ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *NBase-Xyplex MX TSERV J16* at our website: *Click HERE*

Getting Started

With

MAXserver™ Access Servers
Models 1604, 1608A/B, 1620 and 1640

NBase-Xyplex

295 Foster St.

Littleton, MA 01460

1-800-435-7997 (U.S.)
+978-952-4888 (International)
Email: support@Nbase-Xyplex.com

451-0038D

All rights reserved. No part of this publication may be reproduced without the prior written consent of NBase-Xyplex. The information in this document is subject to change without notice and should not be construed as a commitment by NBase-Xyplex. NBase-Xyplex reserves the right to revise this publication, and to make changes in content from time to time, without obligation to provide notification of such revision or changes. NBase-Xyplex assumes no responsibility for errors that may appear in this document.

Copyright © 1997, 2000 by NBase-Xyplex. Printed in USA

Warranty

For Repair or Warranty information, refer to the **ReadMe1st** file that is included on the CD shipped with the Software Kit. Should you experience trouble with this equipment, please contact your NBase-Xyplex customer support representative in the USA at 978-952-4700.

XYPLEX

FCC

Declaration Of Conformity

The MAXSERVER model MX-1608B , MX-1604 complies with the requirements of FCC part 15 , class B as defined under paragraph 300.32 of these rules.

A copy of the test report substantiating compliance is available on request from the

Compliance Manager,
XYPLEX,
295 Foster St.
Littleton MA, 01460

or by calling (978) 952 4700

Janusz Purwin
Janusz Purwin
Compliance Manager.

CAUTION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, can cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the power cord of the equipment into an outlet on a circuit that is different from that to which the receiver is connected.
- Consult the dealer or experienced radio/TV technician for help.

Changes or modifications not expressly approved by NBase-Xyplex could void the user's authority to operate the equipment.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

VCCI

Translation:

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Table of Contents

About the MAXserver 13
- Supported Communication Speeds 15
- Software Requirements 15
- Downloading Software 16
- Configuration Options 17
- Related Publications 19

Installation 20
- Unpack and Inspect the Unit 21
- Place the Unit on a Flat Surface or Mount on Rack 21
- Rack Mount Installation (optional) 22
- Insert the Flash Card (if Supplied) 23
- Connecting the Ethernet Interface 24
- Connect the Power Cable 26
- Front Panel LEDs - MAXserver 1620/1640 27
- Front Panel LEDs - MAXserver 1604/1608B 27
- Port Status LEDs 29
- Connect Serial Device Cables 29
- Additional Considerations for an Internet Environment 30
- Factory Defaults Settings 30
- Autobauding Feature 31
- Reinitializing/Powering Off the Unit 33
- Resetting the MAXserver 33
- Connecting Other Devices 36

Logging in to the Access Server 37

Telneting into the Access Server Console Port 39
- Changing the Telnet Remote Port 42

Passwords 42
- Login Password 43
- Privilege Password 43
- Lost Passwords 45
- Time-Sensitive Passwords 45

Prompts 46
- Login Password Prompt 46
- Configurable Username and Password Prompts 46

Privileges 48

Flash Cards 51
Loading the Image File 51
Changing the Software Image Filename 52
Copying Flash Cards 53
Deleting Flash Cards 53
Displaying the Flash Card Settings 53
Updating Images 55

Rebooting 57
INITIALIZE DELAY Command 57

Cabling Considerations 60
Ordering Cables 60
Cabling Types 60
Modem Control/Hardware Flow Control 61
Making Your Own RJ-45 Cables 62
RJ-45 Wiring Considerations 63
Modular Adapters (RJ-45 to DB-25) 64
Using Existing MAXserver 1000-series Cabling 64
DEConnect RJ-45 Cables 67
Octopus Cables 68
Connecting to a Distribution Panel 70

Pin Assignments 78
10Base-T Connector 78
RJ-45 and DB-25 Pins 79

Using the Configuration Menu 80
Loading Software Image and Parameters 81
Displaying Load Status Messages 81
Loading Protocols 82
Accessing the Configuration Menu 83
About the Configuration Menu 84
Display Configuration 84
Displaying Initialization Records 85
Displaying Miscellaneous Unit Configurations 87
Loading and Dumping Protocols 88
Displaying the Software Load Host 88
Displaying the Parameter Server 88
Modify Unit Configuration 90
Creating a Customized Configuration 92
Defining Parameter Loading Methods 95

Defining Dumping Methods 96
Defining IP Addresses 99
Miscellaneous Unit Configuration 100
Resetting the Unit's Load and Dump Protocols to Factory Defaults 102
Initializing Server and Port Parameters 104
Revert to Stored Configuration 104
Exit Saving Configuration Changes 105
Exit Without Saving Configuration Changes 105

Command Line Interface 107
Displaying an Initialization Record 107
Enabling/Disabling Image and Parameter Protocols 109
Naming Load Files 112
Retrieving Image Files from Host 113
Terminating Image File Loading 113
Dump Protocols 113
Assigning IP Addresses 114
Resetting Initialization Parameters To Default Values 117
Displaying Initialization Parameters 117
Displaying the Software Load Host 118
Displaying the Parameter Server 118
Protocols 119

Setting Up MaxServer Ports for Out-of-band Management of Console Port Devices 123

Accessing the Out-of-band Management Console Port 126
Accessing from an Ethernet-attached Station 126
Accessing from a Dumb Terminal Attached to a MaxServer Serial Port 126

Troubleshooting 128
Startup/Loading Problems 128
Startup Error Codes 129
Common Error Codes 131
Power Up and Re-initialization Problems 132
Network Loading Problems 133
Loading Problems 134
Load Server Errors 135

SIMMs Installation 142
Recommended SIMMs Manufacturers 142
MAXserver Memory Requirements 144
Installation 144
Verifying Memory Installation Using Commands 149

Verifying Memory Installation Using the Configuration Menu 149
Removing SIMMs..... 152
Removing SIMMs from the MAXserver 153
Technical Specifications..... 155
Index

Figures

Figure 1 - Sample SHOW UNIT Display 16
Figure 2 - Sample FocalPoint Configuration 18
Figure 3 - Mounting a MAXserver in Rack 23
Figure 4 - MAXserver 1620/1640, Rear View..... 24
Figure 5 - MAXserver 1604/1608B, Rear View 25
Figure 6 - MAXserver 1620/1640 Front Panel 27
Figure 7 - MAXserver 1604 Front Panel 28
Figure 8 - Serial Device Connector (RJ-45) Signal Assignments 29
Figure 9 - Monitor Parameter Server Display 34
Figure 10 - RESET Switch Location..... 35
Figure 11 - Sample SHOW PORT 0 TELNET CHARACTERISTICS Display 40
Figure 12 - Crossover and Straight-through Wiring Schemes 64
Figure 13 - Adapter Wiring, MAXserver to DTE..... 65
Figure 14 - Adapter Wiring, MAXserver to DCE..... 66
Figure 15 - MAXserver DEConnect Cable 68
Figure 16 - Octopus Cable with 50-pin Telco Connector..... 69
Figure 17 - Octopus Cable With 36-pin Female DEConnect Connector 69
Figure 18 - Octopus Cable With 36-pin Male DEConnect connector 70
Figure 19 - Connecting a MAXserver to DB-25 Distribution Panel 71
Figure 20 - Modular Cables for Connecting a Modem (6-Wire)..... 73
Figure 21 - Modular Cables for Connecting a Modem (7-Wire)..... 74
Figure 22 - Modular Cables for RTS/CTS Flow Control (7-Wire)..... 75
Figure 23 - Modular Cables for Connecting a Modem (Eight-Wire)..... 76
Figure 24 - Modular Cables for RTS/CTS Flow Control (Eight-Wire)..... 77
Figure 25 - Ethernet 15-Pin AUI Connector Assignments 78
Figure 26 - 10Base-T Connector Assignments..... 79
Figure 27 - RJ-45, DB-25 Pins 79
Figure 28 - Access Server Configuration Menu 84
Figure 29 - Display Unit Configuration Menu..... 85
Figure 30 - Sample Unit Configuration Display..... 86
Figure 31 - Sample Miscellaneous Configuration Display..... 87
Figure 32 - The Modify Unit Configuration Menu 91

Figure 33 - Sample Primary Initialization Record Display 108
Figure 34 - Primary Initialization Record Display..... 118
Figure 35 - Sample Error Code Display..... 130
Figure 36 - Typical SIMM..... 144
Figure 37 - Removing the Screws Securing the Cover..... 145
Figure 38 - Location of SIMM Sockets..... 146
Figure 39 - Inserting SIMM into Socket..... 148
Figure 40 - MAXserver Access server Configuration Menu 151
Figure 41 - Sample Display Unit Configuration Display..... 151
Figure 42 - Sample Miscellaneous Configuration Display..... 152
Figure 43 - Removing SIMMs..... 154

About the MAXserver

The MAXservers are standalone access servers that provide:

Serial Ports – The MAXserver is available in the following configurations:

- The MAXserver 1620 provides 20 asynchronous serial communication ports with RJ-45 interfaces.
- The MAXserver 1640 provides 40 asynchronous serial communication ports with RJ-45 interfaces. (See Figure 4 for connector signal assignments.)
- The MAXserver 1608 provides 8 asynchronous serial communication ports with RJ-45 interfaces.
- The MAXserver 1604 provides 4 asynchronous serial communication ports with RJ-45 interfaces.

Figure 4 and Figure 5 show rear and front views of the MAXserver 1620 and MAXserver 1640. Figure 6 and Figure 8 show rear and front views of the MAXserver 1608A and MAXserver 1604.

NOTE: The front and rear panels of the MAXserver 1608A are identical to the MAXserver 1620 and 1640 except for the number of ports available.

Ethernet Interfaces -- A 15-pin standard Ethernet Interface Attachment Unit Interface (AUI) connector and a 10Base-T Ethernet interface (RJ-45 connector). (See Figure 15 for AUI connector signal assignments.)

TCP/IP and LAT Protocol Support -- The MAXserver provides concurrent support for the DEC Local Area Transport (LAT®) and TCP/IP protocols.

Flash Card -- An optional card, from which the unit can load its operating software.

The MAXserver can also load software from the flash card to other NBase-Xyplex access server units on the network for which it has a load image.

Network Software Loading -- If you order a MAXserver without a flash card, the unit loads its operating software from a network host called a *load server*. The load server is typically a UNIX™ or VAX/VMS™ system. However, you can also use a MAXserver Manager card (MAXman) or another MAXserver. The load server downloads a software image to the MAXserver over the network whenever the access server is powered on or re-initialized. The load serverm can support other devices as well.

Expandable Memory – All MAXserver units are shipped with 4 MB of factory installed memory. The memory can be expanded in 2 MB increments, up to 8 MB, using SIMM memory modules. SIMMs should be installed by qualified personnel only. To upgrade your MAXserver, contact your NBase-Xyplex sales representative or distributor. Installation instructions are provided later in this Guide.

Concurrent Flow Control and Modem Control Support -- The MAXserver provides concurrent support for RTS/CTS flow control signals and modem control; signals on all ports. Adapters are available to support cabling to MAXserver ports when these signals are used. In most cases, the MAXserver can also use standard MAXserver 1000-series cabling, if support for the new signals is not required.

Supported Communication Speeds

MAXserver	Communication Speed
MAXserver 1604	50 - 115.2 Kbps
MAXserver 1608A/B	50 - 115.2 Kbps
MAXserver 1620	50 - 115.2 Kbps
MAXserver 1640	50 bps to 57.6 Kbps

Software Requirements

MAXserver	Minimum Software Requirements
1608A, 1620, 1640	Release 5.3 or higher
1604 and 1608B	Release 6.0.3 or higher

NOTE: If you are unsure of the software version you are running, enter the SHOW UNIT command at the Xyplex prompt to display the unit's current software version.

```
Hardware Type:       86
Hardware Revision:   00.00.00
Rom Revision:        470000
Software Type:       Access Server Level 4
Software Revision:   V6.1
Protocol Type:       LAT, TELNET, RLOGIN, TN3270, ARAP, SNMP, PPP, IPX,
XPRINTER

Daemon(s):           LPD


Enabled Feature(s):  APD, HELP, INTERNET SECURITY, IP FILTERING,
IPX FILTERING, ULI, SECURID, MENU, NESTED MENUS,
KERBEROS, RADIUS
APD Message:
AutoProtocolDetect - Begin protocol or enter 4 returns for interactive mode.
```

Figure 1 - Sample SHOW UNIT Display

Downloading Software

MAXservers are configured at the factory to load software from a flash card, if one is inserted in the card slot. If a card is not present, the unit requests software from a network load server, which can be:

- A MAXserver that is equipped with a flash card
- A MAXserver Manager (MAXMAN) card or Network 9000 processor module
- A VAX/VMS host system, from which the unit can load via DEC Maintenance Operations Protocol (MOP)
- A UNIX system running:
  - Bootstrap protocol (BOOTP) and Trivial File Transfer Protocol (TFTP), or
  - Reverse Address Resolution Protocol (RARP) and TFTP

The load server downloads a software image to the MAXserver, over the network, whenever the unit is powered on or re-initialized. By default, the unit requests software from each type of load server, until a server responds with a software load offer.

If you need to install software on a network load server, refer to the *Software Installation Guide* for the type of load server you plan to use.

Configuration Options

There are two Graphical User Interface configuration utilities that you can use instead of using the Access Server Configuration Menu or the Command Line interface to configure the MAXserver. These utilities simplify the task of configuring MAXservers - FocalPoint and ControlPoint.

About FocalPoint

FocalPoint for Access Servers is a Windows-based configuration utility with a point-and-click graphical interface (GUI) designed to step you through the process of configuring MAXservers.

FocalPoint guides you through the logical progression of setup choices complete with default settings and context-sensitive online help.Using FocalPoint to configure the MAXserver eliminates the need to learn a complex command line interface.

FocalPoint automatically ships free of charge on the software and documentation CD with all Network 3000, Route Runners, MAXserver, and 720 Series Access Server modules for the Network 9000. The latest versions of FocalPoint software are also available from the NBase-Xyplex Web Site.

To use FocalPoint, simply load the software from the CD that was shipped with the MAXserver. From FocalPoint, you can select your MAXserver model and also provide all pertinent information before you can advance to the next step. FocalPoint will not prompt you for options not available to your system.



Figure 2 - Sample FocalPoint Configuration

About ControlPoint

The ControlPoint network management application is standards-based, portable and runs on inductry-leading network management platforms such as Microsoft Windows 95 and NT, Sun Microsystems (SunNet Manager) and Hewlett Packard (HP OpenView).

ControlPoint is tailored for NBase-Xyplex devices. It provides easy configuration through a simple point-and-click Graphical User Interface (GUI). ControlPoint's Policy Manager reduces the risk of error, simplifies repetitive tasks, and saves network administrators time. A trend analysis application provides monitoring and graphing of long-term internetworking trends. To order ControlPoint, contact your NBase-Xyplex Sales Representative.

Related Publications

The following publications are useful to persons who install and manage NBase-Xyplex access servers. The following publications were included on the CD with your access server software. To obtain hard copies, contact your NBase-Xyplex sales representative or distributor.

MAXserver Documentation

Document Title	Document Number
Basic Configuration Guide	451-0084
Advanced Configuration Guide	420-0558
Printer Configuration Guide	451-0112
Commands Reference Guide	420-0559
Error Messages Reference Guide	451-0049
Using the Xyplex ULI	451-0062
Using the Xyplex APGEN Utility	451-0065
Software Installation Guides	
UNIX	420-0390
VAX/VMS	420-0391
Xyplex Loader	420-0392

Installation

This section explains how to install a MAXserver and place it into operation. The basic installation consists of the following procedures:

1. Unpack the unit, check the contents against the packing list, and inspect for possible damage during shipping.

2. Mount the unit in a standard 19" rack or place it on a suitable flat surface (19" x 15").

3. If the unit is equipped with a flash card, insert the into the card slot on the front of the unit.

   NOTE: NBase-Xyplex recommends that you wear a grounded wrist strap when you insert the card. If none is available, ground yourself by placing one hand on the unit (or another grounded object), before you insert the flash card, to prevent static from being discharged into the unit.

4. If the unit is not equipped with a flash card, verify that Release 5.3 or greater of Access Server software is installed in the network (Release 6.0.3 or higher if using the MAXserver 1604 or 1608B).

5. If you are installing a unit that is equipped with a flash card, as well as units that are not, install the unit with the flash card first. That unit can then serve as a load server for the other units.

6. Connect the Ethernet transceiver cable or 10Base-T network cable to the unit.

7. Connect the power cord to rear of the unit, then to an AC power outlet, and observe the front panel lights.

8. Connect the serial device cables to the unit and to the devices (terminals, PCs, etc.), and initialize the devices.

The following sections provide more detailed installation instructions.

Unpack and Inspect the Unit

Follow these steps:

1. Carefully unpack the unit shipping carton.

2. Inspect the contents and make sure that you received all parts listed on the shipping order.

3. Place all packing materials back into the shipping carton and save the carton. (If you need to return the unit to NBase-Xyplex or your distributor, you should return it in the original carton.)

4. If the unit has been damaged in shipping or any parts are missing, notify your NBase-Xyplex representative or distributor immediately.

Place the Unit on a Flat Surface or Mount on Rack

Select a location for the unit that meets the following requirements:

Adequate Space -- A standard 19" rack or a 19" x 15" flat, stable surface such as a shelf or desktop must be available or use the instructions in Section 2.3.1 to mount it in a standard 19" rack.

You can locate the unit in a variety of environments, including an office or computer room, provided the environmental requirements are met.

To reduce the possibility of dust entering the unit and to allow easy inspection of the unit's front panel lights, make sure that the MAXserver is located at an optimum distance (preferably not less than 18 inches/45 centimeters) from the floor.

Environment -- Do not choose a location where the unit will be exposed to direct sunlight or subjected to vibration. Also, the unit must be installed in an environment with 20% to 80% humidity, noncondensing, 0° - 40° C (32°-113° F).



Do not remove the MAXserver unit's "feet."

Do not place an object on the side(s) of the unit that might block airflow through the unit.

Rack Mount Installation (optional)

Rack mount installation is easier when performed by two persons -- one person holding the unit while another secures the mounting bolts with a Phillips-head screwdriver. (Threaded clips and bolts are supplied with the unit).

Complete these steps:

1. Locate a mounting position on the rack that allows at least one inch of space above and below the unit.

2. Secure the unit to the mounting rack using the supplied bolts, as shown in Figure 3. If the rack is not threaded, use the threaded clips supplied with the server.

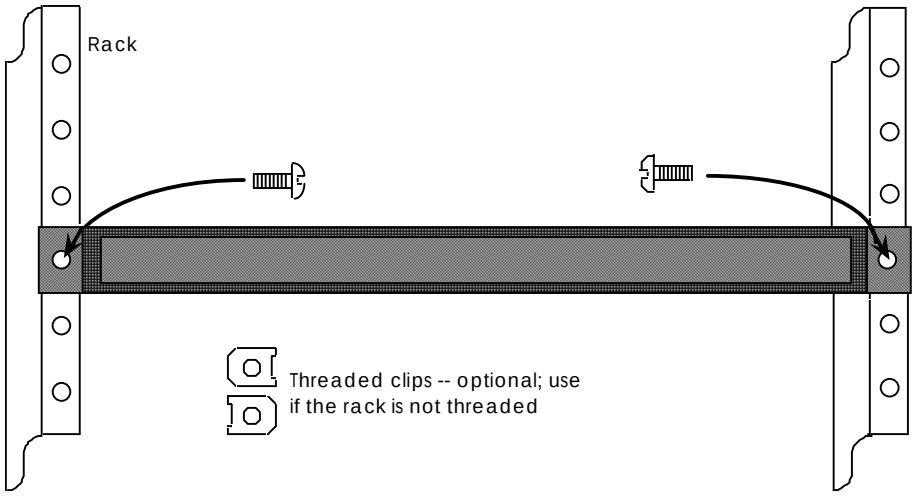


Figure 3 - Mounting a MAXserver in Rack

Insert the Flash Card (if Supplied)

If the unit is supplied with a Flash Card, insert the card into the card slot on the front panel.

> ☞ NBase-Xyplex recommends that you wear a grounded wrist strap when you insert the flash card. If none is available, ground yourself by placing one hand on the unit (or another grounded object), before you insert the flash card, to prevent static from being discharged into the unit.

Markings on the flash card indicate which end you insert into the unit. (As another indication, the end you insert has two rows of small square holes.)

Connecting the Ethernet Interface

Connect either a 10Base-T or AUI Ethernet network cable to the appropriate connector on the rear of the MAXserver (See Figure 4 for 20-port and 40-port models; Figure 5 for 8-port and 4-port models.) Connect only one Ethernet cable to the unit. When powered up, the unit selects the interface on which it detects network activity.

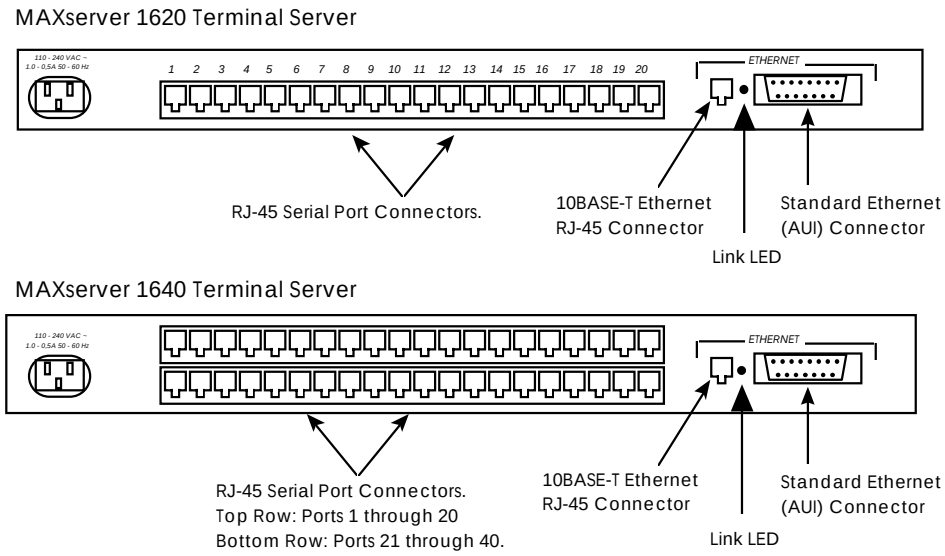


Figure 4 - MAXserver 1620/1640, Rear View

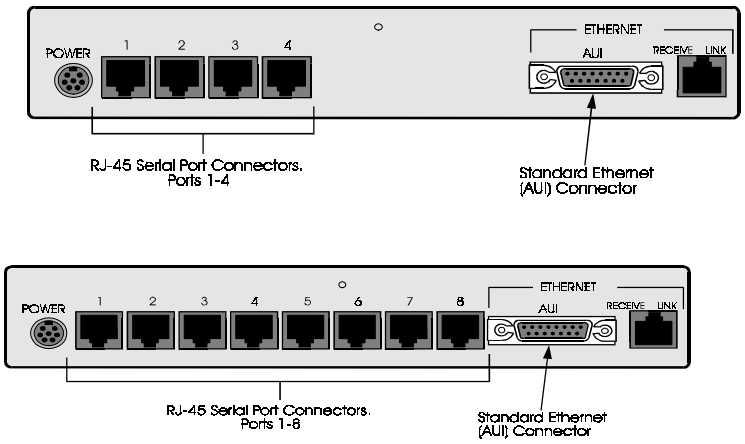


Figure 5 - MAXserver 1604/1608B, Rear View

Standard (AUI) Connection -- Plug the male cable connector into the 15-pin female AUI socket on the rear of the unit and fasten the slide latch. (The AUI connector signal assignments are shown in Figure 25.)

