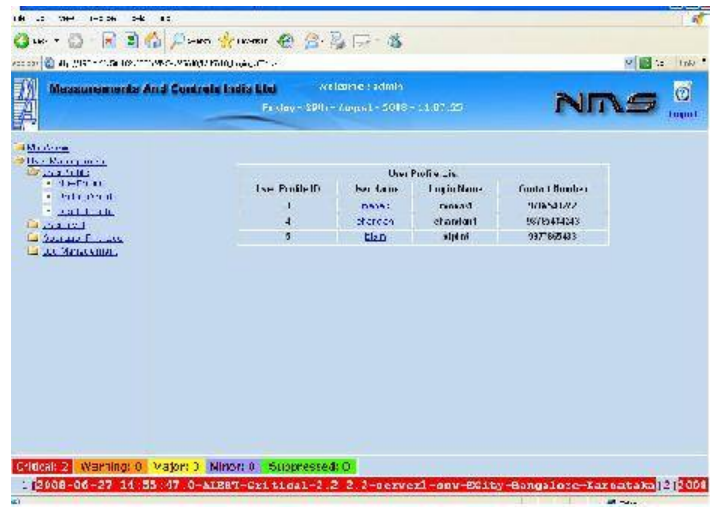


MAC-NMS610 provides complete solution for the management of network consisting of large number of network elements (SDH systems, DLCs, IP DSLAM, Ethernet switches, routers, BRAS and various servers such as radius, customer database & video servers etc), BTS, Wireless CPEs. It supports both proprietary and standard protocols between Elements being managed and the Network Management System. It supports three levels of users. The interface protocols supported include CORBA, XML, TL1, Telnet, SNMP and Qx. The client is simple web browser based one.

SALIENT FEATURES

USER MANAGEMENT

There are three default levels of users with different access rights. This NMS allows different levels of privileges based their profile. All users are authenticated before they log on to NMS. Users can customize the views of Maps, Reports, Alarms and Views.



The users can be given additional privilege apart from the privileges that they inherit from the level they are assigned to. NMS allows new users along with their privileges to be set via GUI and the users can change respective passwords.

All the configuration related changes that the user is doing gets logged along with time in the NMS. The same can be printed as reports as required. Also the users Client PC IP address gets logged into the NMS.

ELEMENT MANAGEMENT

NMS allows Elements to be added using the GUI and the Element Manager can be customized. The GUI provides a simple screen for the user to do the addition process. The elements are represented as the real images and also the border on the element view shows the status of the element.

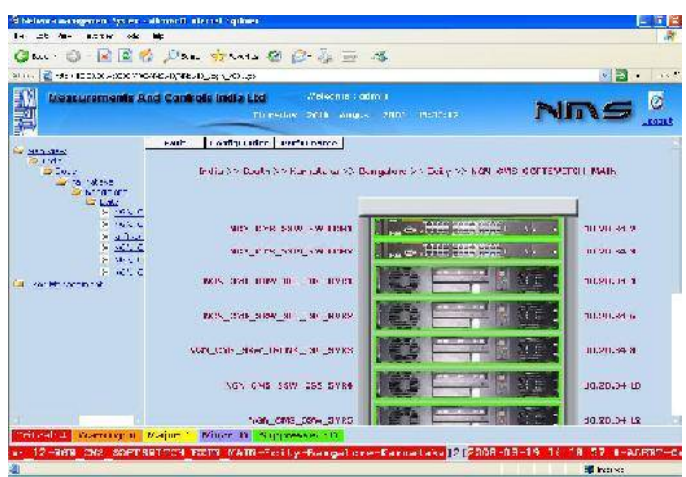
The elements can be given user assigned properties that can be a maximum of 18 values. The properties of the elements like the IP address, slot, etc are shown in the element view.

FAULT MANAGEMENT

The NMS detects a problem and helps in restoring the system to normal operation at the earliest. The operator can continuously monitor devices, services and links in the network for fault conditions and a fault condition in the managed network will manifest as an alarm.

