

Powerful network management system featuring easy-to-use graphical interface and advanced diagnostic capabilities

Managing and monitoring an HX System is easily done using the HX ExpertNMS™. The graphical and intuitive interface of the HX ExpertNMS means that operators can easily navigate through all aspects of an operational HX System from configuration through to troubleshooting. The HX ExpertNMS is available on the HX System release 2.3 and higher.

Look and Feel

- Browser-based client
- Customizable network overview screen
- Map display with color-coded status of routers
- Multiple graphs and pie charts giving quick overview
- Ability to create custom displays for Network Operations Center console
- Virtual Network Operator (VNO) support enabling partitioned views

NetGuide installation wizard

- Provides guided walk-through setup
- Verifies components and software
- Configures service plans

Network Performance Monitoring

- Router overview – list/map view (aggregated router status)
- Inroute traffic – throughput, status, statistics
- Outroute traffic – throughput, status, statistics

NetGuardian

- Automated troubleshooting
- Constant monitoring
- Discovers and alerts error conditions

Help

- Recommendations for problem solving
- Context-sensitive help on all displays
- Full index and search of help topics
- Hot link to access electronic documentation

Advanced Diagnostics

- Detailed views provide immediate component associations and status
- Router diagnostic codes are leveraged to provide insight into router issues

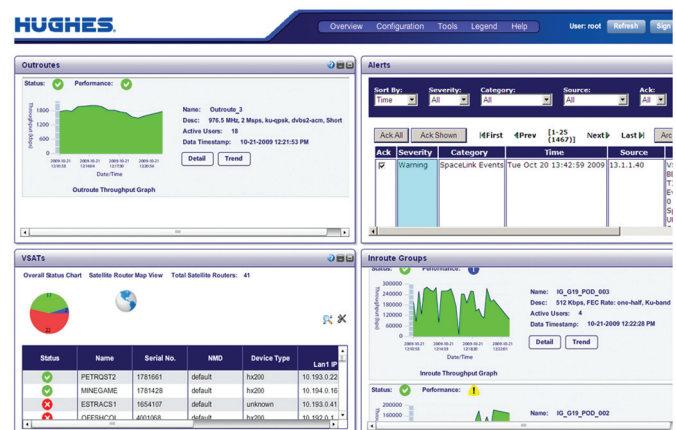
Network Monitoring

- Full-featured event manager including:
 - Event display
 - Event filtering
 - Event sorting
 - Event acknowledgement
- Continuous network monitoring with customizable thresholds for alerts
- Router performance and status in context of inroute and outroute performance

Alarm Manager

- Monitors all system alarms and events
- Manages alarms
- Exports alarms as traps
- Generates automatic email or page

The entry point for the HX ExpertNMS client is the Overview screen, which provides a single display of the high-level operation of the HX System including Outroute Status, Inroute Status, Network Alerts, and VSAT Status. With one click, an operator can drill down into any of these areas in order to quickly obtain more detailed information as desired. The Overview screen has been designed so that operators can project this information onto a large screen at the network operations center for easy viewing.

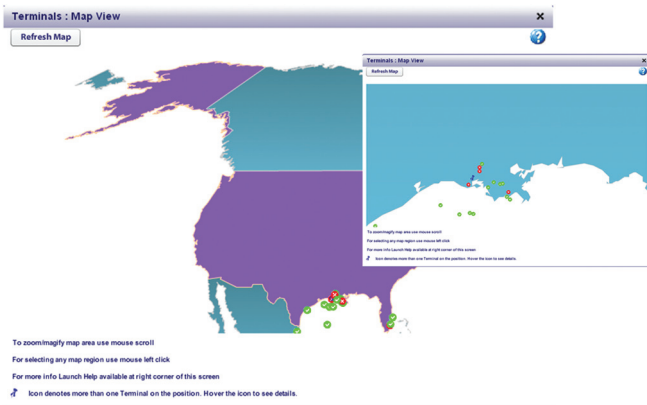


The HX System from Hughes, the world leader in broadband satellite networks and services, is designed and optimized for smaller and mobile networks, including maritime and airborne applications, where the provision of high-quality and high-bandwidth links is paramount. Capable of simultaneous mesh, star, and multi-star configurations, the HX System builds upon the capabilities and global success of the high-performance HN System, incorporating many advanced features pioneered by Hughes, including integrated TCP acceleration and advanced IP networking. Its broadband satellite products are based on global standards approved by TIA, ETSI, and ITU, including IPoS/DVB-S2, RSM-A, and GMR-1.