10Base-T Connection -- Install the Ethernet cable by plugging it into the 10Base-T connector on the rear of the unit. (The 10Base-T connector signal assignments are shown in Figure 26.) If you use the 10Base-T connector, the LINK LED will light when the unit detects that it is connected to a working Ethernet network.

Connect the Power Cable

You do not need to set the unit for 115V or 230V operation. The power supply automatically adapts to the input voltage.

A grounded AC power outlet should be located within six feet of the back of the unit. You can use a UL-approved, 3-prong extension cord if necessary, provided it has sufficient current and voltage capacity. (The cord must have sufficient capacity for the input power, and AC power must meet the criteria listed in).

To connect the power cable, complete these steps:

1. Plug the AC line cord (supplied) into the AC power receptacle on the rear of the unit. (See Figure 4 for the location of the power receptacle.)

2. Plug the other end of the cord into a grounded 3-prong AC power outlet (or a UL-approved extension cord with sufficient capacity that is plugged into a suitable outlet).

3. When you apply power, the unit performs a self test of its circuitry and then proceeds to load its software. When the unit has finished loading its software, the RUN light flashes slowly and the LAN light flashes as Ethernet packets are received. (Figure 6 shows the locations of the lights on the front panel.)

Front Panel LEDs - MAXserver 1620/1640

The front panels of the MAXserver 1640 and 1620 access servers are identical, except for the model designation. If, after several minutes, the front panel lights do not behave as indicated, refer to the Troubleshooting section of this guide for instructions.

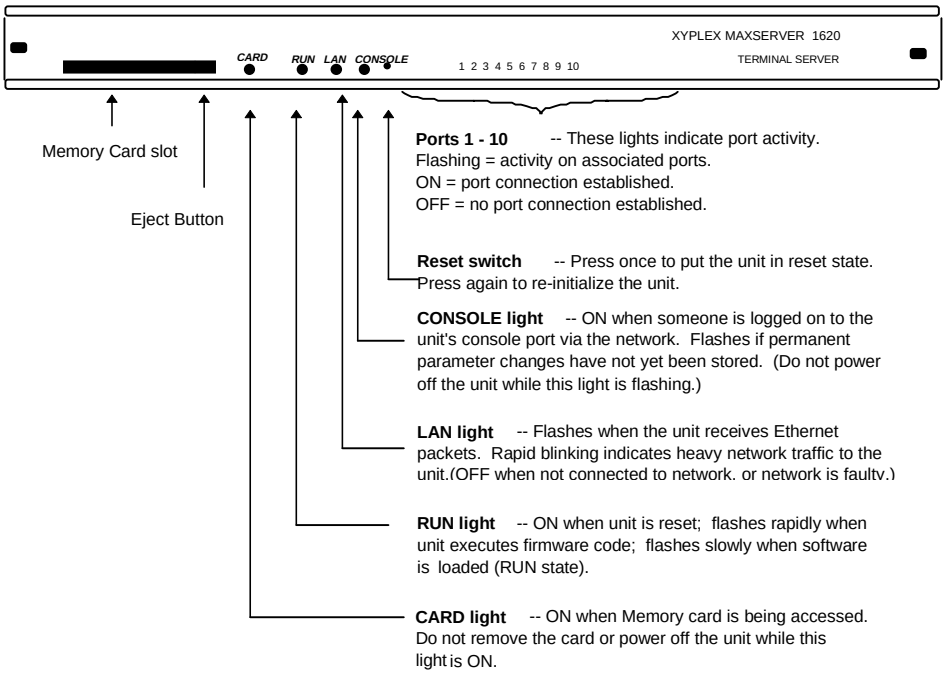
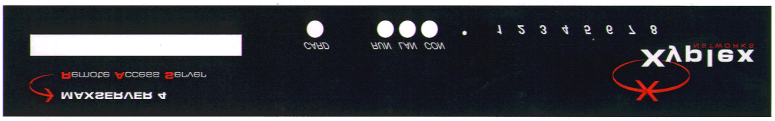


Figure 6 - MAXserver 1620/1640 Front Panel

Front Panel LEDs - MAXserver 1604/1608B

The front panels of the MAXserver 1604 and 1608B access servers are identical, except for the model designation (see Figure 7). If, after several minutes, the front panel lights do not behave as indicated, refer to the Troubleshooting section later in this guide.



Memory Card Slot

Ports 1- 4

These lights indicate port activity.

Flashing = Activity associated with port.
ON = Port connection established.
OFF = No port connection established.

CONSOLE light - ON when someone is logged on to the unit's console port via the network. Flashes if permanent parameter changes have not yet been stored

LAN light - Flashes when the unit receives Ethernet packets. Rapid blinking indicates heavy network traffic to the unit. (OFF when not connected to network or network is faulty.)

RUN light - ON when unit is reset. Flashes rapidly when unit executes firmware code. Flashes slowly when software is loaded (RUN state).

CARD light - ON when Memory card is being accessed. Do not remove the card or power off the unit while this light is ON.

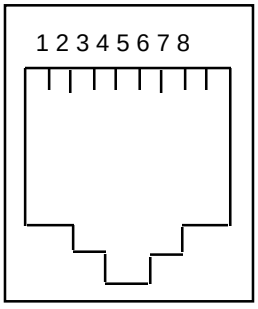
Figure 7 - MAXserver 1604 Front Panel

Port Status LEDs

The port status LEDs are used in several ways. During the initialization process, the LEDs indicate that self-tests are being performed, and if any self-test fails, they indicate an error code. After the unit has received a load image and parameters, the lights indicate when a port is actively being used. In this case, each light can indicate activity for more than one port. For example, if LED 1 is lit, this can indicate that there is activity on ports 1, 11, 21, or 31. LED 2 indicates activity on ports 2, 12, 22, etc.

Connect Serial Device Cables

Connect the serial device cables to the 8-pin RJ-45 jacks on the rear of the unit. The signal assignments of the 8-pin jacks are shown in Figure 8.



Pin	Signal
1	RNG/CTS (input)
2	DTR (output)
3	XMT (output)
4	XMTGND
5	RCVGND
6	RCV (input)
7	DSR/DCD (input) (discussed in Section B.2.2)
8	RTS (output)

Figure 8 - Serial Device Connector (RJ-45) Signal Assignments

NOTE: MAXserver serial ports provide concurrent support for RTS/CTS flow control and modem control. See the Basic Configuration Guide for information about setting up flow and modem control.

NBase-Xyplex recommends that you label all cables with the name of the device to which it connects and the number of the port you have assigned to it. This way, if the cable is removed for any reason, you can reconnect it easily. If the device cables have not yet been prepared with the correct RJ-45 connectors, see the Cabling Considerations later in this guide.

Additional Considerations for an Internet Environment

If you plan to use the unit in an Internet environment, you must define addressing and identification characteristics to enable Internet hosts to recognize the unit as a member of the network. See the IP Addresses section later in this guide for information about configuring the unit for an Internet environment.

Factory Defaults Settings

Each MAXserver unit is configured at the factory to use a default set of initialization parameters that sets all ports to operate with asynchronous ASCII terminal devices in order to obtain a software image. For most configurations, the default settings can load without any configuration changes. If you are not connecting keyboard terminals or PCs running VT100 terminal emulation software, proceed to "Logging in to the MAXserver."

The unit is also configured at the factory to store parameters locally in Non-volatile storage (NVS) or on a flash card, if one is installed, and remotely at any properly configured parameter server. The following table lists the factory default settings.

NOTE: The default settings listed in this table are for Initialization Record 1 only. Initialization Records 2 and 3 are not enabled at the factory. However, if you enable Records 2 and 3, their default settings are the same as Record 1.

Table 1 - Factory Default Settings

Configuration	Factory Default Setting
Initialization Record 1 Initialization Record 2 Initialization Record 3	Enabled Disabled Disabled
Parameter file load method	NVS, XMOP, MOP, BOOTP, RARP
Software Image load method*	CARD, XMOP, MOP, BOOTP, RARP, DTFTP*
Dump File Method	XMOP, MOP, BOOTP, RARP
Software filename for CARD/XMOP/MOP loading	XPCSRV20
Default unit IP address:	0.0.0.0
Installed memory	4 MB
Loading Status messages	Enabled
Directed TFTP values	0.0.0.0 or N/A
Server login password (#)	ACCESS
Privileged password	SYSTEM

* DTFTP is not enabled at the factory.

Autobauding Feature

MAXserver serial ports are configured to adjust automatically to the communication speed of a connected terminal.

NOTE: Access servers do not autobaud when the port receives 7-bit characters with EVEN parity from the device until software loading has completed. You must use 8-bit characters with parity set to NONE in order to receive load messages and to enter into the ROM Configuration Menu.

You can only enable AUTOBAUD at a port set to local access and when the attached device is configured with the following settings:

CHARACTER SIZE	8, (7 if EVEN parity)
PARITY	NONE (EVEN if character size is set to 7)
SPEED	Valid speeds between 50 and 38400. The supported port speeds are: 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2000, 2400, 4800, 9600, 14400, 19200, 21600, 26400, 28800, 33600, and 38400 bits per second (baud). The device connected to the port must be set to one of these speeds. (Ports cannot autobaud at port speeds above 38400 bps.

To autobaud the serial port, when your terminal is powered on, keep pressing RETURN until the unit recognizes the terminal. When you do this, the serial port adjusts to the communication speed of the terminal. (This process is called *autobauding*.)

Reinitializing/Powering Off the Unit

The MAXserver always stores permanent parameters (i.e., those parameters that you change using the DEFINE or PURGE command) in local storage.

Some of the DEFINE SERVER Commands require that you reboot the server for the changes to take effect. A complete listing of these server commands are located in the Define Server section of *Commands Reference Guide*. Always reboot the server using the INITIALIZE DELAY command to prevent corruption of the parameter storage. Commands that require reinitialization display the following message when you press the RETURN key:

```
XYPLEX - 705 - CHANGE LEAVES APPROXIMATELY XXXXXXX BYTES FREE
```

These commands cannot be modified by a SET command, because the server must redistribute memory resources for the feature during the boot-up process.

Before you reinitialize, cycle power, or power off the unit, make sure that the parameter storage process has completed or the permanent parameters may be corrupted.

To reinitialize the unit, use the privileged command:

```
XYPLEX>> INITIALIZE DELAY 0
```

Issuing this command ensures that parameters have been stored before the unit reinitializes.

Resetting the MAXserver

Before you power off the unit, use the following command to ensure that the unit has completed storing parameters:

```
MONITOR PARAMETER SERVER
```

The following screen displays:

```
Xyplex>> MONITOR PARAMETER SERVER
MX1620 V6.0.4S18 Rom 470000 HW 00.00.00 Lat Protocol V5.2 Uptime: 13 18:11:56
Address:   88-00-87-23-33-6B   Name:   X03346B              Number:          0
                                                      21 Dec 1998  10:24:45
Check Timer:                        30       Parameter Server Limit:          4
Retransmit Timer:                    5       Parameter Servers:               4
Retransmit Limit:                    3       Rejected Servers:               39
                                             Bad Parameter Messages:          0
Path:

Last Update Version:            102C5       Storage State:                Idle
Last Update Date:         07 Dec 1998       Loaded From:    08-00-87-03-34-6B
Last Update Time:            16:12:53                                  X03346B

Name             Address            Version Date              Status   Reason
Local MemCard    88-00-87-23-33-6B    102C5 07 Dec 1998 16:12 Current
Local NVS        88-00-87-23-33-6B    102C5 07 Dec 1998 16:12 Current
```

Figure 9 - Monitor Parameter Server Display

The storage process is completed when the “Status” column on this display says “Current” for all parameter servers, and the “Storage State” field says “Idle.” When these conditions are met, you can turn the unit off.You can reset the MAXserver to force it to run a self test or to re-initialize the unit. Before resetting the server, check the port lights to make sure that no connections are in progress. All connections are terminated when the server is reset.

To reset the MAXserver, follow these steps:

1. Make a simple "tool" from an ordinary paper clip by bending one end outward. You need this tool to press the RESET button located behind the MAXserver front panel.

2. Look for the small hole between the CONSOLE light and the light labeled '1' (see Figure 10).

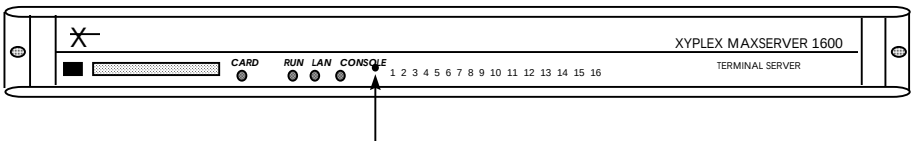


Figure 10 - RESET Switch Location

3. Use the paper clip tool to press the RESET button once. This halts all MAXserver operations -- the server will no longer send or receive network data or data from its connected devices. When the MAXserver enters RESET state, all front panel lights illuminate.

4. Press the RESET button again. The MAXserver begins its self test.

   - If the MAXserver detects an error, the front panel lights illuminate as described in the Troubleshooting section of this guide. This error sequence continually repeats until the error is corrected or you power off the MAXserver. During this time, no data is exchanged over the Ethernet cable or server ports.

   - If the MAXserver does not detect an error, it will begin loading software from the flash card or begin requesting a network load (if no flash card is present). Once loaded, the MAXserver resumes normal operations.

If your MAXserver does not behave in this manner, see the Troubleshooting section for advice.

Connecting Other Devices

If you are connecting a modem, printer, plotter, host computer, or data switch, refer to the following documentation for instructions, as follows:

Serial Printers, Plotters -- See the *Printer Configuration Guide.*

Modems, Data Switches – See the *Basic Configuration Guide.*

Host Ports – See the *Basic Configuration Guide.*

Logging in to the Access Server

When your terminal is properly connected to the unit, turn its power ON, then press <RETURN> (or ENTER) a few times -- until the unit recognizes the terminal. When the unit responds, you see the following message on your screen:

```
WELCOME TO THE XYPLEX ACCESS SERVER.

ENTER USERNAME>
```

Type your name, your initials, or a nickname, then press <RETURN>.

You can type up to 16 characters (numbers or letters). This name is your identifier during this session. If you choose, you can change this information each time you make a connection. It will be shown whenever you or any other person on the network requests information about who is connected to the unit.

After you enter your username, the unit returns the local command prompt:

```
XYPLEX>
```

To allow the system administrator to modify server and port settings, you must be in privileged mode. To enter privileged mode, use the following command:

```
XYPLEX> SET PRIVILEGED
```

The password prompt displays. Enter the default password “SYSTEM”. The password is not case-sensitive.

```
PASSWORD> SYSTEM
```

Now the following prompt displays, which indicates you are now in

privileged mode.

```
XYPLEX>>
```

See the *Commands Reference Guide* for the commands that require the user to be in Privileged mode. The unit is now ready to accept any of the commands described in the *Commands Reference Guide*. You can obtain on-screen information about the access server commands by typing HELP and pressing <RETURN>:

```
XYPLEX>HELP
```

Telneting into the Access Server Console Port

Do the following to telnet into the console port on an access server:

NOTE: You should issue both the DEFINE and SET commands where they are indicated in the following procedure. Issuing both the DEFINE and SET commands ensures that the parameter change will take effect without rebooting the unit.

1. Configure the essential IP characteristics on the Access Server as follows:

   a. Configure the IP Address to be assigned to the access server:

      ```
      define server ip address [ip-address]
      set server ip address [ip-address]
      ```

   b. Disable the Subnet Mask Autoconfigure feature. This disables the access server's ability to automatically define the natural subnet mask based on the IP address assigned to the unit. For example, the default subnet mask for a Class B network is 255.255.00. The default setting for Subnet Mask Auto-configure is ENABLED. You must disable the autoconfigure feature in order for the server to save any other variable-length subnet mask.

      Use the following commands to disable the Subnet Mask Autoconfigure feature:

      ```
      define server ip subnet mask autoconfigure disabled
      set server ip subnet mask autoconfigure disabled
      ```

c. Configure the Subnet Mask for the access server. The subnet mask must be consistent with the network on which the access server will reside. Use the following commands:

```
define server ip subnet mask [ip-address]
set server ip subnet mask [ip-address]
```

d. Configure the default first-hop Router/Gateway:

```
define server ip primary gateway address [ip-address]
set server ip primary gateway address [ip-address]
```

2. Specify Telnet Port 2000 when connecting remotely:

Be sure to specify telnet remote port# 2000 when trying to connect. If no port/socket number is specified, then most Telnet applications will use port 23 by default. Unless the Xyplex's console port has also been redefined to port 23, then any attempts to Telnet into the server's console port will be refused.

The current port setting on the access server is displayed in the "Remote Port" field of the "show port 0 telnet characteristics" screen. Figure 11 shows a "show port 0 telnet characteristics" screen with the "Remote Port" field set at 2000.

```
MX1620>> show port 0 telnet characteristics

Port 0:  admin                                    05 Jan 2000  19:33:48

Abort Output Character:       None    Newline:                  CR/NULL
Attention Character:          None    Newline Filtering:           None
Default Port:                   23    Query Character:             None
Echo Mode:               Character    Remote Port:                 2000
Erase Keystroke Character:    None    Synchronize Character:       None
Erase Line Character:         None    Transmit:           BuffTime  80
Interrupt Character:          None    Binary Session Mode:     PASTHRU
TerminalType:                 None    Tn3270 Device:               None
Tn3270 TranslationTable:      None    Tn3270 Printer Port:          Any
Local Port:                   4000    Tn3270 Default Port:           23

Enabled Characteristics:
```

Figure 11 - Sample SHOW PORT 0 TELNET CHARACTERISTICS Display

If you are trying to telnet from one NBase-Xyplex device into another NBase-Xyplex access server's console port, the command you will use is:

```
telnet x.x.x.x:2000
```

where "x.x.x.x" represents the IP address of the destination access server. For example, enter `telnet 140.179.41.59:2000` to reach the console port of the server having an IP address of 140.179.41.59.

NOTE: Port# 2000 must be specified when trying to remotely connect to the access server. If no port/socket number is specified, then most Telnet applications will use port 23 by default. Unless the access server's console port has also been redefined to port 23, any attempts to Telnet into the server's console port will be refused.

3. When you are connected to the access server, press the Enter key one more time to display the login password prompt (#).

4. Type the default login password "access" at the # prompt, and press the Enter key.

   NOTE: The password is not echoed as you type.

5. If you entered the password correctly, the `Enter username>` prompt will be displayed.

6. Enter any name at the `Enter username>` prompt, just as if you were connected locally to one of the serial ports.

   The `Xyplex>` prompt is now displayed.

Changing the Telnet Remote Port

While you are logged into a port in privileged mode, you can change the telnet remote port on port 0 from 2000 to 23. Use the following commands:

```
define port 0 telnet remote 23
logout port 0
```

Now you can telnet to the IP without a socket number.

Passwords

The following passwords are the defaults the first time you use the MAXserver.

- To log on to the server at the # prompt, the default login password is ACCESS.
- To set privileged mode at the Xyplex> prompt, the default privilege password is SYSTEM.

These passwords prevent persons who do not know them from accessing the server. Change the default passwords to other values as part of your basic server setup.

IMPORTANT

If you change the default password, make sure that the new password is written down in a safe location. If you forget the password, the server will need to be reset to factory default settings.

Login Password

When you enable the Login Password feature on a server port, a person attempting to log on to that port must enter a password in order to gain access. A single password is used at all ports where the feature is enabled. The login password feature is optional. The server does not prompt for it unless you enable it on a port.

Use the following command to enable the Login Password feature. The feature is disabled by default.

```
DEFINE PORT  [port-list] PASSWORD ENABLED
```

Then define a password. The default login password is ACCESS. The password can be between 1 and 16 characters. Enclose the password string in quotes.

```
DEFINE/SET SERVER LOGIN PASSWORD "password"
```

Examples

```
Xyplex>> DEFINE PORT 1-8 PASSWORD ENABLED

Xyplex>> DEFINE SERVER LOGIN PASSWORD "login123"
```

Privilege Password

You must enter the privilege password to set a port to privileged mode. The default password is SYSTEM. You can specify the privilege status of a port where commands are issued. More than one port on an access server can be privileged. Any user who knows the privileged password can use the SET PRIVILEGED command.

NBase-Xyplex recommends that you change the default password to restrict access to the commands that:

- Change the server's settings
- Affect other users' ports
- Affect access to destinations on the network

You might want to change the privilege password periodically, to limit the number of users who can set privileged mode.

Use the following command to define the privilege password:

```
DEFINE SERVER PRIVILEGE PASSWORD "password"
```

The password you define with this command is what users must type in order to use privileged server commands. The password can be between 1 and 16 characters. Enclose the password string in quotes. The default password is SYSTEM. There can be only one privileged password per server.

If you do not type the password on the command line, the system will prompt you for a password. In this case, do not enclose the password in quotation mark characters.

Example

```
Xyplex>> DEFINE SERVER PRIVILEGE PASSWORD "manager"
```

Lost Passwords

NBase-Xyplex access servers are extremely secure. If you should lose your password, reset the unit back to factory defaults and reconfigure as new. New passwords should be properly maintained by the system administrator.

Time-Sensitive Passwords

With the time-sensitive password scheme, the user carries a security device the size of a credit card. The device displays a periodically changing number in an LCD display. When the user dials in and gives his or her user name, the access server prompts for a password. The user enters the number currently showing on the security card. To check the password, the access server queries a local security server that is running the same algorithm as the security card. If the passwords match, the user may then use the network.

NBase-Xyplex remote access products support both dialback security and time-sensitive passwords. Time-sensitive password protection is provided using Security Dynamics' SecurID system.

See the *Security Features section of the Advanced Congifuration Guide* for detailed information about changing the security default passwords.

Prompts

The local command mode prompt changes to indicate that the port is a privileged port (unless the command is issued from a console port). For example, the default local command mode prompt for a non-privileged port is Xyplex>. The default local command mode prompt for a privileged port is Xyplex>>.

Login Password Prompt

The Login Password prompt appears when a user attempts to log on to a port where the Login Password feature is enabled. The default prompt is #

Use the following command to change the prompt:

```
DEFINE/SET SERVER LOGIN PROMPT "prompt-string"
```

Example

```
DEFINE SERVER LOGIN PROMPT "Login:"
```

Configurable Username and Password Prompts

You can define user name and password prompts for any port. To do this, use the following command syntax:

```
DEFINE PORT [port-list] USERNAME PROMPT "string"
DEFINE PORT [port-list] PASSWORD PROMPT "string"
```

The default username/password prompt length is 26 characters. Enlcose the prompt text in quotes.

