

NMC 10 LAN Connection Mode

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1 Introduction

NMC 10.0 offers a new “LAN” connection mode that allows users to manage AccessSwitches over an IP-based network. This mode is in addition to the local (hardwired) and remote (modem) connection modes currently supported by NMC software. All existing AccessSwitches (slotted and stackable) may be managed via the LAN connection mode. This document describes the hardware and software requirements and how to setup the hardware and software for this type of connection.

2 Terminology

For the remainder of this document, the term “NMC PC” will refer to the PC running the NMC 10.0 software.

3 Hardware Requirements

Additional hardware is required to facilitate the LAN connection. This hardware will be referred to as a “serial to IP converter” in this document. This reference describes the function of the hardware. Other names given to the same hardware by various manufacturers include “device server”, “terminal server”, and “serial hub”.

The basic function of a serial to IP converter is to receive data from a serial device, convert the data to a valid IP packet, and transmit the data over a LAN/WAN. Serial devices can then be accessed from anywhere on a LAN/WAN by any computer running telnet or dedicated software.

In this application, the dedicated software is NMC 10.0. The serial port of the serial to IP converter is connected to the LMC port of the AccessSwitch. The NMC 10.0 software opens a TCP/IP connection to the serial to IP converter. The serial data from the AccessSwitch is transmitted over the LAN/WAN to the NMC PC.

Initia does not endorse any particular serial to IP converter. However, a serial to IP converter must meet certain requirements to be used in this application.

1. The serial to IP converter must be able to accept an incoming TCP/IP connection. The serial to IP converter must have an IP address. A converter would typically have a default IP address that can be changed by the user. The converter must also have a port number associated with its serial port. If the converter has more than one serial port, a different port number must be assigned to each serial port. The port numbers are also typically an item that can be configured.

Serial-to-IP converters may have more than one mode for handling TCP/IP connections. Some manufacturers refer to the required mode for this application as “server” mode. In this mode, the converter can accept a TCP/IP connection from any other IP address.

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2. The serial to IP converter must have a standard RS232 serial port. A 9-pin or 25-pin connector is usable.
The serial port must support the following configuration:
9600 baud
8 data bits
1 stop bit
No parity
3. The serial to IP converter must have an Ethernet connector. Serial-to-IP converters frequently have more than one connector, typically 10Base-T and 10Base2.
4. Other configuration items that are useful in this application are generically referred to as transmit timer and DTR monitoring.

The transmit timer determines how long accumulated data will be stored internally before being sent. Setting the transmit timer to a large value will make NMC/AccessSwitch communication appear slow. Setting the timer to approximately 50ms is a good place to start. This configuration item should be considered as mandatory.

Some serial-to-IP converters can be configured to monitor the DTR pin of the serial port. If DTR goes inactive, the serial-to-IP converter will drop any active TCP/IP connection associated with the serial port. This feature is useful because it allows NMC 10.0 to immediately recognize when the connected AccessSwitch is powered off or if the serial cable is removed from the LMC port.

The NMC PC also must meet certain hardware requirements. It must have an Ethernet port. The processor, memory, and hard drive requirements are the same as for NMC 9.1.

4 Software Requirements

The NMC PC should be running Windows 95, Windows 98, Windows NT, or Windows 2000. It is possible that NMC 10.0 may run on Windows 3.1, but this configuration is not recommended.

A Windows Socket DLL such as winsock.dll or wsock32.dll must be installed on the NMC PC. Note that a Windows Socket DLL is a standard component of newer versions of Windows and is usually already present on most systems running Windows 95, Windows 98, Windows NT, or Windows 2000.

4.1 Hardware Setup

The LMC port of the AccessSwitch must be connected to the serial port of the serial to IP converter. The cable that is distributed with the Remote Access Kit may be used (a 9-to-25 pin adapter may be needed depending on the particular serial-to-IP converter). This is the same cable that would be used for connecting the NMC port of an AccessSwitch to a modem to facilitate remote connections.

The Ethernet port of the NMC PC must be connected to the IP network.

The converter must be configured with an IP address appropriate for the user's IP network. Port numbers must also be assigned to the serial ports of the converter.

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5 Software Setup and Use

To set up a LAN connection for an equipment managed by NMC 10.0, follow these steps:

1. Open the Communication Port dialog box by selecting the Communication Port option in the Options pull down menu of the main NMC window. Select the “LAN” option in the Communication Port dialog box. Click on the OK button. If selecting the “LAN” option was a change of communication ports, the NMC must be exited and restarted in order for the change to become effective. The NMC will display a dialog box to this effect. Click the OK button in the dialog box to exit the NMC.
2. Restart the NMC.
3. Open the Equipment Management window by selecting the Equipment option in the Administration pull down menu. In the Equipment Management window, a new equipment may be created or an existing equipment may be selected. In either case, select the “LAN” option in the Connection Type box. This will enable the IP Address and Port edit boxes. Enter the IP address and port number to be used when opening a TCP/IP connection to the converter associated with the AccessSwitch. Click the OK button after all the necessary data has been entered.

Managing an AccessSwitch via a LAN connection is similar to managing an AccessSwitch via a remote connection.

1. Connecting to an equipment: Double-click on the icon for the equipment in the main NMC window. This will open the Callview window. Single-click on the small icon in the upper left corner of the window. This will open a popup menu. Select the Connect option. The text in the Callview window status bar will change to Connecting (IP). Once the IP connection is established, the text will change to Connected. If the IP connection fails, an error message will be displayed in the status bar. The text in the status bar will change to Communicating after the NMC 10.0 and the AccessSwitch have fully established the connection.
2. Disconnecting from an equipment: Double-click on the icon for the equipment in the main NMC window. This will open the Callview window. Single-click on the small icon in the upper left corner of the window. This will open a popup menu. Select the Disconnect option. The text in the Callview window status bar will change to Disconnected.