NMS generates the following types of alarms:

- Status - Generated based on the change in status of a network element
- Threshold - Generated when a parameter of interest (such as traffic on a link, disk usage) crosses a threshold



In the case of threshold alarms, the operator has the facility to configure parameters for which the threshold has to be monitored and can set threshold values. Alarms can be assigned various levels of severity - Warning, Minor, Major and Critical depending on their impact on the overall system.

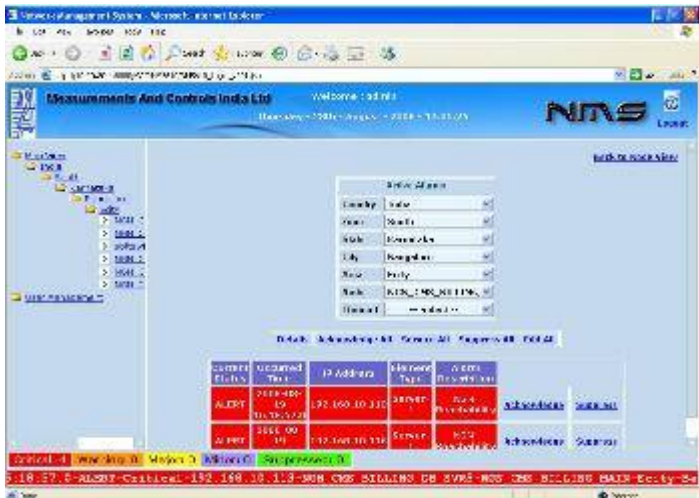
- **SMS:** A short message will be sent to an administrator's cell phone via SMS.

Alarms will be viewed and managed via a user-friendly GUI based interface. The system maintains logs of fault conditions for root cause analysis and has a GUI based log viewer.

PERFORMANCE MANAGEMENT

The NMS collects performance data of individual network elements, services and links. It meets the following requirements

- Provides real time performance statistics – Real time performance statistics can be viewed online. The statistics can be viewed as tables, line graphs, etc.
- Data collection and storing is database.
- Provides historical reports of collected data from database – The reports are highly customizable and can be displayed in various graphical formats such as tables, line graphs, bar graphs. Reports can be generated on an Hourly, Daily, Weekly, Monthly and Yearly basis.



Alarm notification is possible through any of the following methods:

- **Visual:** Through a color-coded scheme with a color corresponding to each severity level user will be able to view the alarm. If an element has an associated fault, the corresponding symbol shows the appropriate color code.

The reports can be generated with respect to the following criteria :

- Utilization reports for links, devices, resources (CPU, memory)
- Availability reports for devices, links, resources.
- Error reports – interface errors, CRC errors.
- It helps the administrator to pro actively troubleshoot network response times.
- It performs smart data collection and stores only the data needed for the reports to conserve bandwidth from the device all the time.

CONFIGURATION MANAGEMENT

The NMS can do configuration management as given below

- Auto-discovery of the network – can detect and display elements/nodes of the network on the map.
- Allows addition of elements/nodes.
- Allows deletion of elements/nodes.
- Allows creation of link between elements/nodes Allows modification of property of managed elements/nodes.
- Allows configuration of relevant parameters of the devices in the network.
- Provides a single GUI for configuration management.
- It provides multiple configuration file management.
- It provides method of exporting configuration files to 3rd party applications for generating reports.
- It provides dynamic status, statistics, and comprehensive configuration information for the managed devices.
- It supports recover back feature



To periodically resynchronize the equipment provisioning parameters that are stored in the EMS database for use in other service provisioning, service.

ACCOUNTING MANAGEMENT

- It provides for a comprehensive audit of network changes reported chronologically.
- It maintains records of modifications in the areas of both hardware and configuration.
- It provides details of all devices, including device name, chassis ID, free memory, software versions and serial numbers.
- It provides for capacity planning information.

INVENTORY MANAGEMENT

The NMS supports inventory management functionality. It gives details about the percentage loading of the network. It keeps record about the elements that are being changed in case of any faults. To maintain a record of all the Network Resources Like locations, quantities of equipment, model numbers, serial numbers, versions, installation dates, etc. To periodically resynchronize it's database with the Network using the auto discovery mechanism.