The default values are, "Enter username>" and "Enter user password>."

If the server booted from an existing parameter file, the username prompt is, "Enter username>."

For the password prompt, the default value is "Enter user password>." However, if SecurID is enabled on the port, the default password prompt is "Enter PASSCODE:."

Use the SHOW PORT ALTERNATE CHARACTERISTICS command to display the current prompt settings.

```
Xyplex>> SHOW PORT ALTERNATE CHARACTERISTICS

Port 4:  aa                                          17 Nov 1998  18:50:08

Resolve Service:          Any_Lat     DTR wait:                     Disabled
Idle Timeout:                   0     Typeahead Size:                  128
SLIP Address:             0.0.0.0     SLIP Mask:           255.255.255.255
Remote SLIP Addr: 140.179.245.148     Default Session Mode:     Interactive
TCP Window Size:              256     Prompt:                         MX1620
DCD Timeout:                 2000     Dialback Timeout:                 20
Stop Bits:                      1     Script Login:                 Disabled
TCP Keepalive Timer:            0     Username Filtering:               None
Nested Menu:              Disabled     Nested Menu Top Level:             0
Command Size:                  80     Clear Security Entries:       Disabled
Rlogin Transparent Mode: Disabled     Login Duration:                    0
Xon Send Timer:                 0     TCP Outbound Address:        0.0.0.0
Slip Autosend:            Disabled     Radius Accounting:            Disabled
APD Prompt:                Enabled

Username Prompt:          Enter username>
Password Prompt:     Enter user password>
```

Privileges

Privilege levels determine which commands users can enter at server ports. The server supports three privilege levels, described in Table 2. The default privilege level for all ports is Nonprivileged.

Table 2 - Privilege Levels

Privilege Level	Description
Privilege	A user in privileged mode can issue all commands, including those that change and monitor server and port settings, and those that reboot and shut down the server. (Many of the commands in this manual are only accepted in privileged mode.) To set privileged mode, you must enter the privilege password.
Nonprivilege	A user in nonprivileged mode cannot issue commands that change and monitor the settings of the server or other ports, or commands that reboot and shut down the server.
Security	Secure ports accept certain nonprivileged commands, including commands that establish sessions on the network and display and change port settings.

Privileged Ports

A user at a nonprivileged port can set the port to privileged mode through this command:

```
Xyplex> SET PRIVILEGE
```

Type the privileged password (password is not echoed by the terminal). The default password is "ACCESS". The access server will then display the privileged local command prompt.

Xyplex>>

The port will have privileged status. This means that the user at the port can set or change operational and permanent parameters for the server, and any or all ports, sessions, or services. When the port is logged out, it will automatically return to a non-privileged status for the next user.

Nonprivileged Ports

To restore nonprivileged mode, issue this command:

```
Xyplex>> SET NOPRIVILEGE
```

The port will return to non-privileged status. This means that the user will only be able to change parameters for the current port or session. This is the default privilege level when connecting to a port.

Secure Ports

The Secure Privilege level might be appropriate for many ports. If you want to limit the use of a port to commands that users need for normal daily work, consider making the port secure by default. The *Commands Reference Guide* describes commands that are available at secure ports only. Secure ports accept commands that:

- Establish sessions
- Display information about the port and network destinations
- Change some port settings

You can change the following port settings while in Secure mode:

- Session switching characters
- Multisessions feature
- TN3270 feature

Secure ports *do not accept* commands that affect:

- Server settings
- Other user's ports
- The accessibility of network destinations

Use the following command to change the privilege level to Secure. Unless you set the default privilege level of a port to Secure through the following command, a port has the Nonprivileged security level:

`DEFINE/SET PORT[`*`port-list`*`]SECURITY ENABLED`

Flash Cards

This section describes how to use flash cards. Flash cards are readable/writeable and can be updated to a newer software version. See the *Software Installation Guide for Xyplex Loaders* for instructions. The commands used to update flash cards are located in the *Commands Reference Guide*.

You can perform the following tasks with the image file contained on the flash card:

- Copy the file to another card
- Delete the files
- Display the current status
- Format the card
- Load the image file
- Terminate file updates

Loading the Image File

The DEFINE SERVER LOAD SOFTWARE command specifies the CARD/XMOP/MOP filename that contains the software load image. You specify this filename if CARD, XMOP, or MOP is enabled as a load protocol for the software load image, and the load image name is different from the default. The default software load image name for a MAXserver is XPCSRV20. The CARD/XMOP/MOP load image filename appears in the Server Loaddump Characteristics display shown in Figure 27.

Use the following command to load the image file:

```
DEFINE SERVER LOAD [PRIMARY] SOFTWARE "FILENAME"
                   [SECONDARY]
                   [TERTIARY]
```

Example

This example specifies XPCSRV20 as the filename for the secondary initialization record.

```
XYPLEX>> DEFINE SERVER LOAD SECONDARY SOFTWARE XPCSRV20
```

Changing the Software Image Filename

The software load image filename appears in the Software field on the Loaddump characteristics display (see Figure 33). The default filename for all MAXservers is XPCSRV20. The filenames apply to primary, secondary, and tertiary initialization records.

Use the following command to specify a name for the software load image file:

```
DEFINE SERVER LOAD [RECORD |ALL] SOFTWARE FILENAME
```

record	The primary, secondary, or tertiary initialization record.
filename	The software load image filename.

Example

This example specifies the software load image filename for the primary initialization record:

```
XYPLEX>> DEFINE SERVER LOAD PRIMARY SOFTWARE XPCSRV20
```

Copying Flash Cards

Use this command on units that have flash cards. You can copy the entire contents of one card to another with this command.

```
XYPLES>> SET SERVER CARDCOPY
```

Deleting Flash Cards

Use this command on units that have flash cards. You can delete the entire contents of a flash card.

```
XYPLEX>> SET SERVER CARDCOPY ERASE
```

CAUTION

DO NOT USE THIS COMMAND UNLESS YOU ARE ABSOLUTLEY SURE THAT YOU WANT ALL CONTENTS DELETED.

Displaying the Flash Card Settings

Use this command to display the card's current settings.

```
XYPLEX>> SHOW CARD STATUS
```

```
Xyplex > show card status
TS/720 V6.1 Rom 4C0000 HW 00.02.00 Lat Protocol V5.2 Uptime 0 10:25:35
Address:08-00-87-02-58-64   Name:X025864          Ethernet:A   Number:    0
                                                                      04
Dec 1998  12:44:11

Card Status:    Formatted / Write Enabled
Card Type:      Xyplex / FLASH2 / 2097152 bytes
Device Type:    Intel / 65536 bytes
Card State:     Idle

Get File Host:
Get File Name:
Get File Area:

Get File Current State:    Idle
Get File Previous Status:  None

Parameter Area Updates:    25

Xyplex>
```

Field	Description
Card Status:	Formatted and write enabled.
Card Type:	Manufacturer - can be anyof the following: – Fujitsu – Micron – Mitsubishi NEC – NBase-Xyplex – Samsung – Toshiba Flash = SERIES 1, Flash2 = SERIES 2 Size of Flash card
Card State:	Idle
Device Type:	Manufacturing and size of ROM chips on the Flash card.
Get File Host:	Where you get file from.

Get File Name:	Name of file.
Get File Area:	Area of flash card to put file.
Get File Current State:	What the card is currently doing.
Get File Previous State:	Did previous GET FILE succeed.
Parameter Area Updates:	How many times the PARAM Area of the Flash card was updated since the server was rebooted.

Updating Images

> You must re-initialize the unit after updating the card, if you want to use the new software version immediately.

Use the following command to initiate and terminate flash card load image updates.

```
SET SERVER GET CARD [LOADFILE] [“FILE-NAME”] IP ADDRESS [IP-ADDRESS] AREA [AREA-NUMBER]
                                             ETHERNET ADDRESS [ETHER-ADDRESS] AREA [AREA-NUMBER]
                   [STOP]
```

Where	Means
LOADFILE	Loads the image file.
"file-name"	The image's file name. Enclose the name in quotes.
IP ADDRESS	Location of stored file to GET.
STOP	Terminates the file loading process.
ETHERNET ADDRESS	Location of the stored file to GET

AREA	The area on the card where the image file is located.

Depending on the file's location, include either the IP address or Ethernet address where the file is located.

NOTE: There is no Define command for this option.

Examples

```
SET SERVER GET CARD LOADFILE “xpcsrv20.sys” IP ADDRESS
140.179.192.110

SET SERVER GET CARD STOP
```

Rebooting

Use the INITIALIZE SERVER command to reboot the access server, or to cancel a previous INITIALIZE SERVER command. Using the INITIALIZE command, the access server returns to a state which is exactly the same as if you powered up the server (i.e., all settings are restored to the values specified in the permanent database. Values specified using SET commands are reset to the values in the permanent database, users are logged out, and the server image is reloaded).

INITIALIZE DELAY Command

You can specify a delay period before the access server reboots. When you issue the INITIALIZE command without specifying a delay period, the access server broadcasts a warning to all ports notifying any users who are logged on (the default is 1 minute). If you specify a delay time which is between 2 and 29 minutes, the server will broadcast a warning immediately, and then every minute for each of the last 5 minutes, until re-initialization. If you specify a delay of 30 minutes or greater, the access server will broadcast a message immediately, once every 30 minutes prior to re-initialization, and then once every minute for the last 5 minutes. These messages are broadcast regardless of the BROADCAST setting. Broadcast messages are only displayed at ports that have BROADCAST enabled.

If you specify INITIALIZE DELAY 0,the server will reboot immediately unless there are unsaved parameters, in which case you will receive the "Warning Configuration Not Saved" error message (message 198). If you specify INITIALIZE DELAY *n* with a delay value other than 0, and a user changes a permanent parameter (i.e., uses a Define command) before *n* minutes expire, the initialization is delayed until the parameters are saved. If the parameter server cannot save the parameters, the user who entered the Define command will receive the 198 error message, and the server will not reboot.

Use the following command to reboot the server:

`INITIALIZE SERVER DELAY [`*`delay-time`*`] [OVERRIDE]`

or

`INITIALIZE DELAY [`*`delay-time`*`]`

Where	Means
SERVER	An optional keyword.
DELAY	Re-initialization to occur after a specified period of time.
delay-time	How long the server will wait until the re-initialization occurs. Valid values are 0 to 32767 minutes. The default value is 1 minute.
OVERRIDE	The server will perform the initialization even if there are unsaved parameters. If you do specify "OVERRIDE" and parameters have only been partially updated, the parameter file can become corrupted.
CANCEL	Cancel a previously issued INITIALIZE command.

Examples

```
INITIALIZE DELAY 1

NITIALIZE SERVER DELAY 5

INITIALIZE SERVER DELAY 5 OVERRIDE

INITIALIZE CANCEL
```

Cabling Considerations

NBase-Xyplex offers a family of products that support access serving features. Each product can be connected to a variety of modems or other devices through one of three wiring schemes (with 6, 7, or 8 wires) which support different modem control and hardware flow control options. A fourth wiring scheme, which is available on some products, uses 3 wires and is not suitable for modem-based applications.

Standard cabling items available from NBase-Xyplex allow you to connect to any serial device that uses a male or female DB-25 connector. All you need is the appropriate modular cable (crossover cable for connecting to a DTE device, straight-through cable for connecting to a DCE device), and the correct modular adapter (male or female DB-25 connector), which is essentially an RJ-45-to-DB25 adapter.

Ordering Cables

NBase-Xyplex also supplies DEConnect-compatible crossover cables and modular adapters for use with all MAXserver units. To order cables, adapters or other cabling accessories from NBase-Xyplex, contact your Sales representative or distributor.

Cabling Types

Table 3 lists the cabling types and modem/flow control supported for each.

Table 3 - Cabling Types and Flow Control

Cabling Type	Modem Control	Hardware Flow Control	Products
6-wire	X	NO	MX-TSERV-J8, MX-TSRVM-J8, and MX2120 Access Server cards.

7-wire	X	NO	MAXserver 1100,1120,1500,1520, 1800, and 1820 Access Servers.
8-wire	X	X	MAXserver 800, 1600,1604, 1608, 1620, 1640 Access Servers. Network 9000 Access Server 720 RJ-45 I/O Modules (Model 723).

See the Modems section of the *Basic Configuration Guide* for information about modem control and setting up modems.

Modem Control/Hardware Flow Control

MAXserver serial ports can be set up to support RTS/CTS flow control. The *Basic Configuration Guide* describes flow control options and explains how to set up flow control at a port. The adapters shown in Figure 13 and 13 support RTS/CTS flow control. MAXserver serial ports can also be set up to support modem control. The *Basic Configuration Guide* describes modem control options and explains how to set up modem control at a port. The adapter shown supports modem control, by supporting the RING signal.

To use modem control or hardware flow control, you need an input control signal and an output control signal for each. This is important to consider when you decide which NBase-Xyplex unit to use for a particular application, since different NBase-Xyplex units support different wiring schemes, and some units might not have enough signals for the desired application.

NBase-Xyplex cabling and software can be configured to use various combinations of modem control, and hardware flow control. There are two types of hardware flow control: DCD/DSR and RTS/CTS. DCD/DSR flow control (referred to here as "standard" hardware flow control) is the type that one would typically use with lower speed modems. RTS/CTS is used with high speed modems (typically, these modems support CCITT V.42 operation). Only one type of hardware flow control can be used at a given port. Modem control and DCD/DSR hardware flow control are mutually exclusive (i.e., only one of these can be enabled at a given port). On 8-wire interfaces, modem control can be used concurrently with RTS/CTS hardware flow control.

NOTE: You would use a "null-modem" cable when making a direct connection between the serial ports of two access servers (i.e., no modems involved) or other DTE device. For that application, use a DTE-to-DTE cable, as described in the hardware documentation supplied with your unit.

Making Your Own RJ-45 Cables

If you make your own cables, you should be very careful when using the crimping tool. Make sure that the RJ-45 connector is fully inserted into the die-set cavity of the crimping tool, and that the wire is fully inserted into the RJ-45 connector, before crimping. The die set might be fragile, and could break if the RJ-45 connector is not properly seated before you squeeze the handle.

Also, NBase-Xyplex recommends that you use different colored wires for straight-through and crossover cables, in order to keep track of the cable type. For example, NBase-Xyplex recommends silver wire for making crossover cables and black wire for making straight-through cables.

RJ-45 Wiring Considerations

You should give special consideration to the wiring scheme when connecting a device such as a terminal to a MAXserver serial port. The MAXserver is considered a DTE device. If you want to connect to another DTE device such as a terminal that is also DTE, you will need a crossover wiring scheme somewhere in the cabling. (Communication between DTE-to-DTE devices requires a crossover.) When a DCE device is connected to a MAXserver serial port, straight-through wiring is required.

To make a modular cable with a crossover, you need only crimp the RJ-45 connector in the same direction at both ends. This crosses all wires in the cable. To make a modular straight-through cable, you need only crimp the RJ-45 connector in opposite directions at both ends. Figure 12 shows the crossover and straight-through wiring schemes.

The crossover connects the MAXserver transmit data (XMT) line to the receive data (RCV) line of the user DTE device. Similarly, the MAXserver receive data (RCV) line crosses over to the transmit data (XMT) line of the user DTE device. The other signals are crossed over in a similar manner (see Figure 12).

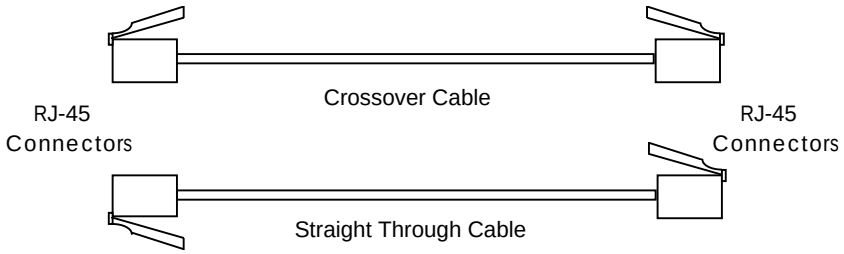


Figure 12 - Crossover and Straight-through Wiring Schemes

Modular Adapters (RJ-45 to DB-25)

You can obtain adapters with male and female DB-25 connectors from NBase-Xyplex. These adapters direct signals from the RJ-45 connector on the cable to the correct pin on the DB-25 connector. Figure 13 and Figure 14 show how devices are cabled when you use these adapters.

Using Existing MAXserver 1000-series Cabling

The adapters shown in Figure 13 and are designed for use with all MAXserver units. If you have existing MAXserver 1000-series cabling at your site, the cabling can be used to connect MAXserver ports to DTE devices -- provided you do not need to turn on RTS/CTS flow control at the ports. If you plan to connect the unit to a DCE device, you should use one of the adapters shown in Figure 14.

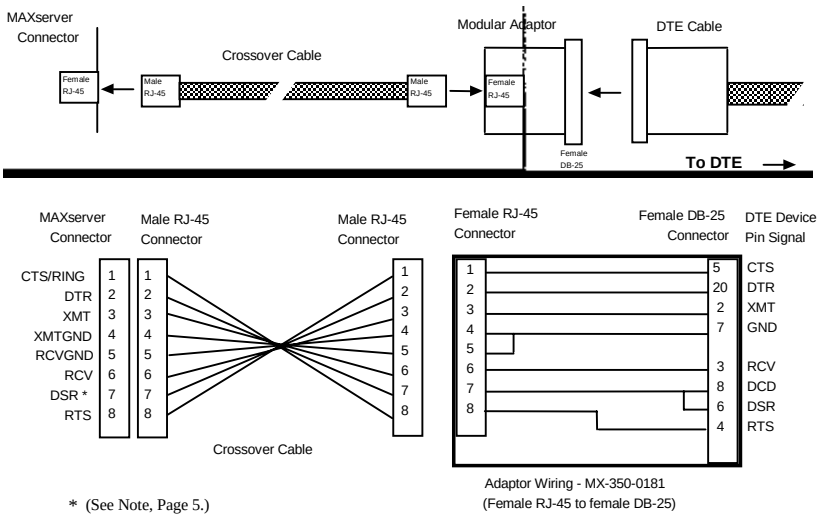


Figure 13 - Adapter Wiring, MAXserver to DTE

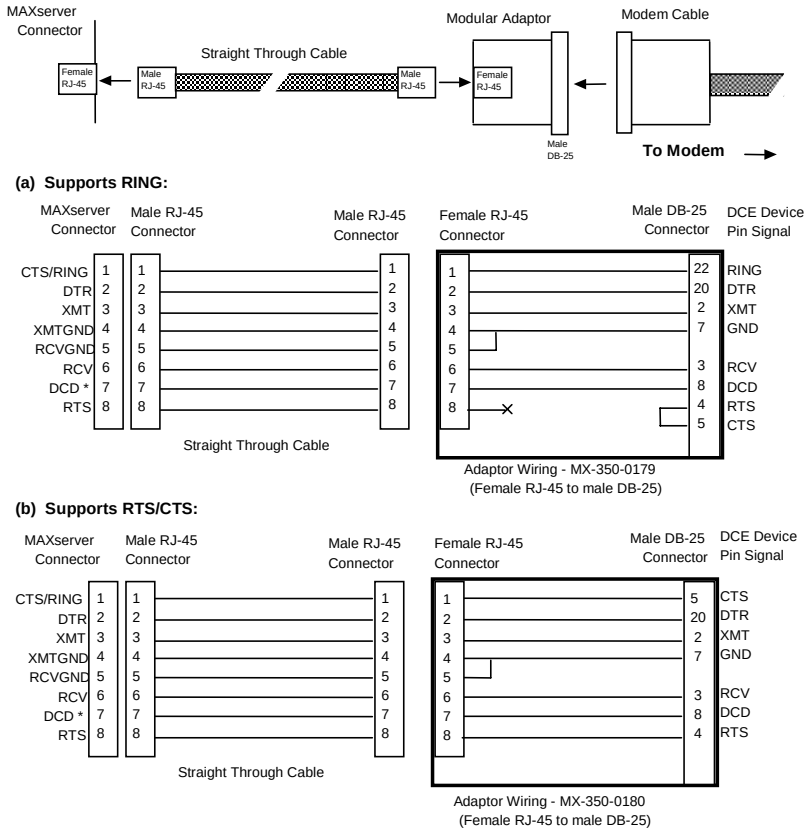


Figure 14 - Adapter Wiring, MAXserver to DCE

NOTES: In order to expand the functionality of the serial interface, the MAXserver modular cabling allows you to connect different signals to pin 7 of the MAXserver. (This pin is an input to the MAXserver.) When a DCE device is connected to a MAXserver serial port, the device's DCD output is connected to pin 7. In this case, the signal at pin 7 is referred to as DCD.

When a DTE device is connected to a MAXserver serial port, the device's DTR output is connected to pin 7 of the MAXserver. In this case, the signal at pin 7 is referred to as DSR. (This cabling scheme also provides DECconnect compatibility, since DECconnect does not support the DCD signal.)

DEConnect RJ-45 Cables

DEConnect cables no longer available.

Figure 15 shows the DEConnect-compatible cables available from NBase-Xyplex and shows how the cables are wired. The Male RJ-45 connector is attached to the server. The MMJ connector attaches to the DEConnect-compatible device (DTE). The cable is a crossover cable that uses the six inner pins of the server port and makes the signals available at the MMJ connector. The cable is constructed using standard six-wire cable.

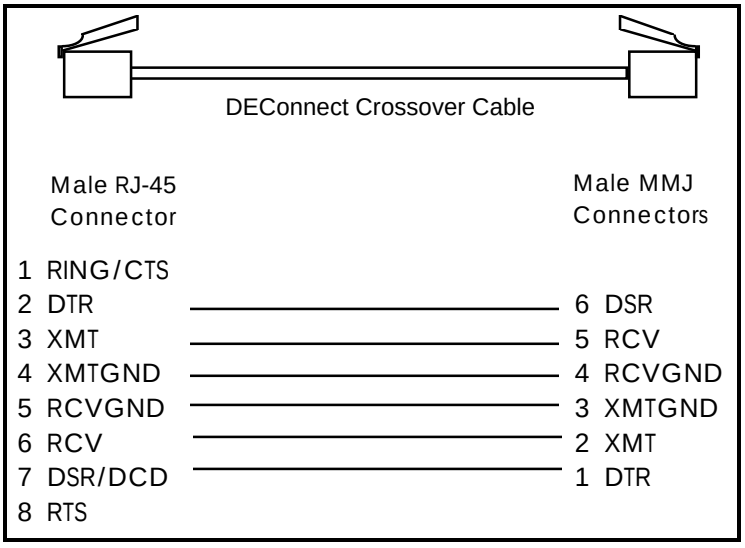


Figure 15 - MAXserver DEConnect Cable

NOTE: If you have existing DEConnect cables that you want to use with the MAXserver, the one-foot straight through cable and the RJ-45 to MMJ adapter or modular adapter allow you to use these cables without making any changes. You can also use the male RJ-45 to female MMJ adapter.