Features

- Browser-based client runs on Internet Explorer and other popular browsers, such as Mozilla and Safari
- Operator-customizable network overview screen
- Context-sensitive help on all screens
- Full-featured event manager
- Browser-based documentation library
- Trend charting of inroute and outroute performance
- Inroute group details including IQOS/FEC/QOS utilization
- Outroute details including ACM Modulation/coding distribution.
- Graphed traffic of flow control and priority queues on a per-IPGW basis
- Terminal overview with both list and geographical view
- Terminal diagnostics message that quickly isolates terminal issue and guides the operator to quick resolution
- Terminal views chart inbound/outbound throughput and also show traffic type statistics
- One-click view of associated hub components status and health

Using a graphical map, the HX ExpertNMS provides a color-coded status display of remote routers. Green means good and red means there is a problem. With one click on the map, the operator can zoom in to a remote router to obtain detailed statistics and status of the operational condition of that remote router.



HX ExpertNMS - Standard Version

Delivered with all new HX Systems, the HX ExpertNMS standard version includes the configuration functionality plus the network overview status monitoring functionality.

HX ExpertNMS - Advanced Version

The optional HX ExpertNMS includes all the functionality of the standard version, plus the NetGuardian and Alarm Manager functionality.

Please consult your Hughes sales professional regarding your requirements.

Terminal diagnostic messages can be quickly viewed so that problems are immediately identified. Once a problem is identified, the HX ExpertNMS provides context-sensitive help to facilitate a quick resolution of a problem. Performance of the remote router also can be monitored including inbound/outbound throughput including inbound/outbound throughput by traffic type. To help the operator understand if there is a hub-related issue causing remote router performance problems, there is a one-click view from a remote router to see all of the hub components associated with the remote router.

Terminal Diagnostic Code Analysis

The following Problem History table was produced from the above Terminal Diagnostic Code.

Recent Problem History	5 Minutes Ago	10 Minutes Ago	15 Minutes Ago
Cabling/Antenna Pointing	✓	✓	✓
Downlink	✓	✓	✓
Uplink	✓	✓	✓
Uplink Queuing	✓	✓	✓
TCP Acceleration	✗	✓	✗
IP Gateway	✓	✓	✓
RTT	✓	✓	✓
SGWFEC	✓	✓	✓
Fair Access Policy	✗	✗	✗
Web Acceleration[N]	✓	✓	✓
Web Acceleration[I]	✓	✓	✓
DNS Acceleration[N]	✓	✓	✓
DNS Acceleration[I]	✓	✓	✓
IDU	✓	✓	✓
LAN	✓	✓	✓
LAN Virus	✓	✓	✓

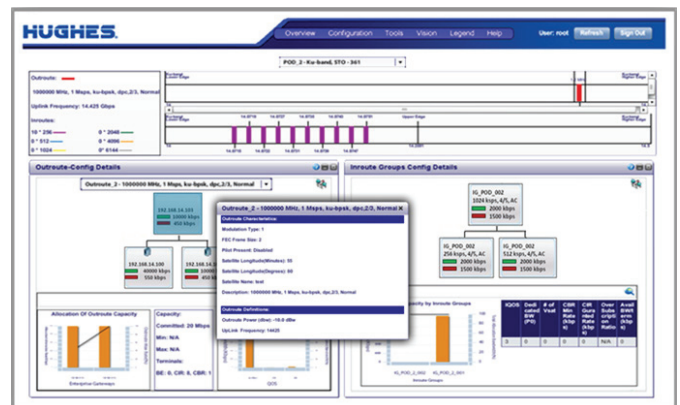
Troubleshooting Knowledge Base articles

Based on the Problem History Table, use the following knowledge base articles to troubleshoot the problem.

The articles should be accessed in the order indicated.

Order	Problem	Knowledge Base Article
1	Fair Access Policy	HNS - 3897

The configuration dashboard enables simple and error-free configuration of components. Color-coded outroute and inroute frequency allocation visually illustrates inroute spacing and unused spectrum. Guided setup of all components, as well as network service plans, is facilitated through the NetGuide feature. The dashboard provides at-a-glance graphs and data about the hub components associated with outroutes, inroutes, and remote routers.



For additional information, please contact us at globalsales@hns.com or visit our Web site at www.hughes.com.