Northrop Grumman’s Gateway Manager Interface Capabilities

Terminal Simulation
In this mode the Gateway Manager acts as a tactical terminal. It receives data from the host via the 1553 bus or NTDS/ATDS and routes the data to remote computers via modem or Ethernet. When receiving data from remote computers the Gateway Manager sends the data to the host computer. If no remote computers are available, the Gateway Manager can play back recorded files and send data to the host.

Link 16 Host Simulation
In this mode the Gateway Manager acts as a JTIDS host. It generates terminal input messages from recorded files or from remote computers and sends them to the terminal. The Gateway Manager can initialize the terminal and query terminal status.

Link 16 Virtual Terminal/Virtual Host
In the virtual terminal mode the Gateway Manager acts as a terminal to the host computer. It sends all status requests and data to the virtual host Gateway Manager via Serial RS-232 or Ethernet. The virtual host Gateway Manager reforms the data to Terminal Input Messages and sends them to the live terminal via 1553 bus. All terminal status and data received from the live terminal are sent to the virtual terminal Gateway Manager. The virtual terminal Gateway Manager then reformats the data as Terminal Output Messages and sends them to the host computer. Using virtual terminal and virtual host Gateway Manager enables a host computer to control a terminal remotely.

Line-of-Sight / Beyond Line-of-Sight
In Line-of-Sight/Beyond Line-of-Sight mode the Gateway Manager passively captures all messages on the 1553 bus and sends them to remote computers. Captured messages can be recorded for future analysis and playback.

Link 11 Audio
The Gateway Manager can be used to take output from a tactical data system and convert it to Link 11 audio for radio frequency communications.

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Making the Net Work
Northrop Grumman continues to evolve the Gateway Manager, adding new capabilities that can be applied to existing systems, making it the tactical router not only for today, but for the future.

Today’s network-centric warfare demands connectivity and access to real-time information and Northrop Grumman’s Gateway Manager provides adaptable connectivity for a formidable array of data communications. It connects local operations to the Global Information Grid as required by today’s joint and international forces operations.

Proven in tens of thousands of hours in operations and exercises, the Gateway Manager has been used on programs including Battlefield Airborne Communications Node (BACN), C-130 Real Time Information in the Cockpit (RTIC), Mobility Air Forces Dynamic Re-tasking Capability (MAF DRC), and Roll-On/Be Beyond Line-of-Sight Enhancement (ROBE).

Adaptable, scalable, dependable, and with the inherent economy provided by COTS hardware, the system is designed to provide situational awareness to operational participants at all levels of the command structure.

The Gateway Manager supports most tactical communications, including:
- Link 22
- Link 16
- Link 11/11B
- Distributed Information Systems (DIS)
- Satellite TADIL J
- MIL-STD-3011 (JREAP)
- STANAG 5502
- MIL-STD 6390 data forwarding
- GPS
**Simple Operation Enables Powerful Communications Management**

Northrop Grumman’s Gateway Manager runs on a Windows-based operating system, enabling managing and routing of tactical communications through a familiar human/machine interface. Its many user-friendly windows provide critical information regarding the configuration and effectiveness of tactical communications, and enable control of the communications process.

**MESSAGE FILTER:**
Gateway Manager uses a powerful message filter capability to control data flow and display filtering. Users can filter messages by Network Participation Group (NPG), Transmit/Receive, JTIDS Unit Number, Track Number, Label/SubLabel, Category, Point Type, Geographic Location, and many other parameters.

**CONNECTIVITY STATUS:**
Gateway Manager displays, in an intuitive format, real-time connectivity status between Gateway Manager and remote computers.

**LINK 16 MESSAGE TEXT:**
Gateway Manager keeps track of all incoming and outgoing messages. Users can filter messages by using the Message Filter and Source Filter. In addition, users can color code messages based on Label/SubLabel. All messages can be logged to a text file for post-event analysis and training.

**INITBLOCK EDITOR:**
Gateway Manager’s powerful InitBlock Editor feature allows users to view and modify initialization data on the fly. Users can modify Primary Track Number, Network Time Reference, Position, Power and other defined fields.

**JREAP CONTROL:**
Gateway Manager implements MIL-STD 3011 Appendix A, B and C. Gateway Manager can generate and receive Management messages including: Operator Text, Echo, Round Trip Timing, Common Time Reference, Remote Filter, Latency, Special Event and Secondary Track Number.

**TRACK DISPLAY:**
Gateway Manager’s situational awareness display allows the user to monitor tactical traffic in real time. Users can filter what they want to see and use the search features to quickly locate a track. Gateway Manager also supports a moving map feature. Gateway Manager is compatible with the Portable Flight Planning Software (PFPS). When connected to PFPS, Gateway Manager gives users the ability to see Link 16 tactical data overlaid on top of the Falcon View application.

**NETWORK CONFIGURATION:**
Gateway Manager’s flexible and modular design enable users to communicate with many remote systems. Currently, Gateway Manager supports numerous hardware and interfaces and protocols.

**GPS SIMULATION:**
When connected to a GPS receiver, Gateway Manager uses GPS navigation data to generate its own Precise Participant Location and Identification, or PPLI, message. If no GPS is present, Gateway Manager can simulate movement by extrapolation. Gateway Manager supports Trimble GPS, Magellan GPS and any NMEA 0183 compliant GPS receiver.

**Hardware Interfaces**
- Ethernet UDP Broadcast, Multicast, Unicast
- Ethernet TCP/IP Client /Server
- MIL-STD 1553
- ATDS, NTDS
- RS-232/422 Synchronous
- RS-232 Asynchronous

**Protocols**
- SIMPLE
- JREAP-A
- F15
- GCCS
- JREAP-B
- MIDS-A
- DIS
- JREAP-C
- MIDS-D
- MSCS
- Link 22
- MIDS-I
- MIDS Socket-J
- MITRE - Serial J
- MIDS-J
- TACC5F - DIS
- ABN-11
- MIDS-Q
- SADL - TMPG
- Navy Ship
- MIDS-R
- MTC
- Navy Air
- ASCO
- MCE
- SADL-11z Data
- FES

Northrop Grumman’s Gateway Manager supports the industry’s most widely used protocols.