Octopus Cables

An octopus cable fans out a single 50-pin male or female Telco connector, or a 36-pin male or female Telco DEConnect connector, to eight male RJ-45 connectors. These cables enable you to connect a MAXserver's serial ports to existing wiring in your facility. For example, you can use octopus cables to connect the MAXserver's serial ports to a punch down block.

Figure 16 shows an octopus cable with a 50-pin Telco connector:

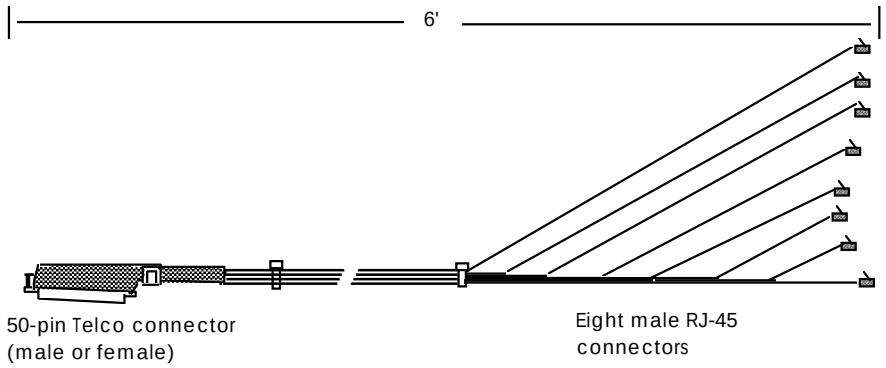


Figure 16 - Octopus Cable with 50-pin Telco Connector

Figure 17 shows an octopus cable with a 36-pin female Telco DEConnect connector. Figure 18 shows an octopus cable with a 36-pin male Telco DEConnect connector.

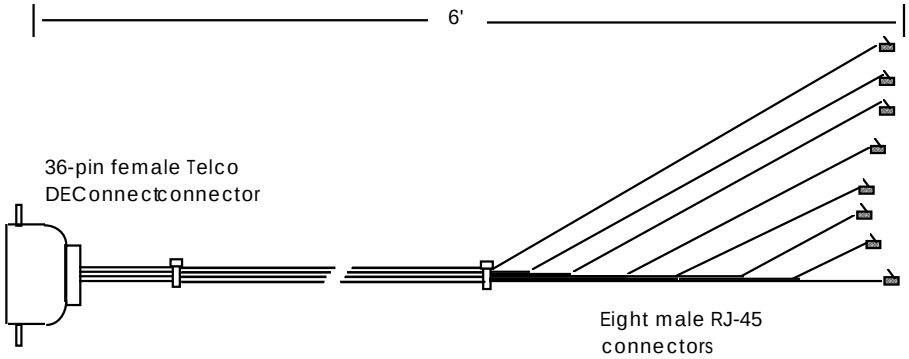


Figure 17 - Octopus Cable With 36-pin Female DEConnect Connector

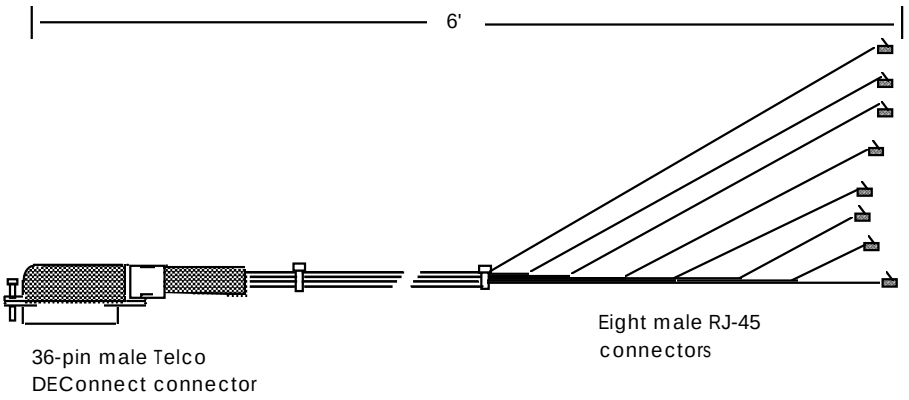


Figure 18 - Octopus Cable With 36-pin Male DEConnect connector

Connecting to a Distribution Panel

By using two types of octopus cable, you can connect MAXserver serial ports to a distribution panel that has DB-25 connectors. This enables you to adapt modular cabling to NBase-Xyplex TSERV-style cabling. NBase-Xyplex offers octopus cables that fan out a 50-pin Telco connector to 8 male or female DB-25 connectors. These cables are available from NBase-Xyplex in 3', 10', and 50' lengths. You can connect the unit to the distribution panel via the two octopus cables as shown in Figure 19. (You might need an extension cable to connect the two cables.)

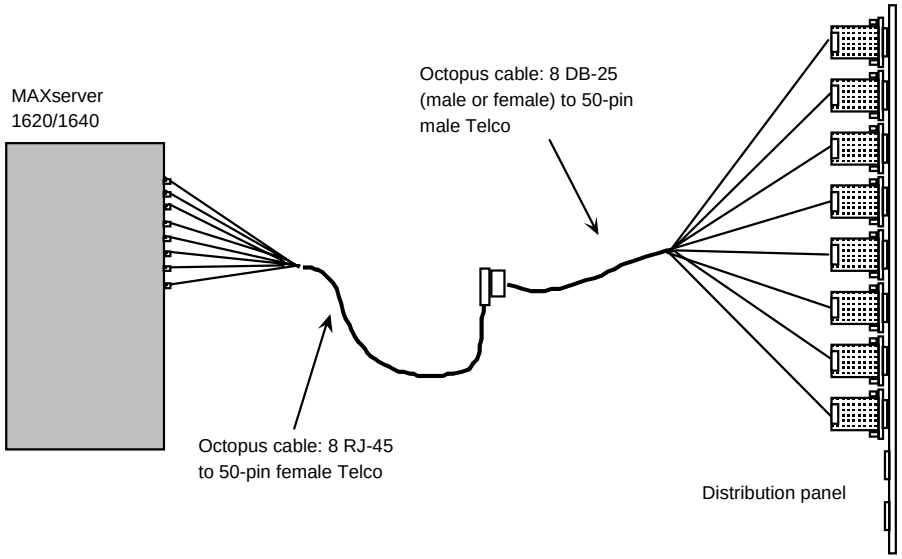


Figure 19 - Connecting a MAXserver to DB-25 Distribution Panel

NBase-Xyplex 6-Wire Cabling

This cabling scheme provides XMT, RCV, DCD, DTR, RING, and ground wires. Using this cabling scheme you can use either modem control or hardware (DCD/DTR) flow control, but not both, since there are only three control signals. This scheme is useful for applications which have simple modem signalling requirements, such as:

- Terminal emulation and file transfer applications (Kermit, Xmodem, Microphone, etc).
- Applications such as SLIP and PPP using low speed modems.

Figure 20 depicts the wiring that you would use to connect the serial port of a NBase-Xyplex unit to a modem or other DCE device. For simplicity, modular cables are shown in the figure; but there are other wiring options available with this cabling scheme. (These are covered in more detail in the hardware documentation supplied with your unit.) You can purchase modular cables and adapters shown in the figure from NBase-Xyplex, or make your own cables based on the wiring diagram.

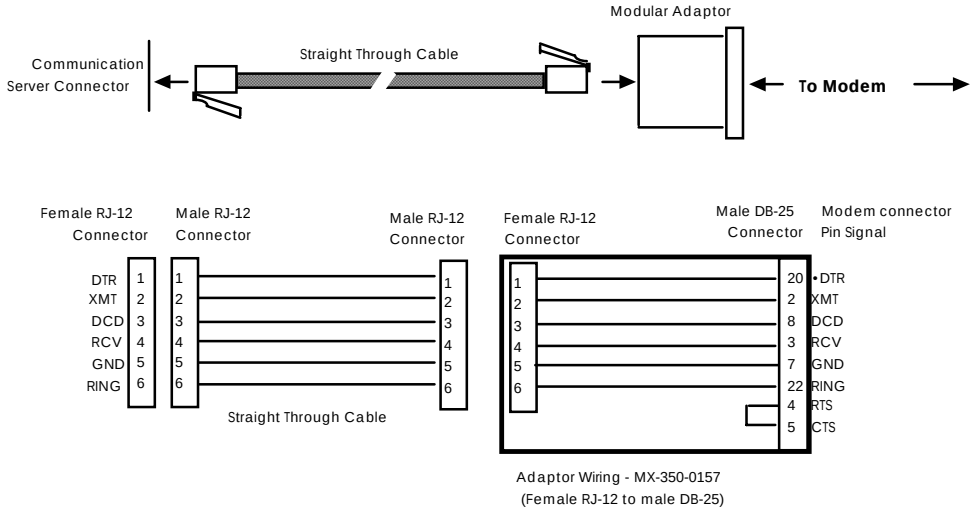


Figure 20 - Modular Cables for Connecting a Modem (6-Wire)

When using this cabling scheme, serial ports observe the DCD modem control signal rather than the DSR modem control signal for modem control, as well as DSRLOGOUT, SIGNAL CHECK, and hardware flow control applications.

NBase-Xyplex 7-Wire Cabling

This cabling scheme provides XMT, RCV, DCD/DSR, DTR, RING, and separate transmit and receive ground wires. This cabling is provided through RJ-45 connectors (pin 8 of the connector is not used). Using this cabling scheme you can use either modem control or hardware flow control, but not both, since there are only 3 control signals.

This scheme is useful with the following applications:

- Terminal emulation and file transfer applications, such as Kermit, Xmodem, Microphone, etc.

- Applications such as SLIP and PPP using low speed modems
- Applications such as SLIP and PPP using high speed modems

Applications using CCITT V.42-compliant modems, or other devices operating at high port speeds.

Figure 21 illustrates a wiring diagram that shows the needed cabling to connect an access server serial port to a modem for most standard applications (i.e., those which do not require RTS/CTS hardware flow control). Figure 22 shows the wiring for applications which require RTS/CTS flow control. You can purchase modular cables and adapters shown in the figure from NBase-Xyplex, or make your own cables based on the wiring diagram.

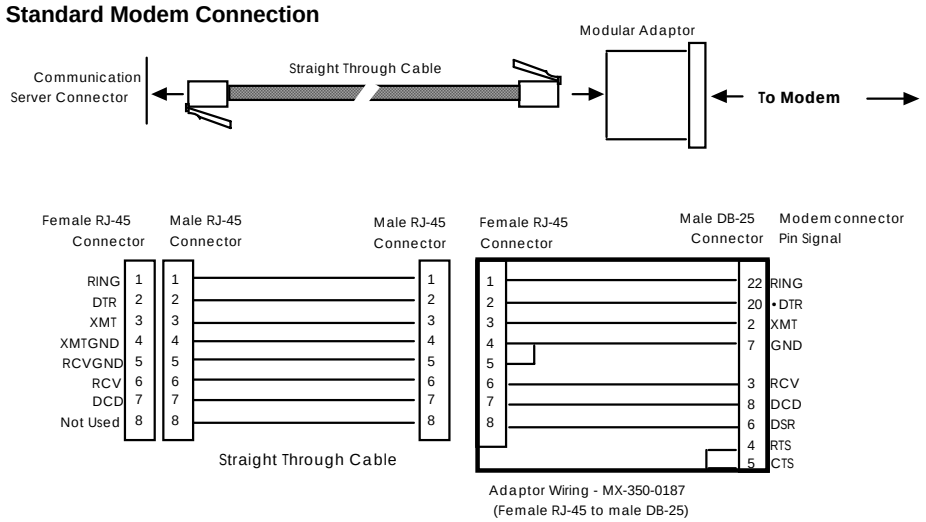


Figure 21 - Modular Cables for Connecting a Modem (7-Wire)

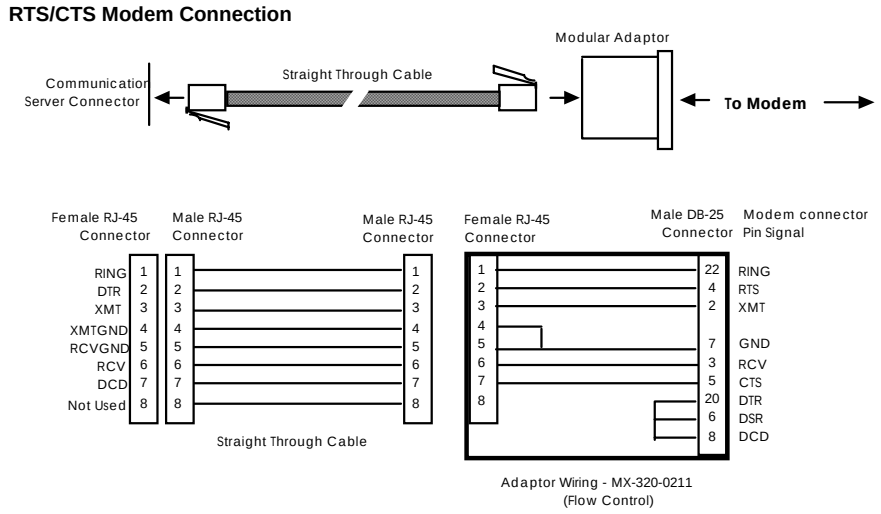


Figure 22 - Modular Cables for RTS/CTS Flow Control (7-Wire)

NBase-Xyplex 8-Wire Cabling

This cabling scheme provides XMT, RCV, DCD/DSR, DTR, RTS, CTS/RNG, and separate transmit and receive ground wires. This cabling is provided through RJ-45 connectors. Using this cabling scheme you can concurrently use modem control and RTS/CTS hardware flow control, since there are four control signals. This scheme is useful with relatively high speed devices, complex modem control applications.

In Figures 22 and 23, one signal is referred to as CTS/RING. The CTS/RING signal designation refers to the signal observed at pin 1 of each serial port. Pin 1 is multiplexed to these signals. Depending on the software configuration, you can use this pin as either CTS or RING, but not both at the same time.

This scheme is useful with the following applications:

- Terminal emulation and file transfer applications, such as Kermit, Xmodem, Microphone, etc.
- Applications such as SLIP and PPP using low speed modems.
- Applications such as SLIP and PPP using high speed modems.
- Applications using CCITT V.42-compliant modems, or other devices operating at high port speeds.
- AppleTalk Remote Access (ARAP) applications

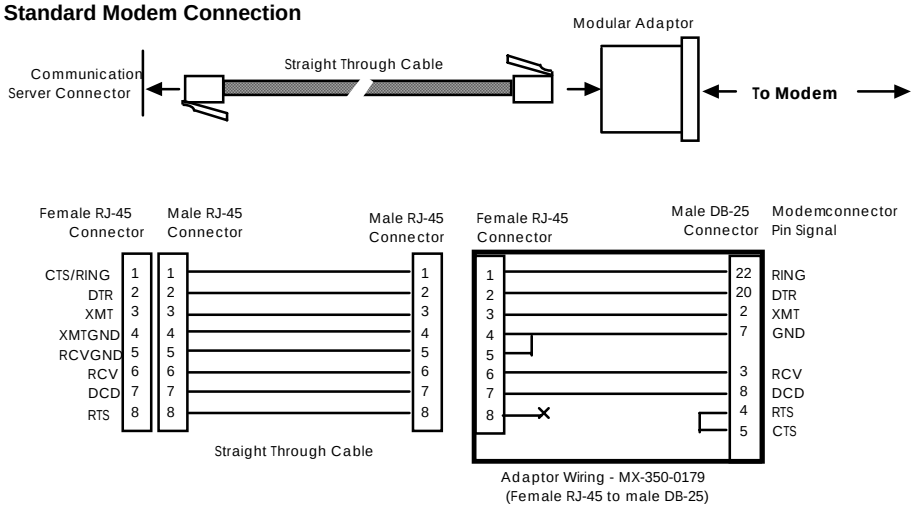


Figure 23 - Modular Cables for Connecting a Modem (Eight-Wire)

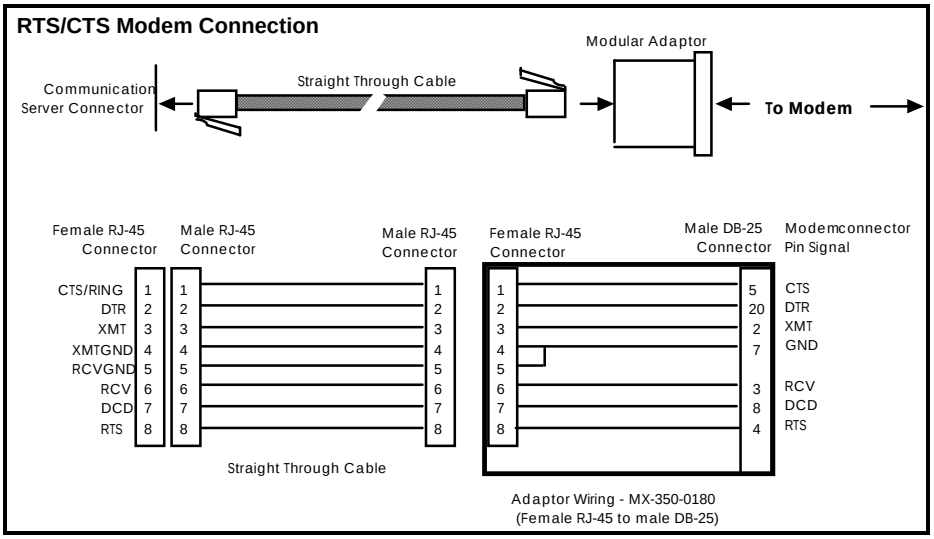


Figure 24 - Modular Cables for RTS/CTS Flow Control (Eight-Wire)

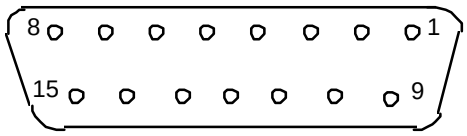
NBase-Xyplex 3-Wire Cabling

This cabling scheme provides XMT, RCV, and ground wires. This cabling scheme is used with NBase-Xyplex MX-TSERV-J16 and MX-TSRVL-J16 ACCESS SERVER cards. This wiring scheme can only be used for applications which do not require modem control signalling.

Pin Assignments

Ethernet Transceiver Cable

Figure 25 shows the standard 15-pin AUI connector signal assignments.



Pin	Signal
1	Chassis Ground
2	Collision +
3	Transmit +
4	Chassis Ground
5	Receive +
6	Power Return
7	Not Used
8	Not Used
9	Collision -
10	Transmit -
11	Chassis Ground
12	Receive -
13	Power (+12Vdc)
14	Chassis Ground
15	Not Used

Figure 25 - Ethernet 15-Pin AUI Connector Assignments

10Base-T Connector

Figure 12 shows the standard 10Base-T (RJ-45 jack) connector signal assignments.

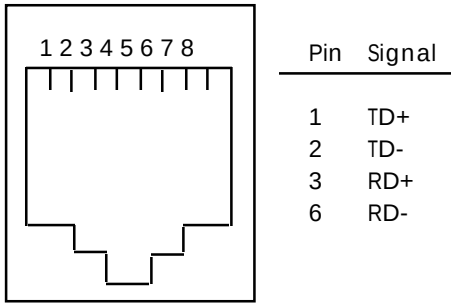


Figure 26 - 10Base-T Connector Assignments

RJ-45 and DB-25 Pins

Figure 27 shows RJ-45 and DB-25 pin assignments.

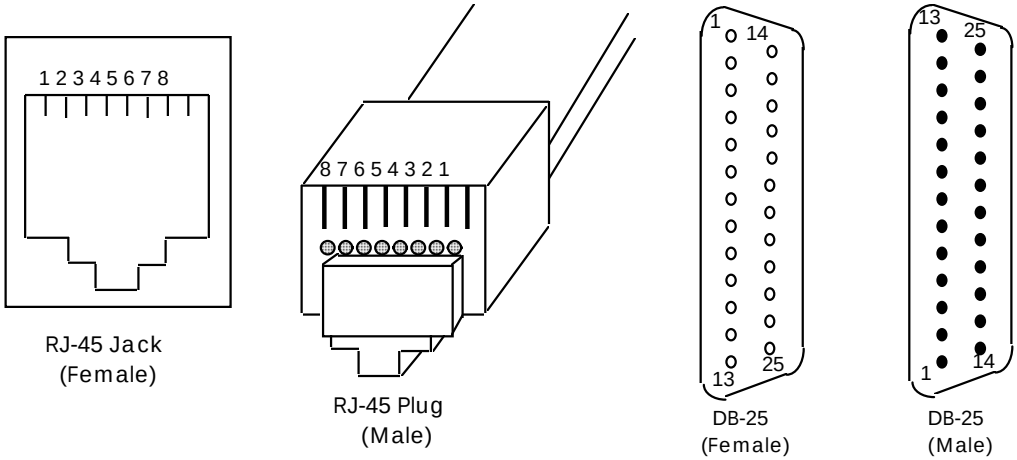


Figure 27 - RJ-45, DB-25 Pins

Using the Configuration Menu

This section explains each parameter in an intialization record and how to change the configuration parameters for the access server using the Configuration Menu, or you can enter the appropriate command at the Xyplex prompt instead of using the menus. Most of the time, the default values in initialization records load software automatically, so often you do not have to change them.

Each access server provides Initialization Configuration software that you use to:

- View current settings of initialization parameters and change the settings when necessary.
- Change the protocol used to load parameters.
- Change the protocol used to receive a software load image, or change the name of the load image that it requests.
- Change the protocol used to transmit dump files.
- Instruct the operating software, once loaded, to initialize server and port parameters.
- Configure multiple initialization (load/dump) configurations.
- Change the unit's memory settings whenever you add or remove memory (SIMMs).
- Reset the parameter initialization records to default factory settings.
- Rename the software image load file.

Loading Software Image and Parameters

When you initialize an access server, it obtains the software load image and parameter file using the information in an initialization record. The NVS for the access server maintains three initialization records. The access server first attempts to load software using the information in the primary initialization record, if it is enabled. If it cannot load successfully, it attempts to load using the information in the secondary initialization record, if it is enabled. Finally, if it cannot load successfully using the secondary initialization record, it attempts to use the information in the tertiary initialization recordif it is enabled. If all three attempts fail, the access server begins this sequence again with the primary initialization record.

You can load the initialization parameters from any of the following locations:

- From a flash card installed in the unit's flash card slot that contains the appropriate load image.
- From a host system that has the access server software installed, if a card is not present or the appropriate image is not on the card.
- A MAXserver unit or a Network 9000 module that has a flash card with the appropriate load image.

Displaying Load Status Messages

You might want to disable this feature during the software loading process if a device such as a bar code reader, which cannot interpret status messages, is connected to a serial port.

Use the LIST SERVER LOADDUMP CHARACTERISTICS command to display the current status of the status message.

Use the following command to enable or disable the loading of status messages.

```
DEFINE SERVER LOAD STATUS MESSAGE [ENABLED]
                                  [DISABLED]
```

Where	Means
ENABLED	Status messages display during the loading process. This is the default.
DISABLED	Status messages will not display during the loading process.

Example

```
DEFINE SERVER LOAD STATUS MESSAGE DISABLED
```

Loading Protocols

The default protocols are tried in the following order: Flash Card,, Directed TFTP, XMOP, BOOTP/TFTP, MOP, and RARP/TFTP. The protocols are:

- Flash Card - For MAXservers, use FlashCard (card) to load image only.
- Use XMOP for loading from a NBase-Xyplex load server.
- Use MOP for loading from a VAX/VMS host.
- Use BOOTP, RARP, and DTFTP (Directed Trivial File Transfer Protocol) for loading from a UNIX host. Typically, you only need to use DTFTP when loading across a router or when the load host does not support BOOTP or RARP.

You can change the default value for many prompts. The first time you run the Configuration Menu, the default value shown is the factory default value. After you exit from the Configuration Menu, having saved changes,

the default value shown for a prompt is the currently stored value, **not** the factory default value.

NOTE: NBase-Xyplex Access Servers cannot load from a DEC Info Server or any other device that does not support loading via DEC MOP V3 using all 5 parameters (Including the fifth parameter, which is the Host date/time stamp) for "Parameter Load with Transfer Address" using MOP.

Accessing the Configuration Menu

To access the Configuration menu, follow these steps:

1. Using a straightened paper clip, press the RESET switch once to enter reset mode. (Figure 4 shows the location of the switch.) All lights on the front panel should illuminate.

2. Press the RESET switch again, and hold the switch in. With the switch held in, observe the port lights. The port lights should first go off then light in sequence from left to right. Then all lights will go off in sequence from left to right. Then port lights 9 and 10 will go on (for MAXserver 1620/1640; ports lights 7 and 8 for the MAXserver 1608A, 1608B, and 1604). When this sequence has completed, you can release the RESET switch. Next, the unit performs the standard self-test diagnostics, as shown by lights 8 through 1 being turned on in sequence. (The self test requires about 20 seconds to complete.)

3. When the RUN light flashes rapidly (indicating that the self test has completed), *autobaud* any serial port by pressing RETURN a few times at a terminal connected to the port. Once the serial port has selected a port speed, it generates a message that is similar to the following:

```
CONFIGURATION IN PROGRESS. PLEASE WAIT.
```

4. Type the password "ACCESS" (note that there is no prompt) and press

RETURN. The unit displays the menu shown in Figure 28.

```
Welcome to the Configuration Menu.

Access server Configuration Menu

   1. Display unit configuration
   2. Modify unit configuration
   3. Initialize server and port parameters
   4. Revert to stored configuration
   S. Exit saving configuration changes
   X. Exit without saving configuration changes

Enter menu selection [X]:
```

Figure 28 - Access Server Configuration Menu

About the Configuration Menu

At the "Enter menu selection" prompt of the Access Server Configuration Menu, type the number corresponding to the configuration action you want to perform, then press RETURN. (The default choice is X -- exit without saving configuration changes.) The sections that follow describe each option in detail.

After you exit from the Configuration Menu, the unit loads software and parameters.

For each prompt shown in the Configuration Menu, the default choice is shown in square brackets, [ ]. For example, [A] indicates that "A" is the default choice for a prompt. Press RETURN to select the default choice.

Display Configuration

The Display Configuration option lets you view a list of the current configuration values and the new values that will be used after you exit from the menu and save the changes.

To Display the Unit Configuration Menu, complete the following steps:

1. Type **1** at the "Enter menu selection" prompt on the Access server Configuration Menu and press Return. The unit displays the Display Unit Configuration Menu, as shown in Figure 29.

```
Display Unit Configuration Menu

   1. Initialization record #1 (Enabled)
   2. Initialization record #2 (Disabled)
   3. Initialization record #3 (Disabled)
   M. Miscellaneous unit configuration
   X. Exit to main menu

Enter menu selection [X]:
```

Figure 29 - Display Unit Configuration Menu

Displaying Initialization Records

When you initialize a MAXserver Series access server, it obtains the software load imageand parameter file using the information in an initialization record. The for the access server maintains three initialization records. The access server first attempts to load software using the information in the primary initialization recordif it is enabled. If it cannot load successfully, it attempts to load using the information in the secondary initialization record, if it is enabled. If this fails, it attempts to use the information in the tertiary initialization recordif it is enabled. If all three attempts fail, the access server begins this sequence again with the primary initialization record.

You can create up to three unique "initialization configurations" (also called initialization records), numbered 1 (primary), 2 (secondary), and 3 (tertiary). (In this case, initialization refers to loading both image and parameters.)

If for any reason there are no service offers for loading and/or dumping made as a result of the first (primary) initialization configuration, the unit will try the secondary initialization configuration. If there are no service offers from that configuration, the unit will try the third (tertiary) initialization

configuration. If there are still no service offers, the unit will wait and then try again, beginning with the primary configuration. Only the primary default initialization configuration is enabled at the factory.

To display the settings for an initialization record, complete the following steps:

1. Type 1, 2, or 3 at the Display Unit Configuration Menu. The menu displays a list of currently stored configuration values and the new configuration values for the specified initialization configuration as shown in Figure 30.

```
                          Stored Configuration        New Configuration

Status:                    Enabled                     Enabled

Image load method:         CARD XMOP MOP BOOTP RARP    CARD XMOP MOP BOOTP
RARP
Parameter load method:     NVS XMOP MOP BOOTP RARP     NVS XMOP MOP BOOTP
RARP
Dump method:               XMOP MOP BOOTP RARP         XMOP MOP BOOTP RARP
CARD/XMOP/MOP filename:    XPCSRV20                    XPCSRV20
Default unit IP addr:      0.0.0.0                     0.0.0.0
DTFTP host IP addr:        N/A                         N/A
DTFTP gateway IP addr:     N/A                         N/A
DTFTP filename:            N/A                         N/A

 (Type any key to continue)
```

Figure 30 - Sample Unit Configuration Display

Figure 30 shows how this display might appear for an enabled initialization configuration (the values shown here are those of the factory default initialization configuration).

2. Press any key to return to the Display Unit Configuration Menu.

Displaying Miscellaneous Unit Configurations

The Miscellaneous Unit Configuration option lets you view the current and new configuration information for the following configuration values:

- Whether the unit is configured to load status messages
- The amount of memory configured
- The amount of memory found by the unit

To display miscellaneous configuration settings, complete the following steps:

1. Type **M** at the "Enter menu selection" prompt on the Display Unit Configuration Menu and press Return. The unit displays a screen containing information similar to Figure 31.

```
                    Stored Configuration         New Configuration

Load status messages:    Enabled                     Enabled
Memory installed:        2 Megabytes                 4 Megabytes
   (Found 2 Megabytes)

(Type any key to continue)
```

Figure 31 - Sample Miscellaneous Configuration Display

2. Press any key to return to the Display Unit Configuration Menu.

Loading and Dumping Protocols

Each initialization record has several loading and dumping protocols enabled by default if the access server attempts to obtain software and parameters from the network.The enabled protocols determine where the access server obtains the files. Table 4 lists the enabled protocols.

Table 4 - Enabled Protocols

Enabled Protocol	Files Obtained From Host/Loader
XMOP	Xyplex loader
MOP	VAX/VMS host
RARP, BOOTP, DTFTP	UNIX host

Displaying the Software Load Host

Use the SHOW/MONITOR SERVER STATUS command to display the name and location of the software load host if the access server obtained the software load image from the network.

Displaying the Parameter Server

Use the SHOW/LIST/ MONITOR PARAMETER SERVER command to display the name and location of the parameter server.

By default, all available dump protocols and parameter file protocols are enabled, and all available software load image protocols are enabled except DTFTP. Table 5 lists the available protocols for each process.

Table 5 - Default Protocols

Software Load Image	Parameter File	Dump file
CARD (default) XMOP MOP BOOTP RARP DTFTP*	NVS (default) XMOP MOP BOOTP RARP	XMOP MOP BOOTP RARP

*Not enabled by default.

The access server first attempts to load software from the flash card using the CARD protocol, because this is the default. If a card is not present, it searches for the load image using protocols in the order in which they appear on the screen: XMOP, MOP, BOOTP, RARP, and DTFTP, if it is enabled. When the access server attempts to send information to a dump server, it first attempts to use XMOP, then MOP, BOOTP, and RARP.

Directed Trivial File Transfer Protocol (DTFTP)

The DTFTP (Directed Trivial File Transfer Protocol) information display on the screen only when DTFTP is listed as an Image load method. (Typically, you only need to use this when loading across a router or when the load host does not support BOOTP or RARP.) Similarly, the CARD/XMOP/ MOP load filename is present when CARD, XMOP, or MOP is listed as an Image load method.

Using the CARD, NVS, XMOP and MOP Protocols

The access server uses the CARD, NVS, XMOP, and MOP protocols to search for a software load image or parameter file on a particular location determined by the protocol.

NOTE: The CARD and NVS protocols do not apply to dump files,

because NBase-Xyplex flash cards do not function as dump servers due to size limitation. The NVS protocol is also not applicable to load image files.

The XMOP and MOP Protocols

The XMOP and MOP protocols look for a software load image file, a parameter file, or a dump server. The access server first attempts to use XMOP and then MOP. The XMOP and MOP protocols can send diagnostic information to a dump server.

The Xyplex Maintenance Operations Protocol (XMOP) looks for the files on a Xyplex loader on the network. See the *Software Installation Guide for Xyplex Loader Kits* for more information about how to use XMOP.

The Digital Equipment Corporation Maintenance Operations Protocol (MOP) looks for software load image and the parameter file on a Digital Equipment Corporation host running the MOP protocol. The access server can also use MOP to send information to a dump server. See the *Software Installation Guide for VMS Kits* for information about how to configure a MOP host.

Modify Unit Configuration

The Modify Unit Configuration option is where you can:

- Change how the unit loads its software
- Change the name of the load image that it requests, if any
- Change how the unit requests parameter service and dumps memory
- Specify the total configured memory
- Enable/disable load status messages

To modify the access server configuration, complete the following steps:

1. Type **2** at the "Enter menu selection" prompt of the Access server Configuration Menu. The unit displays the Modify Unit Configuration Menu, as shown Figure 32.

```
Modify Unit Configuration Menu

   1. Initialization record #1 (Enabled)
   2. Initialization record #2 (Disabled)
   3. Initialization record #3 (Disabled)
   M. Miscellaneous unit configuration
   D. Set unit configuration to defaults
   X. Exit to main menu

Enter menu selection [X]:
```

Figure 32 - The Modify Unit Configuration Menu

2. If you select either 1, 2, or 3 the unit prompts you for a response. The record number displayed depends on which initialization configuration (1,2,or 3) you choose to modify):

   ```
   SET INITIALIZATION RECORD #1 TO DEFAULTS (Y,N) [N]?
   SET INITIALIZATION RECORD #2 TO DEFAULTS (Y,N) [N]?
   SET INITIALIZATION RECORD #3 TO DEFAULTS (Y,N) [N]?
   ```

   If you type 'Y' - The unit returns all configuration options to their factory default values. See Table 1 for the factory default settings.

   If you type N - The unit displays one of the following prompts (depending on which initialization record you choose to modify):

   ```
   ENABLE INITIALIZATION RECORD #1 (Y,N) [Y]?
   ENABLE INITIALIZATION RECORD #2 (Y,N) [Y]?
   ENABLE INITIALIZATION RECORD #3 (Y,N) [Y]?
   ```

3. Valid answers to this prompt are Y (Yes) and N (No).

   'Y' - Enables the specified initialization configuration. Press any key to return to the Modify Unit Configuration Menu.

'N' - Disables the specified initialization configuration and lets you create your own configuration. See "Creating a Customized Configuration" to continue.

Creating a Customized Configuration

This section explains how to create a custom configuration for the MAXserver access server. You can customize the following values for up to three initialization records:

- Enable all image loading types or only specific methods (e.g., CARD, DTFTP, RARP)
- Enable all parameter loading methods or only specific parameter loading methods (e.g., NVS, XMOP, MOP)
- Enable all dumping methods or only specific dumping methods (e.g., XMOP, TFTP, BOOTP)
- Define a load file name (if you selected Card, XMOP or MOP loading methods)
- Define IP addresses for the unit, host and gateway (if you selected TFTP as the loading method)

Defining the Image Loading Method

You can change the method the MAXserver uses to load its software. For example, you can configure the unit to load exclusively from a specific type of load server or from the flash card only. Use the Access server Configuration menu to change the software loading method. Alternatively, you can use DEFINE SERVER commands to change the software loading method. (See Command Line Interface section of this guide for a description of the commands you can use at the `Xyplex>` prompt to display, monitor and define the unit's configuration.

The following table lists the factory-default protocol settings:

Table 6 - Default Protocols

Software Load Image	Parameter File	Dump file
CARD XMOP MOP BOOTP RARP DTFTP*	NVS XMOP MOP BOOTP RARP	XMOP MOP BOOTP RARP

*Not enabled by default.

Software Load Images

The following load image protocols are enabled at the factory.

- CARD indicates the flash card
- XMOP indicates another Xyplex loader
- MOP indicates a VAX/VMS host
- RARP, BOOTP and DTFTP indicate UNIX hosts.

Each initialization record has several loading and dumping protocols enabled by default if the access server attempts to obtain software and parameters from the network.

Enabling/Disabling Image Loading Protocols

The unit displays the following prompt:

```
Enable ALL methods for image loading (Y,N) [N]?
```

The following table lists the six methods available for loading images.

Table 7 - Image Loading Methods

Method	Loads softare from…
C	Flash card.
D	TFTP.
X	Xyplex MAXserver Manager or from another unit that has a flash card and the proper load image.
M	DEC MOP loader protocol.
B	BOOTP host
R	RARP.

'Y' - All software loading methods will be used. Proceed to the next section to continue the configuration

'N ' - You are selecting specific method(s). The configuration menu prompts:

```
Toggle (CARD,DTFTP,XMOP,MOP,BOOTP,RARP) image load methods
[C,D,X,M,B,R]:
```

NOTE: Host setup activity is required for MOP, BOOTP, and RARP protocols.

1. Select specific protocol(s) by removing letters from or adding letters to the brackets. To remove a letter, type the letter and press RETURN. The prompt reappears; however, the letter you typed does not appear within the brackets. To add a letter to those within the brackets, type the letter and press RETURN. The prompt reappears and the letter you typed is included within the brackets.

2. Press RETURN again, the unit prompts you to enable parameter loading methods. Proceed to the next section to continue.

Defining Parameter Loading Methods

This section describes how to specify the unit's parameter loading methods. All MAXserver units are configured at the factory to store configuration data (parameters) locally in Non-volatile storage (NVS). Alternatively, you can use DEFINE SERVER commands to change the parameter loading method. See the *Commands Reference Guide* for a complete listing of DEFINE SERVER commands.

As an option, you can configure the unit to load parameters from a network host, called a parameter server, using the Access server Configuration Menu.

Once you have selected the image loading methods and pressed Return, the unit displays the following prompt:

```
Enable ALL methods for parameter loading (Y,N) [Y]?
```

'Y' - All methods are selected.

'N' - You can select specific method(s). The configuration menu prompts:

```
Toggle (NVS,XMOP,MOP,BOOTP,RARP)parameter load methods
[N,X,M,B,R]:
```

The valid methods are listed in the following table. You can select up to four loading methods.

Table 8 - Parameter Loading Methods

Value	Stores and Loads Parameters
N	From Non-volatile storage (NVS) located within the unit.
X	At a MAXserver Manager or or from another unit that has a flash card and the proper load

	image.
M	From the MOP -DEC Maintenance Operations Protocol (DEC MOP) loader protocol.
B (Bootstrap Protocol)	At a BOOTP/TFTP host.
R (RARP	From Reverse Address Resolution Protocol (RARP/TFTP).

1. Select specific protocol(s) by removing letters from or adding letters to the brackets. To remove a letter, type the letter and press RETURN. The prompt reappears, however, the letter you typed does not appear within the brackets. To add a letter to those within the brackets, type the letter and press RETURN. The prompt reappears and the letter you typed is included within the brackets.

2. When the letters within the brackets represent all the protocols you want to use, press RETURN. The unit then redisplays the prompt showing the protocols you specified. Press RETURN again. The unit prompts you to define dumping methods. Proceed to the next section to continue the configuration.

Defining Dumping Methods

This section describes how to define the unit's dumping methods.. Once you have selected the parameter loading methods and pressed RETURN, the unit displays the following prompt:

```
Enable ALL methods for dumping (Y,N) [Y]?
```

1. Type **Y** to select all methods, or type N to select specific method(s). The valid methods are listed in Table 9. You can select up to four dumping methods.

Table 9 - Dumping Methods

Value	Description
X	Dumps its memory contents to a MAXserver Manager when a crash occurs (you cannot enable dumping to a flash card).
M	Dumps memory contents via the DEC MOP loader protocol.
B	Dumps memory contents at a BOOTP host.
R	Dumps memory contents via RARP.

2. If you choose to use a specific method(s), the configuration menu prompts:

   ```
   TOGGLE (XMOP,MOP,BOOTP,RARP)DUMP LOAD METHODS [X,M,B,R]:
   ```

3. Select specific methods(s) by removing letters from or adding letters to the brackets. To remove a letter, type the letter and press RETURN. The prompt reappears, however, the letter you typed does not appear within the brackets. To add a letter to those within the brackets, type the letter and press RETURN. The prompt reappears and the letter you typed is included within the brackets.

4. When the letters within the brackets represent all the protocols you want to use, press RETURN.

5. If you selected the CARD, XMOP, or MOP loading method(s), proceed to "Defining the CARD/XMOP/MOP Image Filename" to continue the configuration. If you selected BOOTP, TFTP or RARP as your loading method, proceed to "Defining IP Addresses" to continue the configuration.

Defining The CARD/XMOP/MOP Image Filename

This section describes how to define the image filename if you selected CARD, XMOP or MOP as the loading method. Once you have selected the dumping methods and pressed RETURN, the unit displays the following prompt (if you selected CARD, XMOP or MOP as the unit's loading method).

```
CARD/XMOP/MOP IMAGE FILENAME (16 CHARACTERS MAX)
[XPCSRV20]:
```

1. Enter a file name or a numerical value. The valid responses are as follows:

Valid filenames

Valid filenames consist of up to 16 characters, which can be letters and numbers, the underscore character (_), the hyphen character (-), and the period (.) character. The default load file name is XPCSRV20. (The actual name of the load file is XPCSRV20.SYS.)

Numerical Values

In place of a filename, you can specify a numerical value. A numerical value specifies to a Xyplex loader (another unit which has a flash card and the proper load image, or a MAXserver Manager card) that it should determine the appropriate load file based on:

- The requesting unit's hardware type, or
- A node entry in the client database of a Xyplex loader.

You can also use numerical values to specify that a MOP (Maintenance Operations Protocol) loader is to determine the appropriate load file based on information contained in the NCP (Network Control Program) database.

Valid numerical values consist of the pound-sign character (#) and a number in the range of 0 through 128. Xyplex load servers respond to the numbers 1 through 5. The following table describes these values.

Table 10 - Image File Naming Conventions

Numerical Value	Description
1	Allows you to specify a load file name via the NCP commands at a VAX/VMS load server, or via client entries on a Xyplex loader. This is the default.
2 through 4	Reserved for use by NBase-Xyplex
5	Requires a load server to ignore the load request -- unless the load server's client database contains a node entry for the requesting access server. (The numerical value 5 is useful when you want to require that a specific load server be used to load the unit.)
6 through 128	Undefined.

2. Enter a valid filename and press RETURN. The unit returns you to the Access server Configuration Menu. This completes the configuration of the access server.

3. If you enabled all image loading protocols or specified TFTP as the loading protocol, proceed to “Defining IP Addresses.”

Defining IP Addresses

If you enabled all image loading protocols or specified DTFTP as the loading protocol, you must supply a non-zero Internet address for the unit, load host and gateway (if the load host is not on the same network as the unit.

If Directed TFTP is enabled, the following prompt appears:

```
ENTER UNIT IP ADDRESS [0.0.0.0]:
```

1. Enter the access server's IP address, or press RETURN to accept the default address, 0.0.0.0. You must supply a non-zero IP address if you have specified all image loading protocols or DTFTP as an image loading method.

2. Enter the load host's IP address, or press RETURN to accept the default address, 0.0.0.0. You must supply a non-zero IP address if you have specified all image loading protocols or DTFTP as an image loading method.

   ```
   ENTER HOST IP ADDRESS [0.0.0.0]:
   ```

3. If the load host is not on the same network as the unit, enter the Internet address of a gateway.

   ```
   ENTER GATEWAY IP ADDRESS [0.0.0.0]:
   ```

4. Enter the name of the file to load (max. 64 characters).

   ```
   ENTER TFTP LOAD FILENAME []:
   ```

5. After you have specified a filename and pressed the RETURN key, the menu prompts:

   ```
   (TYPE ANY KEY TO CONTINUE)
   ```

6. Press any key to return to the Modify Unit Configuration Menu

Miscellaneous Unit Configuration

The Modify Unit Configuration Menu, is where you can change the following unit settings:

- Enable/Disable Status Message display.
- Configure the amount of memory installed in the unit.

Enabling/Disabling Status Message Display

To enable or disable loading status messages, complete the following steps:

1. Type M at the Enter Menu Selection prompt on the Access server Configuration menu and press RETURN. The unit prompts:

   ```
   DISPLAY LOAD STATUS MESSAGES (Y,N) [Y]:
   ```

2. To disable load status messages, enter 'N'. Otherwise, leave the default (Y) intact.

   NOTE: You might want to prevent the unit from generating status messages during the software loading process, if a device such as a bar code reader, which cannot interpret status messages, is connected to a serial port.

Memory Configuration

To configure the amount of memory in the MAXserver, complete the following steps after enabling/disabling load status messages. The configuration menu prompts:

```
TOTAL INSTALLED MEMORY IN MEGABYTES (4,6,8) [4]:
```

The prompt indicates the amount of installed memory for which the unit has been configured. If you remove memory, you must change this value. (Preferably, you should change this value before you remove the memory.) Also, if you have enabled more software features than the unit can support with the reduced memory, you will not be able to re-initialize the unit after you remove the SIMMs. If this happens, you must re-install the SIMMs and configure the TCP/IP-LAT software image for fewer features.

SIMMs should only be installed or removed by qualified personnel. See the

instructions later in this guide to install and remove SIMM modules.

The unit automatically detects added memory. Therefore, you do not need to increase the "installed memory" value when you install additional memory. If you want to increase the value, install the additional memory first. If you do, the unit will generate the following warning message:

```
WARNING:  AFTER SAVING THE NEW CONFIGURATION, YOU MUST
TURN THE UNIT OFF AND INSTALL THE ADDITIONAL MEMORY
SPECIFIED (X MB).

   (TYPE ANY KEY TO CONTINUE)
```

NOTE: This message displays only while you are using the Configuration menu.

Also, the MAXserver front panel lights will flash an error code the next time the unit is initialized, if you have not yet installed the memory.

2. Press any key. The unit returns you to the Modify Unit Configuration Menu.

Resetting the Unit's Load and Dump Protocols to Factory Defaults

The "Set Unit Configuration to Defaults" menu option lets you reinitialize all of the unit's initialization records to the factory default settings. See Table 5 for the factory default settings.

NOTE: This option will not reset the server and port parameters to default values. (See "Initializing Server and Port Parameters" for information on resetting the the server and port parameters to default values.)

To choose this option, complete the following steps:

1. Enter ROM configuration mode. At the # prompt, enter the word **access**.

   The Terminal Server Configuration Menu is displayed.

2. Choose Option 2 ("Modify Unit Configuration") from the Terminal Server Configuration Menu.

3. Type **D** at the Enter menu selection prompt on the Modify Unit Configuration Menu and press RETURN. The unit displays the following prompt:

   ```
   INITIALIZE ALL CONFIGURATION DATA FOR THIS UNIT TO
   DEFAULTS (Y,N) [N]?
   ```

   'Y' -- All initialization records and miscellaneous settings (including status messages enabled and installed memory of 4MB) will be returned to their factory default settings. If the factory default settings have not been changed, the following message displays:

   ```
   CONFIGURATION IS ALREADY SET TO DEFAULTS
   ```

   ' N' -- The settings will not be returned to their factory default settings.

4. After you have answered Y or N, the unit prompts:

   ```
   (Type any key to continue)
   ```

5. Press any key to return to the Modify Unit Configuration Menu.

Initializing Server and Port Parameters

The Initialize Server and Port Parameters option instructs the operating software, once loaded, to use factory default values for all server and port parameters. All current server and port parameters will be lost when you exit from the menu (using Option S "Exit saving configuration changes").

1. To select this option, type 3 at the "Enter menu selection" prompt of the Access Server Configuration Menu (Figure C-1). The server prompts:

   ```
   WHEN THE SOFTWARE HAS BEEN LOADED, SHOULD
   DEFAULT SERVER AND PORT PARAMETERS BE USED (Y,N) [N]?
   ```

2. Type Y to use the defaults or N to keep the configuration you created, then press RETURN. The unit returns you to the Configuration menu.

   The parameter initialization takes effect after you exit from the Configuration menu and the unit loads its image. Changes you have made through the Access Server Configuration menu take place only after you exit from the menu, having chosen Option S (“exit saving configuration changes”).

Revert to Stored Configuration

The Revert to Stored Configuration option lets you cancel any changes you have made without exiting from the menu. The unit reverts to the configuration values that were last saved. Typically, you would select this option if you had changed some settings, and then decided to undo the changes and begin again.

1. To select this option, type 4 at the "Enter menu selection" prompt of the Access server Configuration Menu (Figure 28). The configuration menu prompts:

   ```
   REVERT TO THE STORED CONFIGURATION (Y,N) [N]? Y
   ```

2. Type N and press RETURN to return to the Configuration menu, or type Y and press RETURN. The unit displays the following message:

   ```
   CONFIGURATION RESET TO STORED VALUES.
   (TYPE ANY KEY TO CONTINUE)
   ```

3. Press any key. The unit returns you to the Access server Configuration menu (Figure 28). You can then exit from the Configuration menu using Option S or X.

Exit Saving Configuration Changes

The Exit Saving Configuration Changes option lets you exit from the Configuration menu and store the changes that you have made.

To select this option, complete the following steps:

1. Type S at the "Enter menu selection" prompt of the Access server Configuration Menu (Figure 28). If you have made any changes, the configuration menu prompts:

   ```
   SAVE CHANGES AND EXIT (Y,N) [Y]?
   ```

   If the unit is configured to store parameters locally, you see this message:

   ```
   UPDATING CONFIGURATION DATA;  PLEASE WAIT...
   ```

   If you have not made any changes, the following message displays:

   ```
   NO CHANGES MADE.  EXIT CONFIGURATION MENU (Y,N) [Y]?
   ```

2. To exit from the Configuration menu, press RETURN. If you do not want to exit from the menu, type 'N' and press RETURN. The Configuration menu appears.

Exit Without Saving Configuration Changes

The Exit Without Saving Configuration Changes option on the Configuration menu lets you exit without saving the configuration changes that you have made (i.e., use the configuration that was last saved).

1. To select this option, type X at the "Enter menu selection" prompt. If you have made changes, the configuration menu prompts:

   ```
   Exit without saving changes (Y/N) [N]?
   ```

2. To exit the Configuration menu, type Y and press RETURN. If youdo not want to exit from the menu, type N and press RETURN to redisplay the Configuration menu.

   If you have not made any changes, the configuration menu displays:

   ```
   NO CHANGES MADE. EXIT CONFIGURATION MENU (Y,N) [Y]?
   ```

Command Line Interface

This section describes the commands you can use to configure the MAXserver from the command line:

- Viewing Initialization Parameters
- Changing the name of the software image file
- Assigning IP addresses to the network host, access server, gateway, and the network host where the image file resides
- Changing the Status of an Initialization Record
- Enabling and Disabling Protocols
- Resetting Parameters in Initialization Records to Default Values

See the *Commands Reference Guide* for a complete listing of all commands.

Displaying an Initialization Record

Use the following command to display an initialization record:

```
LIST SERVER LOADDUMP [primary] CHARACTERISTICS
                    [secondary]
                    [tertiary]
```

Figure 33 shows a sample display.

```
Primary Record:                Enabled
Internet Load Address          0.0.0.0
Internet Load Host             0.0.0.0
Internet Load Gateway          0.0.0.0
Internet Load File             None
Software:                      XPCSRV20
Image Load Protocols Enabled:  Card, XMOP, MOP, BOOTP, RARP
Dump Protocols Enabled:        XMOP, MOP, BOOTP, RARP
Parameter Protocols Enabled:   NVS, XMOP, MOP, BOOTP, RARP
```

Figure 33 - Sample Primary Initialization Record Display

Field	Means
Primary Record	The status of the initialization record. This example shows the primary record enabled, but an initialization record can be enabled or disabled.
Internet Load Address	The IP address of the host where the access server receives its software load image through DTFTP.
Internet Load Gateway	The IP address of a gateway, if the access server requires a gateway to reach the Internet load host through DTFTP.
Internet Load File	The name and path of the software load image on the Internet host, that the access server loads through DTFTP.
Software	The CARD/XMOP/MOP software load image file name.
Image Load Protocols Enabled	The protocols that the initialization record can use to obtain the software load image.
Dump Protocols Enabled	The protocols that the initialization record can use to transmit a memory dump file.
Parameter Protocols Enabled	The protocols that the initialization record can use to obtain the parameter file.

Enabling/Disabling Image and Parameter Protocols

Use the following command to enable or disable software load image protocols and operational parameter protocols:

Use this command to specify one or all load protocols to use when the access server searches for a software load image file or a parameter file. You specify whether the protocol applies to the software load image or the parameter file in the command line.

By default, a MAXserver attempts to obtain the software load image using the CARD protocol and the parameter file using the NVS protocol. If a card is not present, or the NVS protocol is disabled, the access server attempts to obtain these files using other protocols in this order: DTFTP, XMOP, MOP, BOOTP, RARP. All of these protocols except DTFTP are enabled by default. If you use the keyword ALL to enable all protocols, you also enable DTFTP.

You cannot use DTFTP to load the parameter file except on the Network 9000 Access Server 720 which doesn't have NVS. If you do enable DTFTP, specify the following IP addresses:

- The load host
- The access server
- The gateway router to the load host, if necessary

Use the DEFINE SERVER LOAD IP commands to specify this information.

Syntax

```
DEFINE SERVER LOAD[record][usage]PROTOCOL[protocol-name][ENABLED]
                                                        [DISABLED]
```

Where	Means
record	Use one or more of the following initialization records: PRIMARY SECONDARY TERTIARY ALL The PRIMARY initialization record is the default.
usage	Use one of the following keywords, which indicate whether you are specifying a protocol for a software load image or a parameter file: IMAGE PARAMETERS

protocol Specify one of the following keywords which represent different protocols:

Protocol	Means
NVS	NonVolatile Storage protocol for the parameter file
CARD	Local memory card protocol for the load image
XMOP	Xyplex MOP Protocol
MOP	Digital Equipment Corporation Maintenance Operations Protocol
BOOTP	Bootstrap protocol
RARP	UNIX Reverse Address Resolution Protocol
DTFTP	UNIX Directed Trivial File Transfer Protocol (software load image only)
ALL	All protocols (you cannot disable all load protocols) For loading parameters on older MAXserver units use either NVS or remote protocols, but not both types.

Note: Xyplex Access Servers cannot load from a DEC Info Server or any other device that does not support loading via DEC MOP V3 using all 5 parameters (Including the fifth parameter, which is the Host date/time stamp) for "Parameter Load with Transfer Address" using MOP.

ENABLED — Enable the protocol in the initialization records you specify. You can enable only one protocol in the command line, unless you use the keyword ALL to enable all protocols.

DISABLED — Disable the protocol in the initialization records you specify. You cannot use the keyword ALL to disable all load protocols.

Examples

```
DEFINE SERVER LOAD PRIMARY IMAGE PROTOCOL DTFTP ENABLED

DEFINE SERVER LOAD SECONDARY PARAMETERS PROTOCOL RARP DISABLED
```

Naming Load Files

Use this command to specify the name of the file that will be requested upon a boot up when loading from a TFTP server. Use the LIST SERVER LOADDUMP CHARACTERISTICS command to display the current file name.

```
DEFINE SERVER IP LOAD FILE "message-string"

or

DEFINE SERVER IP FILE "message-string"
```

"message-*string*" Specify a filename of up to 64 characters. Use the quotation marks " " before and after the file name. The default is an empty field.

Example

```
DEFINE IP LOAD FILE "filename.sys"
```

Retrieving Image Files from Host

Use this command to retrieve a load image from a host on the LAN to a flash card in an access server, either through TFTP or XMOP (use XMOP to get the image from another NBase-Xyplex unit).

```
GET CARD LOAD FILE [image-name] ADDRESS [ip-address]    AREA [area-number]
                                        [ether-address] AREA[area-number]
```

"image-name" The name of the updated image file

ip-address The IP address where the image file is located

ether-address The Ethernet address where the image file is located.

area-number The area on the flash card where you want to store the file.

Example

```
GET CARD LOAD FILE "xpcsrv20.sys" 140.179.255.110  AREA 2
```

Terminating Image File Loading

Use this command to terminate the image loading update that was initiated with the GET CARD LOAD FILE command.

```
XYPLEX>> GET CARD STOP
```

Dump Protocols

Use the following command to enable or disable dump protocols:

```
DEFINE SERVER DUMP [RECORD] PROTOCOL PROTOCOL|ALL
ENABLED|DISABLED
```

The [*record*] variable specifies the primary, secondary, or tertiary initialization record.

Example

The following command shows how to disable RARP as a dump protocol in the primary initialization record:

```
XYPLEX>> DEFINE SERVER DUMP PRIMARY PROTOCOL RARP DISABLED
```

Assigning IP Addresses

You need to configure the following IP addresses to establish Internet access for MAXservers.

- The IP address for the host on the network where the software load image file resides.
- The IP address for the access server.
- The IP address of a gateway on the network that the access server uses to gain access to the Internet load host (if your network configuration includes a gateway).
- The IP address of the host on the network where the image file resides.

Internet Load Host

The Internet load host specifies the IP address of the host on the network where the software load image file resides. The default is 0.0.0.0.

Use the following command to define the Internet access server. This address is used by the Internet load host during DTFTP loading. The default is 0.0.0.0.

```
DEFINE SERVER LOAD [record|ALL] IP [LOAD] HOST ip-address
```

Example

The following example shows the command that specifies an IP address for an Internet load host in the primary initialization record:

```
DEFINE SERVER LOAD PRIMARY IP HOST 140.179.119.3
```

Access Server IP Address

The Internet load address specifies the Internet address for the access server. The Internet load host on the network uses this address during DTFTP loading. The default is 0.0.0.0.

Use the following command to define the the access server IP address:

DEFINE SERVER LOAD [*record*|ALL]IP[LOAD]GATEWAY[*ip-address]*

Example

The following command example specifies the Internet address for the primary initialization record:

```
XYPLEX>> DEFINE SERVER LOAD PRIMARY INTERNET ADDRESS
140.180.118.2
```

Internet Load File

The Internet Load File field specifies the pathname and filename of the software load image on the Internet Load Host. The access server searches for this filename when it uses the DTFTP protocol to obtain the software load image during initialization. Use the following command to specify the Internet Load File:

DEFINE SERVER LOAD [*record*] IP [LOAD] FILE "*/pathname/filename*"

Example

The following example specifies the Internet Load File in the primary initialization record:

```
XYPLEX>> DEFINE SERVER LOAD PRIMARY INTERNET FILE
"/USR/XYPLEX/IMAGES/XPCSRV20.SYS"
```

Internet Load Gateway

The Internet load gateway specifies the IP address of a gateway on the network which the access server uses to gain access to the Internet load host. The default is 0.0.0.0.

NOTE: Not all network configurations include a gateway, so you may not need to specify this address, even if the access server uses DTFTP to obtain the software load image.

Example

The following is an example of a command which specifies the address of an Internet load gateway in the primary initialization record:

```
XYPLEX>> DEFINE SERVER LOAD PRIMARY IP GATEWAY
140.179.111.5
```

Resetting Initialization Parameters To Default Values

If you want to reset the values of parameters in one or more initialization records after you have changed them, you can do so with one command, rather than resetting each value individually. Initialization parameters include the status of the initialization record, the protocols, the CARD/XMOP/MOP load image filename, and the Internet settings for DTFTP loading. You can change this information through the initialization configuration menu, with the commands in this section, and through SNMP.

Use the following command to reset the initialization parameters to the defaults:

```
DEFINE SERVER LOADDUMP [RECORD|ALL] DEFAULT
```

The [*record*] variable specifies the primary, secondary, or tertiary initialization record. If the initialization record you specify is disabled by default, using this command also disabled the initialization record.

Example

The following command example resets the secondary initialization record:

```
XYPLEX>> DEFINE SERVER LOADDUMP SECONDARY DEFAULT
```

The secondary initialization record on a access server is disabled by default, so this command resets parameters to default values and disables the initialization record.

Displaying Initialization Parameters

The LIST/MONITOR SERVER LOADDUMP CHARACTERISTICS command displays the initialization parameters in the initialization records you specify.

Use the following command to display the current parameters:

```
LIST|MONITOR SERVER LOADDUMP [RECORD|ALL]
CHARACTERISTICS
```

Example

This sample display shows the primary initialization record.

```
XYPLEX> LIST SERVER LOADDUMP PRIMARY CHARACTERISTICS
```

```
Primary Record:              Enabled
Internet Load Address        140.179.80.133

Internet Load Host           140.179.119.3
Internet Load Gateway        0.0.0.0
Internet Load File           /usr/xyplex/images/xpcsrv20.sys

Software:                    XPCSRV20

Image Load Protocols Enabled: Card, XMOP, MOP, BOOTP, RARP, DTFTP
Dump Protocols Enabled:        XMOP, MOP, BOOTP, RARP
Parameter Protocols Enabled:  NVS, XMOP, MOP, BOOTP, RARP
```

Figure 34 - Primary Initialization Record Display

Displaying the Software Load Host

Use the following command to display the name and location of the software load host, if the access server obtained the software load image from the network.

```
SHOW/MONITOR SERVER STATUS
```

Displaying the Parameter Server

Use the following command to display the name and location of the parameter server:

```
SHOW/LIST/MONITOR PARAMETER
```

By default, all available dump protocols and parameter file protocols are enabled, and all available software load image protocols are enabled except DTFTP.

The access server attempts to load software using the CARD protocol first, because this is the default. If a card is not present, it searches for the load image using protocols in the order they appear on the screen: XMOP, MOP, BOOTP, RARP, and DTFTP, if it is enabled. When the access server attempts to send information to a dump server, it first attempts to use XMOP, then MOP, BOOTP, and RARP.

Protocols

This section describes the dump protocols that you can enable or disable to send information.

Enabling/Disabling Dump Protocols

The DEFINE SERVER DUMP PROTOCOL command enables or disables one or all dump protocols. The access server uses a dump protocol to send information to a dump server.

Use the following command to enable BOOTP as a dump protocol for the primary record.

```
XYPLEX>> DEFINE SERVER DUMP PROTOCOL BOOTP ENABLED
```

Use the following command to disable MOP as a dump protocol for the secondary record.

```
XYPLEX>> DEFINE SERVER DUMP SECONDARY PROTOCOL MOP DISABLED
```

Enabling/Disabling Loading Protocols

The DEFINE SERVER LOAD PROTOCOL command specifies one or all load protocols to use when the access server searches for a software load image file or a parameter file. You specify whether the protocol applies to the software load image or the parameter file in the command line.

By default, a MAXserver uses the CARD protocol to obtain the software load image and the NVS protocol to obtain the parameter file. If a flash card is not present, or the NVS protocol is disabled, the access server will try to obtain these files using other protocols in the following order: XMOP, MOP, BOOTP, RARP, DTFTP. All of these protocols except DTFTP are enabled by default. If you use the keyword ALL to enable all protocols, you also enable DTFTP.

You cannot use DTFTP to load the parameter file. If you do enable DTFTP, you must specify the Internet address of the load host, the Internet address of the access server, and the Internet address of the gateway to the load host, if necessary. Use the DEFINE SERVER LOAD INTERNET commands specify this information.

Use the following command to load the parameter file:

```
DEFINE SERVER LOAD [RECORD|ALL] USAGE PROTOCOL PROTOCOL
| ALL [ENABLED | DISABLED]
```

Examples

This example enables DTFTP as a protocol to use for the software load image in the primary initialization record. (Enabling this protocol requires that you specify DTFTP information with the DEFINE SERVER LOAD INTERNET commands.)

```
XYPLEX>> DEFINE SERVER LOAD PRIMARY IMAGE PROTOCOL DTFTP ENABLED
```

This example enables MOP as the protocol to use when loading the parameter file from the primary initialization record.

```
XYPLEX>> DEFINE SERVER LOAD PRIMARY PARAMETERS PROTOCOL MOP
ENABLED
```

This example disables the RARP protocol for use when loading the parameter file from the secondary initialization record.

```
XYPLEX>> DEFINE SERVER LOAD SECONDARY PARAMETERS PROTOCOL
RARP DISABLED
```

Enabling/Disabling an Initialization Record

Use the following command to enable/disable an initialization record:

```
DEFINE SERVER LOADDUMP [record|ALL] DISABLED | ENABLED
```

Only the primary initialization record is enabled by default. You must enable the other initialization records if you want the access server to use them.

All initialization records have default values for the loading and dumping protocols, and the CARD/XMOP/MOP load image filename, whether they are enabled or disabled by default.

You cannot disable all three initialization records. If the primary and secondary initialization records are disabled, for example, you cannot disable the tertiary initialization record. If you attempt to do so, the command processor generates an error message.

Examples

This command disables the primary initialization record. With this record disabled, the access server first attempts to load or dump using information in the secondary initialization record.

```
XYPLEX>> DEFINE SERVER LOADDUMP PRIMARY DISABLED
```

This command enables all initialization records.

```
XYPLEX>> DEFINE SERVER LOADDUMP ALL ENABLED
```

Setting Up MaxServer Ports for Out-of-band Management of Console Port Devices

This section describes how to set up MaxServer ports for out-of-band management of console port devices.

NOTE: The commands described in this section can only be executed in Privileged mode.

Use the following procedure:

1. Enter the following commands to set up the server IP address and primary gateway address for the MaxServer:

```
DEFINE/SET SERVER IP ADDRESS <internet-address>
DEFINE/SET SERVER IP PRIMARY GATEWAY ADDRESS <internet-address>
```

2. Enter the following commands to disable subnet mask autoconfigure and set up the subnet mask on the MaxServer:

```
DEFINE/SET SERVER IP SUBNET MASK AUTOCONFIGURE DISABLED
DEFINE/SET SERVER IP SUBNET MASK <ip-address-mask>
```

3. Enter the following command to set up the destination port as remote access:

```
DEFINE/SET PORT <port-number> ACCESS REMOTE
```

4. Enter the following commands to disable autobaud and reset the baud rate at the destination port:

```
DEFINE/SET PORT <port-number> AUTOBAUD DISABLED
DEFINE/SET PORT <port-number> SPEED <port-speed>
```

   The port speed setting must match the port speed setting on the

attached console port device.

5. Set up the flow control for the destination port:

```
DEFINE/SET PORT <port-number> FLOW CONTROL <flow-control-setting>
```

   The flow control setting must match the flow control setting on the attached console port device.

6. Enter the following command to specify the number of bits per character for data characters that are transmitted and received over the destination port:

```
DEFINE/SET PORT <port-number> CHARACTER SIZE <character-size>
```

   The character size setting must match the character size setting on the attached console port device.

7. Enter the following command to specify the number of stop bits to be used on the destination port:

```
DEFINE/SET PORT <port-number> STOP BITS <bit-value>
```

   The stop bits setting must match the stop bits setting on the attached console port device.

8. Enter the following command to specify the parity for the destination port:

   ```
   DEFINE/SET PORT <port-number> PARITY <parity-setting>
   ```

   The parity setting must match the parity setting on the attached console port device.

After you have completed this procedure, you are ready to access the out-of-band management console port. Refer to the following section, “Accessing the Out-of-band Management Console Port”, for more information on accessing the out-of-band management console port.

Accessing the Out-of-band Management Console Port

There are two methods for accessing the out-of-band management console port. This sections describes both methods.

Accessing from an Ethernet-attached Station

Use the following command to access the out-of-band management console port from an Ethernet-attached station:

```
telnet 192.168.5.1:<logical-port-number>
```

NOTE: In the above command, *logical-port-number* is the logical port number of the out-of-band management console port. To determine the logical port number, multiple the physical port number by 100 and add 2,000. For example, the logical port number for physical port number 1 is 2100.

Accessing from a Dumb Terminal Attached to a MaxServer Serial Port

Use the following procedure to access the out-of-band management console port from a dumb terminal attached to a MaxServer serial port:

1. Hit the return key several times to autobaud the port and get a Xyplex username prompt.
2. Type any key at the Username prompt.
3. Login to Priviliged Mode via the SET PRIV command.
4. Enter a password of SYSTEM.

5. Enter the following command:

   `TELNET 192.168.5.1: <logical-port-number>`

   In the above command, *logical-port-number* is the logical port number of the out-of-band management console port. To determine the logical port number, multiple the physical port number by 100 and add 2,000. For example, the logical port number for physical port number 1 is 2100.

This command sequence will then connect you to the console of the out-of-band device that's connected to the destination port.

Troubleshooting

Refer to this section if you experience a problem with your MAXserver. This section describes:

- How to troubleshoot startup and loading problems
- What to do if the LAN light on the front panel goes out
- How to reset the MAXserver

Startup/Loading Problems

Refer to this section if you have powered up the MAXserver or re-initialized the unit and the front panel lights do not behave as follows after several minutes:

- RUN light flashes slowly
- LAN light flashes as Ethernet packets are received

Normally, the light pattern appears as follows when you power up the MAXserver, or re-initialize the unit:

9. All lights ON for approximately one second. (The MAXserver is testing the lights.)
10. Each port light goes ON in order – left most to right most. (The MAXserver is running a self test.)
11. The RUN light flashes rapidly. (The self test has completed.)
12. The LAN light goes ON. (The MAXserver is starting the software loading process.)

13. The CARD light goes ON for approximately 15 seconds if the unit is loading from a flash card. (The MAXserver is accessing the flash card. Do not remove the card while the CARD light is ON.)

14. The RUN light flashes rapidly and the LAN light flashes as Ethernet packets are received. (The MAXserver is loading, or trying to load, software.)

15. When loading from a flash card, or when using another MAXserver as a load server, Port lights 8 - 1 go ON, sequentially. Then, lights 8 - 1 go OFF. (The MAXserver has finished loading the software image, and is decompressing it.)

16. When the MAXserver has finished loading its software, the RUN light flashes slowly and the LAN light flashes as Ethernet packets are received.

Startup Error Codes

If front panel lights do not behave as described in the previous section when you power up or initialize the MAXserver, the unit might be displaying an error code. A special pattern of diagnostic codes indicates that a hardware or software error has occurred. Figure 35 shows how the diagnostic code; appears on the MAXserver front panel lights.

☞ Only Port LEDs 1 through 8 are used to display self-test error codes.

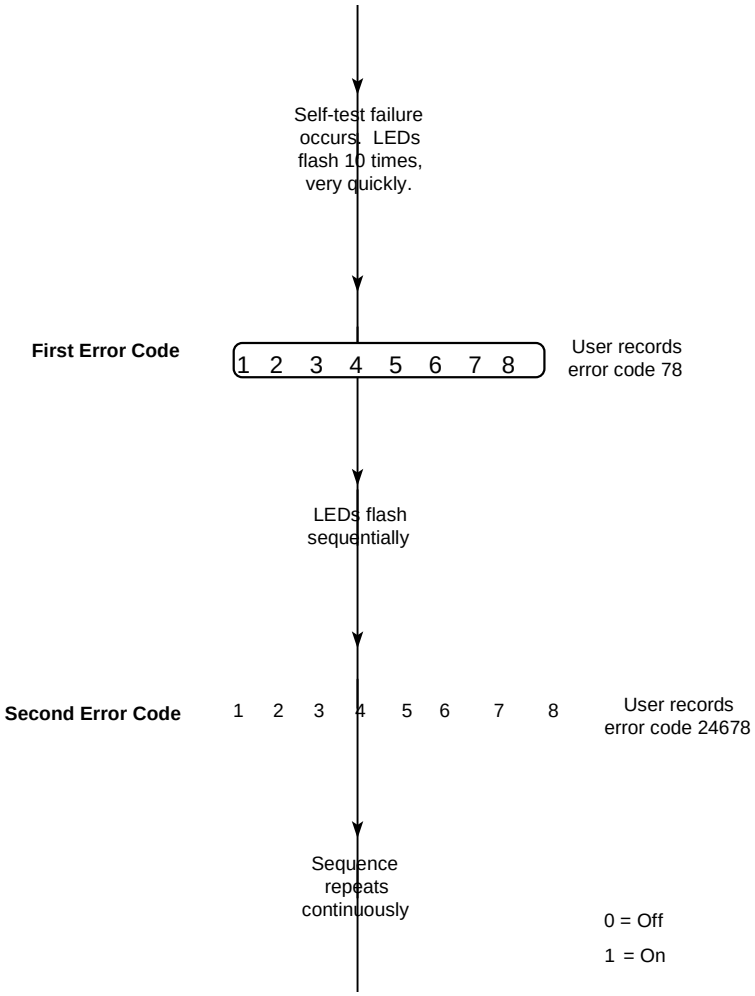


Figure 35 - Sample Error Code Display

Write down the numbers of the error code (the lights that are ON) and contact your NBase-Xyplex Customer Support representative. (In the U.S., call 1-800-435-7997. For International calls, the number is 978-952-4888). Your representative will provide further instructions on how to handle the condition.

Common Error Codes

First Error Code: 3, 4, 6, 7

Second Error Code: 3

Problem: The MAXserver has been configured for more memory than is actually installed.

Solution: Either configure the MAXserver for less installed memory, using the Access server Configuration menu, or install additional SIMM memory. (The SIMM memory installation should only be performed by qualified personnel.) Use the Modify Unit Configuration option to specify the amount of installed memory. The Configuration menu is described in Chapter 4.

First Error Code: 3, 4, 8

Second Error Code: 2, 8

or

First Error Code: 3, 4, 6, 7

Second Error Code: 3, 6

Problem: Reinitialize the unit.

Solution: Select the **Modify Unit Configuration** option from the Configuration menu (see Figure 28) to access and modify configuration parameters, or you can reinitialize the unit from Command Line Interface with the following command:

```
XYPLEX>>INITIALIZE DELAY 0
```

Power Up and Re-initialization Problems

The following list describes the problems you might encounter when you power up or re-initialize a MAXserver. The list includes descriptions of correct operations and possible solutions.

CARD light does not go ON

Problem: You are trying to load from a Memory card and the CARD light does not go ON.

Correct Operation: The CARD light should illuminate for approximately 15 seconds when the MAXserver loads software from a flash card.

Possible solutions: If the CARD light does not go ON, make sure that the card is inserted properly. Also, make sure that the MAXserver is configured to load from the Memory card. Use the Configuration menu in Figure 27 to verify. By default, a MAXserver is configured to load from the flash card, however, someone might have changed this setting.

CARD light goes ON then OFF quickly

Problem: If the CARD light goes ON and then OFF quickly, make sure that the flash card has been initialized.

Solution: You can initialize a flash card while it is inserted in the unit by issuing the FORMAT CARD command. Alternatively, if you have a PC with a flash card drive, you can check whether the SYSTEM directory is present on the card. The directory should contain the software image. The *filename* must be **xpcsrv20.sys**. Also, the loader file **mcffs1.sys** must reside in the same directory as xpcsrv20.sys, and must appear before xpcsrv20.sys.

Use the following command to display the contents of the SYSTEM directory:

```
SHOW SYSTEM PARAMETERS
```

Network Loading Problems

Problem: The MAXserver does not appear to load from the network, or is slow to load from the network.

Correct Operation: The load server downloads a software image and (optionally) parameters to the MAXserver, over the network, whenever the unit is powered on or re-initialized.

After the software and (optionally) parameters have been downloaded from the load server, the RUN light should blink once every second. Then, if you type several <RETURN>s at a terminal connected to any serial port, the following message should appear:

```
WELCOME TO THE XYPLEX ACCESS SERVER.

ENTER USERNAME>_
```

Possible Solutions: The MAXserver generates several messages during the load process, which can help you resolve loading problems. To see the messages, press <RETURN> several times at a terminal connected to a MAXserver serial port, when the unit begins the loading process. (When you do this, the serial port adjusts to the communication speed of the terminal. This process is called *autobauding*.) The port light should go ON when you press <RETURN>.

If you type <CTRL><T> now, the unit will display the load server offer table when it receives load offers. (Only one <CTRL><T> is required.)

Loading Problems

Refer to the following message descriptions for assistance in correcting loading problems. Note that each <RETURN> generates a single message. You must press <RETURN> every 5 - 10 seconds to receive updated messages. Also, if the load process takes place very quickly, you might miss some of the messages.

Problem: Not Connected to the Network

If the MAXserver is not connected to the network, you see one of the following messages when you press <RETURN>:

```
AUTOMATIC NETWORK SELECTION: SEARCHING FOR FUNCTIONAL
NETWORK.

SEARCHING FOR FUNCTIONAL STANDARD ETHERNET NETWORK.

SEARCHING FOR FUNCTIONAL 10BASE-T ETHERNET NETWORK.
```

Problem: No response to a load request

Normal Process: A message similar to the following one is displayed while the server is waiting for a response to the load request.

```
REQUESTING NETWORK LOAD SERVICE
```

If this message displays for more than 20 seconds after you type several <RETURN>s, either the MAXserver is not configured on a load server, or it cannot communicate with a load server.

If this message does not appear after you type several <RETURN>s, the MAXserver unit could be at fault. Call NBase-Xyplex Customer Support. (In the U.S., call 1-800-435-7997. For International calls, the number is 978-952-4888).

Solution: Check that the MAXserver is in the RUN state and that the Ethernet transceiver cable or 10BASE-T network cable is properly installed.

Load Server Errors

A message similar to the following one is displayed if the MAXserver has received a load offer from a load server:

```
EVALUATING SERVICE OFFERS
```

If you typed a <CTRL><T> after "autobauding" your terminal, messages similar to the following display when the unit has stopped accepting load offers:

```
Received load service offers:
              Host Address        protocol     merit     filename
              xx-xx-xx-xx-xx-xx   0809         9C000037  XPCSRV20
```

Up to ten load server addresses are displayed (typically, just one). The MAXserver unit selects the load server with the highest merit value.

When the MAXserver chooses a load server, a message similar to this one appears:

```
       Access server, Type 86, Rev x.xx.x
       Ethernet address 08-00-87-xx-xx-xx, port x
       Currently using initialization record 1

       Loading file xpcsrv20
       from server xxx.xxx.xxx.xxx, message 1487
       Memory Card; Not Installed
```

Error: Message count stays at zero while you type <RETURN> continuously.

Problem: The load server was configured to load the MAXserver unit, but encountered a problem with the load file or directory.

Possible Solutions: Check the filename and directory at the load server.

Additionally, in some newer VAX/VMSinstallations, the logical name

"MOM$LOADmight not be defined properly. (Refer to the *Software Installation Guide* for VMS load hosts for more information.)

File Loading Errors

```
PROBLEM:  ERROR: SERVER XX-XX-XX-XX-XX-XX; FILE ERROR:
NOT A LOAD FILE.
```

This message type appears if the load server attempted to load a file image that is incompatible with the MAXserver. (The load file did not have a MAXserver ASCII identification string header.) This can happen if, for example, the file is a DECserver 200 load file.

Normal Process: After the MAXserver loads a file, it checks the contents of the file for proper identification and size.

Error: Server xx-xx-xx-xx-xx-xx; File error: corrupted data.

Problem: The load server attempted to load a file that is compatible with the MAXserver, but the file has been corrupted.

Solution: Correct this problem by installing a new file in the load server. Refer to the *Software Installation Guide* for instructions.

Error: Error Server xx-xx-xx-xx-xx-xx; File error: not executable.

Problem: No 680xx CPU identifier appears in the file header. This is a NBase-Xyplex file, but it cannot be executed by the server.

Solution: Resolve this problem by installing the proper file in the load server. See the *Software Installation Guide* for instructions.

Error: Server xx-xx-xx-xx-xx-xx; Timed out, will retry.

Problem: The MAXserver gave up waiting for the load server to send a load file image. When this happens, the server restarts the load request process. If the message count was not zero, and the "timed out" message was displayed, it is possible that your network experienced communication problems.

> **NOTE:** If there is no progress of the message count number beyond zero, a load server problem exists. A network problem probably exists if the message count remains stuck at a number other than zero.

Dump Server Errors

If a failure occurs during the load process, the server will abort the load process and send a small dump file (approximately 60 bytes) to a server that is configured to accept a dump file. The dump file can be analyzed by NBase-Xyplex to assist you in resolving the fault. Call NBase-Xyplex Customer Support for assistance.

Error: Dump service requested, but no dump file can be created

Normal Process: The MAXserver uses the same algorithm for the dump server as for selecting the load server. Normally, messages similar to these appear:

```
Access server, Type 86, Rev x.xx.x
Ethernet address 08-00-87-xx-xx-xx, port x
Requesting dump service
```

This type of message displays while the MAXserver waits for a response to its dump request. If this message displays for more than 30 seconds after you type several <RETURN>s, the MAXserver is not configured on a dump server, or the MAXserver cannot communicate to a dump server. Refer to the *Software Installation Guide* for instructions on specifying the proper dump configuration.

A message similar to the following one is displayed if the MAXserver received a dump offer from a server.

```
Access server, Type 86, Rev x.xx.x
Ethernet address 08-00-87-xx-xx-xx, port x
Evaluating dump service offers
```

If you typed a <CTRL><T> after a port speed had been selected, messages similar to these will appear when the unit has stopped accepting dump service offers:

```
Received dump service offers
        Host Address        protocol     merit     filename
        xx-xx-xx-xx-xx-xx   0809         9C000037
```

The MAXserver selects the dump server with the highest merit value. If two or more dump servers have the same merit value, the MAXserver will select the first dump server listed.

```
ACCESS SERVER, TYPE 86, REV X.XX.X

ETHERNET ADDRESS 08-00-87-XX-XX-XX, PORT X
CURRENTLY USING INITIALIZATION RECORD 1

MAINTENANCE DUMP TO SERVER 08-00-2B-05-8B-78,MESSAGE
1487
```

If a failure occurs during the dump process, the MAXserver will abort the dump and attempt to dump to the next dump server, until the dump server list is exhausted. After the dump process completes, the MAXserver selects the load server with the next highest merit value on the load offer list. If the load list is exhausted, the MAXserver will restart the loading process.

Parameter Loading Problems

If the MAXserver is configured to load parameters from the network (rather than local Non-volatile storage- NVS), the unit requests a parameter file from the parameter server. If a parameter file is not sent from the server, the MAXserver will wait indefinitely for the parameter file.

The following message types can be generated during the parameter file load sequence. The process is similar to the load process:

```
REQUESTING PARAMETER LOAD SERVICE
```

This message (or a similar message) displays while the MAXserver waits for a response to the parameter load request. If this message displays for more than 5 seconds after you type several <RETURN>s, the MAXserver is not configured on a load server for parameter load service.

```
ACCESS SERVER, TYPE 86, REV X.XX.X
ETHERNET ADDRESS 08-00-87-XX-XX-XX, PORT X
CURRENTLY USING INITIALIZATION RECORD 1

LOADING PARAMETERS FROM SERVER
XXX.XXX.XXX.XXX, MESSAGE 1487
MEMORY CARD; NOT INSTALLED
```

Link L1 refers to the Ethernet transceiver cable or 10BASE-T network cable; that is, the server is loading parameters via the LAN. If the message count remains at zero after you type several <RETURN>s, the load server is properly configured, but does not have a defined parameter file.

Loading from the Network

Problem: While loading from the network, no messages appear after you type several <RETURN>s. (Note that when the MAXserver is loading from a flash card, you do not see any messages, and cannot access the access server.)

Correct Operation: The port normally autobauds to the correct baud rate when you press several <RETURN>s. Once a port speed has been selected, the port light illuminates. In the first 20 seconds after power up, the server runs the self tests and does not respond to the <RETURN>s. Shortly after power up, however, the port displays a message in response to a <RETURN>.

Possible Solutions: Determine whether the port is receiving characters properly. Type several <RETURN>s and make sure the PORT light is ON steadily. This indicates that the MAXserver has received characters and selected a communication speed.

If the port is receiving characters, the MAXserver might have autobauded to the wrong speed. Press the <BREAK> key to re-initialize the autobaud sequence, then type several <RETURN>s.

If the port is not receiving characters, a cable or device problem exists. Try changing the type of cable used (e.g., change from straight-through to crossover). Note that a MAXserver-to-DTE device configuration requires a crossover cable connection. Refer to Appendix B for cable descriptions and order codes.

If the LAN Light Is Out

Correct Operation: When the LAN light on the MAXserver front panel is ON, the server is communicating with the network.

Solution: If you are unable to communicate with the network and the LAN light is not ON, check the following.

- Make sure that the Ethernet transceiver cable or 10BASE-T network cable is securely connected to the back of the MAXserver.
- There may be a problem with the network itself. Check whether any other devices connected to the network are experiencing communications problems.
- Check whether a diagnostic code is being displayed on the front panel lights (indicating a hardware or software error).

If none of these checks indicate a problem and the LAN light is still not ON, contact your NBase-Xyplex Customer Support representative for assistance. (In the U.S., call NBase-Xyplex Customer Support at 1-800-435-7997. For International calls, the number is 987-952-4888).

SIMMs Installation

This section explain how to install and remove MAXserver Single Inline Memory Modules (SIMMs).

ATTENTION

Only qualified personnel should install or remove MAXserver SIMMs.

Unplug the MAXserver before you begin the installation. There is danger of Electrical Shock if you fail to do so.

SIMMs are extremely sensitive to static electricity. Static from your clothes or work environment can destroy SIMMs, or diminish their reliability.

Handle SIMMs by their edges only, and use standard static-preventive procedures. Preferably, the installation should be done with an anti-static wrist band, on a grounded work surface.

Recommended SIMMs Manufacturers

The MAXserver accepts 30-pin 70 ns. (or faster) 1M x 8 SIMMs with tin contacts. (Do not use SIMMs with gold contacts.). The order code for a 2MB SIMM memory upgrade kit is MX-500-5744. Contact your NBase-Xyplex sales representative to order this kit.

Problem: Determining what type of SIMMs can be used to upgrade a 1600, 1620 or 1640.

Solution: The requirements for SIMMs are as follows:

For a 1620/1640:

- 30 pins, 70 ns or faster, 1M x 8 SIMMs with tin contacts (NOT GOLD). They must be configured to make either 2, 4, 6 or 8 Megabytes of memory.
- Manufacturer's Part No.ToshibaTHM81070AS-70

For a 1600:

- 30 pins, 80 ns or faster, 1M x 8 SIMMs with tin contacts (NOT GOLD).
- Manufacturer's Part No.
  - NEC MC-421000A8B-80OKIMSC2313A-80YS8
  - Toshiba THM81000AS-80
  - Samsung KMM581000A-8
  - Micron MT8D18M-8
  - Mitsubishi MH1M08B0J-8
  - Fujitsu MB85230A-80PS

NBase-Xyplex offers SIMM Upgrade kits for all MAXserver units. Contact your NBase-Xyplex sales representative for ordering information.

MAXserver Memory Requirements

Each SIMM provides 1 Megabyte of memory. SIMMs must be installed or removed in pairs; you can install either two, four, or six SIMMs (i.e., 2, 4, or 6 Megabytes of memory). This means that the MAXserver can be configured with a total of 4, 6, or 8 Megabytes of memory. Figure 36 shows a typical SIMM. (The SIMMs you are installing might have a different number of memory chips.)

NOTE: All MAXserver are delivered from the factory with a minimum of 4MB installed.

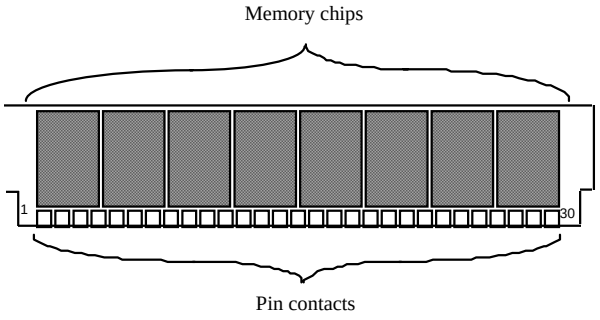


Figure 36 - Typical SIMM

Installation

☞ **Unplug the MAXserver before you begin the installation. There is danger of Electrical Shock if you fail to do so.**

To install the SIMMs, follow these steps:

1. Unplug the MAXserver if you have not already done so. It is not necessary to remove the serial cables and Ethernet cable. If the MAXserver is mounted in a rack, remove it from the rack.

2. Set the MAXserver on a grounded workbench or other flat, stable surface.
3. Attach an anti-static strap to your wrist, and connect the strap to a well grounded object. If a well grounded object is not available, connect the strap to the MAXserver chassis after you remove the cover.
4. Remove the four screws that secure the cover on the MAXserver, using a Phillips-head screwdriver (see Figure 37). Put the screws in a safe place. Then, lift and remove the cover.



Figure 37 - Removing the Screws Securing the Cover

☞ **Do not touch the Power Supply. Components might still be charged to dangerous voltages.**

5. Locate the SIMM sockets inside the MAXserver (see Figure 38).

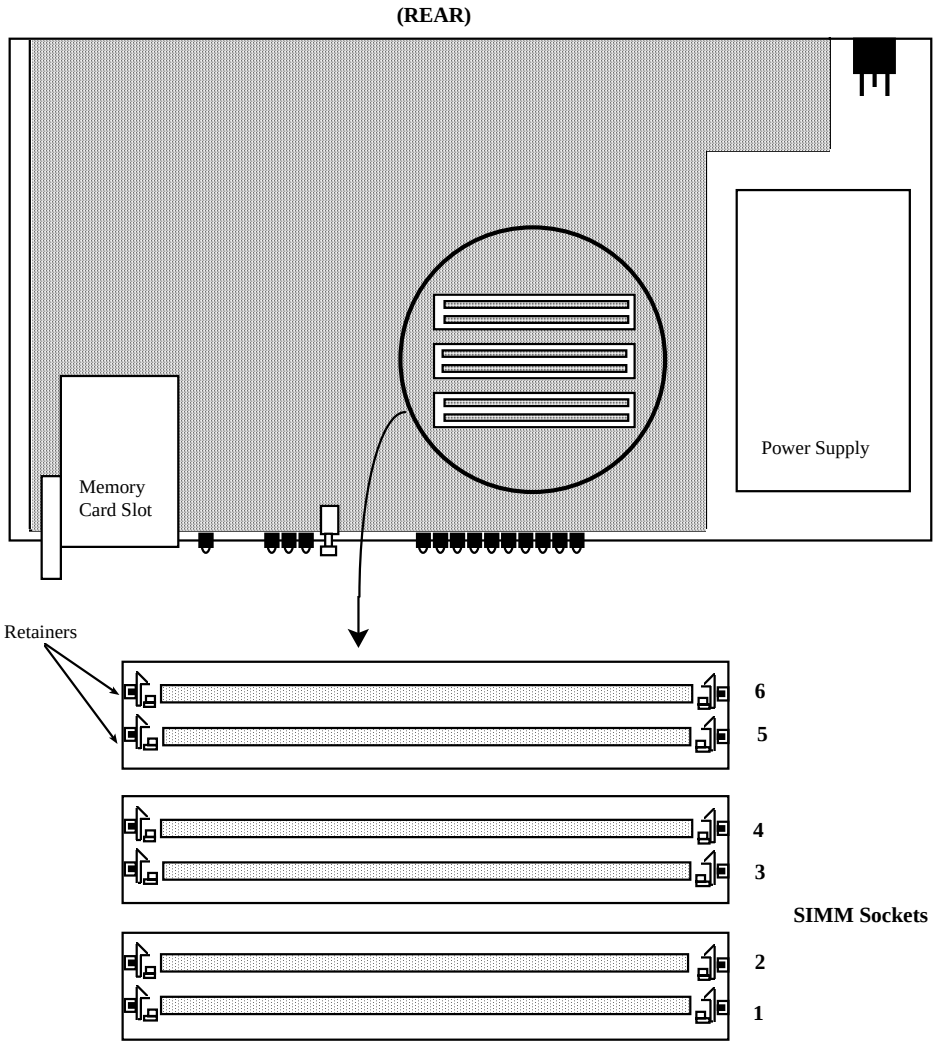


Figure 38 - Location of SIMM Sockets

6. Install two SIMMs at a time, and install them into the sockets in the following order: 1 and 2, then 3 and 4, then 5 and 6. (It is easier to install each pair of SIMMs by installing the SIMM in the odd-numbered sockets first.)

7. Hold the SIMM by its edges, with the memory chips facing the front of the MAXserver, then insert the SIMM into the slot. Angle the top of the SIMM (about 30°) toward the rear of the MAXserver (see Figure 39).

8. Place your thumbs on opposite corners of the SIMM and press down.

9. Press forward (toward the rear of the MAXserver) until you feel the SIMM snap into place.

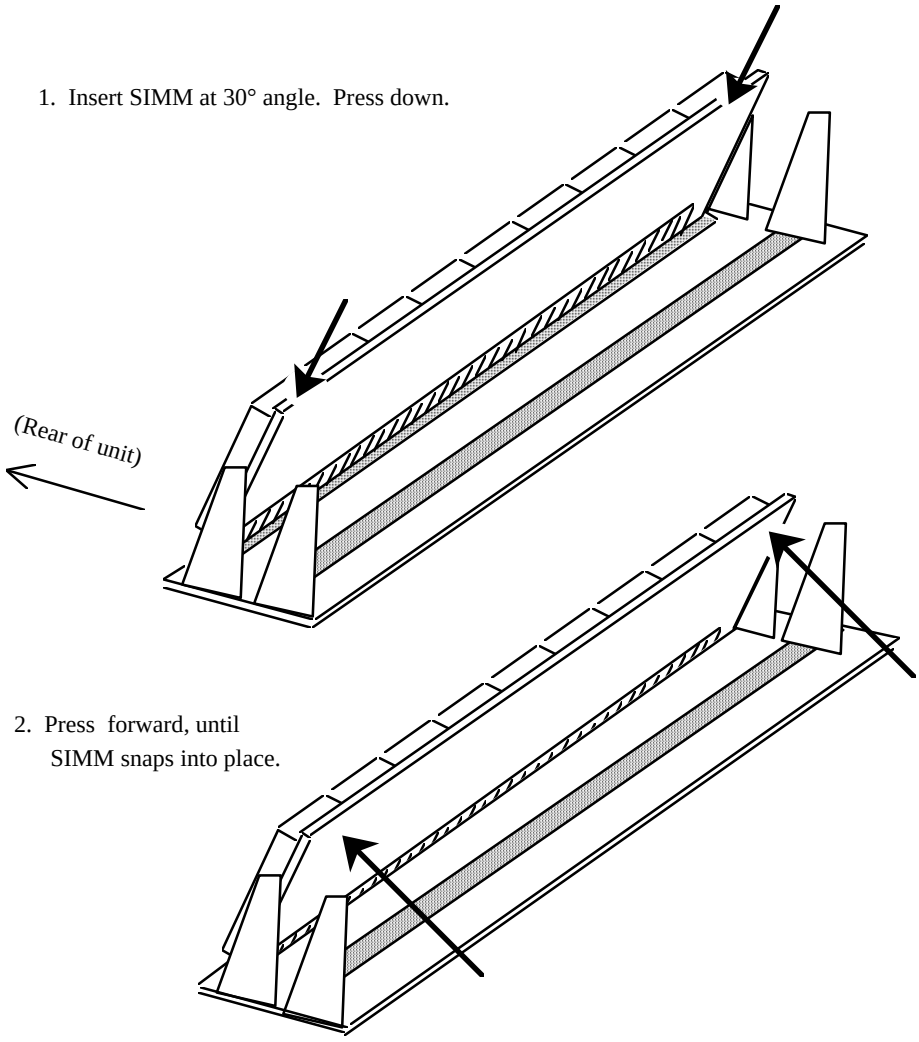


Figure 39 - Inserting SIMM into Socket

10. Make sure that the SIMMs are secure within the retainers.
11. Replace the MAXserver cover, and secure it with the four screws you had removed.

12. Return the unit to the rack or flat surface from which you removed it, and plug it back in.
13. When you apply power, the MAXserver performs a self test of its circuitry and then proceeds to load its software. When the unit has finished loading its software, the RUN light flashes slowly and the LAN light flashes as Ethernet packets are received.

If, after several minutes, the front panel lights do not behave as indicated, refer to the Troubleshooting section.

No other actions are required. The MAXserver automatically detects, tests, and records the presence of the additional memory. However, if you want to verify that the MAXserver has detected the additional memory, proceed to the next section.

Verifying Memory Installation Using Commands

You can verify that the MAXserver has detected the additional memory. To do so, follow these steps:

1. Connect a terminal to any MAXserver serial port.
2. Press <RETURN> several times to "autobaud" the serial port to the terminal's speed.
3. Enter a username when prompted.
4. Use the following command to generate a display that indicates the amount of memory the MAXserver detects. (Look for the "Installed Memory" field in the upper left portion of the display.)

   At the Xyplex prompt, type:

   ```
   SHOW SERVER ALTERNATE STATUS
   ```

Verifying Memory Installation Using the Configuration Menu

You also can use the MAXserver Access server Configuration menu to verify

the memory installation by following these steps:

1. Using a straightened paper clip, press the MAXserver RESET switch once to enter reset mode. All lights on the front panel should illuminate.

2. Press the RESET switch again, and hold the switch in. With the switch held in, observe the port lights. The lights for Ports 9 and 10 should illuminate on the MAXserver 1620 and 1640 (ports 7 and 8 on the MAXserver 1604 and 1608 A/B). The port lights should then flash in sequence from 1 to 10 (1 to 8 for MAXserver 1604 and 1608A/B) and then back to 1 again. Port lights 8, 9 and 10 then illuminate (port lights 7 and 8 on the MAXserver 1604 and 1608A/B). When this sequence has completed, release the RESET switch. The MAXserver performs the standard self-test diagnostics. (The self test requires about 20 seconds to complete.)

3. When the RUN light flashes rapidly (indicating that the self test has completed), *autobaud* any serial port by pressing RETURN a few times at a terminal connected to the port. Once the MAXserver has selected a port speed, it generates the following message:

```
ACCESS SERVER, TYPE 90, REV X
ETHERNET ADDRESS 00-DD-01-00-46-DD, PORT 1
CONFIGURATION IN PROGRESS. PLEASE WAIT.
```

4. Type the password "ACCESS" (note that there is no prompt) and press <RETURN>. The unit displays the menu shown in Figure 40:

```
                Welcome to the Configuration Menu.

Access server Configuration Menu

   1. Display unit configuration
   2. Modify unit configuration
   3. Initialize server and port parameters
   4. Revert to stored configuration
   S. Exit saving configuration changes
   X. Exit without saving configuration changes

Enter menu selection [X]:
```

Figure 40 - MAXserver Access server Configuration Menu

5. Type '1' and press <RETURN>. The unit displays a menu similar to Figure 41.

```
Display Unit Configuration Menu

   1. Initialization record #1 (Enabled)
   2. Initialization record #2 (Disabled)
   3. Initialization record #3 (Disabled)
   M. Miscellaneous unit configuration
   D. Set unit configuration to defaults.
   X. Exit to main menu

Enter menu selection [X]:
```

Figure 41 - Sample Display Unit Configuration Display

6. Type 'M' and press <RETURN>. The unit displays a screen similar to Figure 42.

```
                  Stored Configuration    New Configuration

Load status messages:    Enabled          Enabled
Memory installed:        4 Megabytes      4 Megabytes
   (Found 4 Megabytes)

(Type any key to continue)
```

Figure 42 - Sample Miscellaneous Configuration Display

The display indicates the amount of installed memory detected by the MAXserver. If you have installed more memory than the display indicates, try re-installing the SIMMs.

To exit the Miscellaneous Configuration display, press any key. The Display Unit Configuration menu appears. Type 'X' at the "Enter menu selection" prompt. This returns you to the main menu. Enter 'X' at the "Enter menu selection" prompt. The MAXserver then proceeds to load its software.

Removing SIMMs



Before you remove SIMMs, you must configure the MAXserver for less memory, using the Access server Configuration Menu. If you fail to do so, the front panel lights will display an error code the next time you try to initialize the unit.

Also, if you have enabled more software features than the MAXserver can support with reduced memory, you will not be able to reinitialize the unit after you remove the SIMMs. To prevent this, configure the software for fewer features prior to removing the SIMMs.

To remove memory from the MAXserver, complete the following steps:

1. Select Option 2 from the Configuration Menu and press <RETURN>. The unit displays the Modify Unit Configuration Menu.
2. Select option M and press <RETURN>. The MAXserver displays a series of prompts. Press <RETURN> at each prompt, until you see the following message:

   ```
   Total installed memory in megabytes (2,4,6,8) [4]:
   ```

   The number in the square brackets [ ] indicates the amount of installed memory for which the MAXserver has been configured.
3. When you see the prompt, enter the amount of memory the MAXserver will have after you remove the SIMMs, and press <RETURN>.
4. Type 'M' and exit to the main menu. The unit displays the Configuration menu. Enter 'S' at the "Enter menu selection" prompt to save changes and exit. The MAXserver prompts:

   ```
   SAVE CHANGES AND EXIT (Y,N) [Y]?
   ```
5. Type 'Y' and press <RETURN>. When the MAXserver has saved the changes, you see this prompt:

   ```
   CHANGES MADE.  EXIT CONFIGURATION MENU (Y,N) [Y]?
   ```
6. Type 'Y' and press <RETURN>.
7. After you have configured the MAXserver for less memory, proceed to the following section to physically remove the SIMMs.

Removing SIMMs from the MAXserver

You must remove either two or four SIMMs. If you want to remove two SIMMs and four are installed, remove the SIMMs from sockets 3 and 4.

1. Follow steps 1 through 5 under “Installation” in this section.

2. To remove the SIMMs from the sockets, pull the retainers that hold the SIMM outward (see Figure 43).

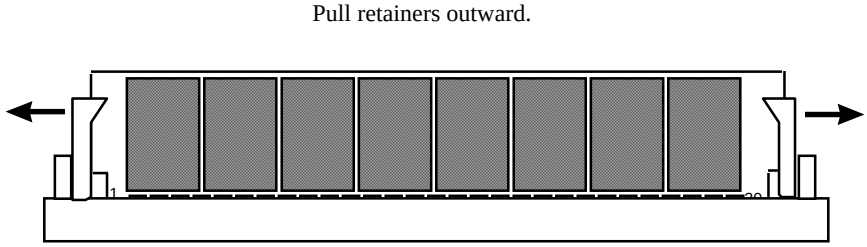


Figure 43 - Removing SIMMs

3. Pull the SIMM toward you, then up. (Basically, you reverse the steps shown in Figure 37.)
4. Replace the MAXserver cover, and secure it with the four screws you removed previously.
5. Return the unit to the rack or flat surface from which you removed it, and plug it back in.

Technical Specifications

Item	Description
Terminal Signals	Transmit Data, Receive Data, Transmit Ground, Receive Ground, Data Set Ready/Data Carrier Detect (DSR/DCD), Data Terminal Ready (DTR), Ring/Clear-to-Send (RNG/CTS), and Ready-to-Send (RTS). Supports concurrent modem control.
Terminal Cabling	Modular RJ-45
Cable Lengths - 1620	**Serial Speed** — **Maximum Length** >9.6 kbps — 900 meters(3000 feet) 19.2 kbps or less — 305 meters (1000 feet) 38.4 kbps — 152 meters (500 feet) 57.6 kbps — 60 meters (200 feet) 115.2 kbps — 30 meters (100 feet)
Cable Lengths - 1640	**Serial Speed** — **Maximum Length** >9.6 kbps — 900m (3000 feet) 19.2 kbps or less — 305 meters (1000 feet) 38.4 kbps — 152 meters (500 feet) 57.6 kbps — 60 meters (200 feet)
Cable Lengths - 1604/1608B	**Serial Speed** — **Maximum Length** >9.6 kbps — 3000 ft/900m 19.2 kbps — 1000ft/300m 38.4 kbps — 500ft/150m 57.6 kbps — 200ft/60 m 115.2 kbps — 100ft/30m
Flash Card Interface	Accepts industry standard JEIDA/PCMCIA cards.
Serial Line Speed	MAXserver 1604/1608/1620 - 50 to 115.2 Kbps MAXserver 1640 - 50 bps to 56.7 Kbps
Number of Serial Ports	MAXserver 1604 - 4 ports MAXserver 1608A/B - 8 ports MAXserver 1620 - 20 ports MAXserver 1640 - 40 ports

LEDs	RUN, LAN, Flash Card Status, Console, Port status and Diagnostic LEDs 1-10 (1620/1640) LEDs 1-8 (1608B/1604)	
Controls	Run/Reset push button switch	
Dimensions Height Depth Width	**1640 and 1620** 4.45 cm. (1.75 in.) 30.48 cm. (12 in.) 48.26 cm. (19 in.)	**1608B and 1604** 4.1 cm (1.62 in) 19.5 cm (7.7 in) 23.3 cm (9.9 in)
Weight	**1640 and 1620** 3.64 kg. (8 lbs.)	**1608B and 1604** 1.7 kg (3.8 lbs. With ext. power supply)
Memory	4 MB DRAM, expandable to 8 MB with SIMM memory modules.	
Environment	10% to 90% humidity, noncondensing Operating Temperature: 32° - 113° F (0 - 45°C) Storage Temperature: -4 to 140° F (-20 to 60°C)	
Input Voltage	110 - 240 VAC 50 - 60 Hz (All MAXservers)	
Power Requirements 1640 1620 1608B/1604	42W, 145Btu/hr 0.35 A at 110V (typ), 0.19A at 220V (typ) 32W, 110Btu/hr 0.27 A at 110V (typ), 0.15A at 220V (typ) 25W, 110Btu/hr 0.7A at 120V (typ), 0.3A at 220V (typ)	
Minimum Software Requirements	Access Server Software, V5.3 or later for MAXserver 1608A, 1620 and 1640. V6.0.3 or later for MAXserver 1604 and 1608B.	
Ethernet Interface	Ethernet/IEEE 802.3 Connection -- 10BASE-T or AUI Transceiver	

Index

#

10Base-T connector, 25
10Base-T connectors, 79
10Base-T network cable, 20
10BASE-T network cable, 141

A

AC line cords, 26
AC power outlets, 26
AC power receptacle, 26
adapter wiring, 65
adapters, 64
ARAP cabling, 74
areas
  flash cards, 113
Attachment Unit Interface (AUI), 13
AUI connector, 25
autobaud
  port settings, 32
autobaud, 83, 150
autobauding, 133, 140
autobauding feature, 31

B

baud rates, 15
  port settings, 32
BOOTP
  enabling as a dump protocol, 119
bootstrap protocol (BOOTP), 16
broadcasts
  for delays, 57

C

cables, 21
  checking connections, 140
  connecting to RJ-45 jacks, 29
  DECconnect compatible, 68
  Etherner transceiver, 78
  labeling for identification, 30
  lengths, 155
  making your own, 62
  modem connections, 73, 74, 76
  octopus, 68
  problems with, 135
  RTS/CTS flow control, 75
cabling, 64, 155
  "octopus", 69
  DECconnect, 68
  signals, 67
cabling schemes
  XMT, RCV, DCD/DSR, DTR, RING,, 73
cabling types, 60
CARD protocol, 120

communication speeds, 15
communication speeds. See also baud rates., 140
configuration
  current unit settings, 85
  customizing, 92
  reverting to last saved values, 104
  using ControlPoint, 18
  using FocalPoint, 17
configuration data, 95
configuration menu, 83, 84
connectors
  10Base-T, 25
  AUI, 25
ControlPoint configuration, 18
copying flash cards, 53
corrupted data
  troubleshooting, 136
corrupted load file, 136
CPU identifiers, 136
crimping tools, 62
crossover cable, 67
crossover cables, 60, 140

D

damage during shipping, 20
DB-25 connectors, 64, 70
DB-25 distribution panels, 71
DB-25 pin assignments, 67
DCD/DSR flow control, 62
DCE wiring, 79
DEConnect cabling, 68
DEConnect connector, 69, 70
DECserver 200 load file, 136
default prompt settings, 46
default settings, 30
defaults
  gateway IP address, 116
  image protocols, 93
  IP addresses, 114
  IP load hosts, 115
  protocols, 89
  resetting parameters, 117
  resetting the unit, 102
  use for servers and ports, 104
delay rebooting, 57
diagnostic codes, 141
Directed Trivial File Transfer Protocol, 82
Directed Trivial File Transfer Protocol. See DTFTP., 89
display port 0 telnet characteristics, 40
display unit settings, 16
distribution panels, 70
downloads, 17
DTE devices
  connecting to MAXservers, 67
DTE wiring, 65
DTFTP, 88, 89
  enabling, 120

dump files
  problems with, 138, 139
dump protocols, 88, 108, 113
  enablind/disabling, 119
dump requests, 138
dump servers, 137
dumping methods, 96, 97

E

environment, 156
environmental requirements, 21
erasing flash cards, 53
error codes, 129, 130, 131, 141
error messages, 58
errors
  load servers, 135
Ethernet 15-pin AUI connectors, 78
Ethernet addresses
  image file locations, 113
  image files, 55
Ethernet connections, 156
Ethernet transceiver cable, 20, 141
extension cables, 70
extension cords, 26

F

file names
  changing, 52
  load files, 99
filenames
  load files, 112
  naming conventions, 98
  TFTP loading, 100
flash cards, 51
  areas, 113
  copying contents to another card, 53
  current settings, 53, 54
  deleting contents, 53
  loading images, 55
  loading the image file, 51
  retrieving load images, 113
  terminating updates, 113
Flash memory cards
  installing, 23
flow control, 61
FocalPoint configuration utility, 17
front panel lights, 22

G

gateway IP addresses, 108
gateways, 100

H

hardware flow control, 62
Help command, 38
host IP addresses, 108

I

image filenames
  defining, 97
image files
  loading, 55

image load methods, 89
image loading
  terminating, 113
image loading methods, 92, 94
INIT DELAY command, 33, 57, 58
initialization records, 81
initialization records
  creating, 85
  current settings, 86
  displaying, 108
  ENABLING/DISABLING, 91
  RESETTING, 91
INITIALIZE DELAY command, 33
initialize server and port parameters, 104
input voltage, 26
installation, 20
installed memory display, 149
internet access
  IP addresses, 30
IP ADDRESES
  GATEWAYS, 100
IP addresses
  configuring, 114
  default settings, 31
  defining, 99, 115
  gateways, 108, 116
  host address, 108
  HOSTS, 100
  image file locations, 113
  image files, 55
  network hosts, 114
IP Addresses
  for internet access, 30
IP load address, 115
IP load file, 115
IP load hosts, 114

L

LAN LEDs, 141
LEDs, 27, 28, 29, 35, 156
  error code displays, 131
  error codes, 129
  errors, 132
  out-of-band management, 123
  self-test mode, 83
  troubleshooting, 128, 129
load file names, 98
load files, 112
  current settings, 108
  filenames, 112
  problems with, 136
load images
  defaults, 93
  location of, 88
  retrieving from hosts, 113
load offer list, 139
load offers, 133
load protocols
  enabling/disabling, 120
load server addresses, 135
load server errors, 135
load servers, 134, 135, 136, 137

description of, 20
load servesr, 133
loading
problems with, 134
loading image files, 55, 56
loading parameters, 139
loading protocols, 82
loading the image files, 52
login passwords, 43

M

Maintenance Operations, 16
MAXserver 1604, 28
MAXserver 1604/1608B, 27
MAXserver 1608, 25
MAXserver 1620/1640, 24, 27
memory, 156
check setting, 132
display current settings, 149
reducing, 101
memory cards, 20
memory dumps, 90
memory errors, 131
memory loading problems, 132
memory requirements, 144
message counts, 135, 140
problems with, 137
MMJ connector, 67
modem connections, 76
modems, 36, 77
cabling schemes, 73
port settings, 61
modify unit configuration, 91
modular adapter, 68
MONITOR PARAMETER SERVER
command, 34
MOP (Maintenance Operations
Protocol), 98
MOP loading, 90
MOP protocol, 16

N

NCP (Network Control Program), 98
NCP commands, 99
network
problems with, 134
network hosts
displaying name of, 118
network loading, 95
network problems, 141
networks
retrieving load images, 113
Non-volatile storage (NVS), 95
NVS protocol, 90

O

octopus cables, 68, 70

P

parameter servers
current status, 34
parameter files
loading problems, 139

parameter load requests, 139
parameter loading methods, 95
parameter server, 139
parameter servers
  loading from a network host, 95
  names and locations, 119
  names and locations, 88
parameter service, 90
parameter storage, 33
parameters
  display current settings, 133
passwords
  default for configuration, 83
  default for privileged users, 48
  default settings, 31
  defaults, 37, 42
  forgotten or lost, 45
  logins, 43
  privileged users, 43, 44
  security cards, 45
  server default, 44
pin assignments
  DB-25, 67, 79
  Ethernet 15-pin AUI, 78
  RJ-45, 67, 79
pins assignments
  RJ-45 jacks, 29
plotters, 36
port lights, 34
power cords, 21
power off the unit, 33
printers, 36
privileged mode, 38
privileged password, 43
privileges, 37, 49
  description of, 48
  restoring, 48
prompts
  changing defaults, 46
  display current settings, 47
protocols
  default settings, 82
protocols
  default settings, 93
  default settings, 16
  dump files, 108
  enabling/disabling, 109
  factory settings, 88
  for image loading, 111
  for initialization records, 109
  for loading, 108
  MOP, 90
  NVS, 90
  parameter files, 108
  XMOP, 90
punch down block, 68

R

rack mount installations, 22
rebooting the server, 33, 57
records
  displaying, 107
reinitialize the unit, 33
reinitializing the server, 57

reset initialization records, 91
RESET switch, 34, 35, 83, 150
resetting parameters, 102, 117
Reverse Address Resolution Protocol (RARP), 16
reverse octopus cable, 70
RJ-45 connectors, 63, 68
RJ-45 jacks, 29
RJ-45 pin assignments, 79
RJ-45 pinouts, 29
RJ-45 to female MMJ adapter, 68
RJ-45 wiring, 63
RTS/CTS flow control, 62, 74

S

secure ports, 49
self test mode, 83
self tests, 26, 34, 35, 140, 149
server settings
  copying flash cards, 53
  deleting flash cards, 53
  flash card updates, 55
  initialization records, 109
  IP load files, 112
  rebooting, 57
  status message display, 81
signals, 155
SIMM installation, 142, 149
SIMMs
  removing, 152, 153, 154
Single Inline Memory Modules (SIMMs), 142
software filenames, 108
software loading, 133
software requirements, 15
speeds, 155
  cable lengths, 155
startup and loading problems, 128
status messages, 81
status messages, 100, 101
stopping image loading, 113

T

technical specifications, 155
Telco connector, 68
terminal emulation software, 30
TFTP, 16
time out messages, 137
troubleshooting, 128

U

UNIX system, 16
USERNAMES, 37

V

VAX/VMS host system, 16
VAX/VMS installations
  problems with, 135
voltage, 156

W

wiring
  modems, 76

XMT, RCV, DCD, DTR, RING, 72
wiring schemes, 60
crossover cables, 64
for RJ-45, 63
straight-through cables, 64
wrist straps, 20

X

XMOP loading, 90
XMOP,, 89
XPCSRV20 images, 52

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP