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Preface

This manual describes how to use the Xyplex Network 9000™ chassis management commands to change and monitor certain characteristics of Network 9000 product modules and power supplies. It also explains the commands that display and monitor these characteristics.

The Network 9000 chassis management commands manage the characteristics of products while they are operational, after they have loaded software and parameters. To use these commands, you must already have installed the chassis, the power supplies, and the product modules. This manual is written for network managers or administrators who have some knowledge of the network configuration at their site.

Organization

This manual contains the following chapters:

Chapter 1	**Describes the Network 9000 Intra-Networking Hub and the different ways you can manage it. This chapter also introduces some of the features you can change with chassis management commands.**
Chapter 2	**Explains how to log on to the Xyplex command interface and enter chassis management commands. This chapter also describes some of the common terms in the commands.**
Chapter 3	**Describes the internal and external network connections for each Network 9000 product and how to change them.**
Chapter 4	**Describes an alternative to the initialization configuration menu that the chassis management commands provide to change initialization parameters.**
Chapter 5	**Describes the chassis management commands that display and monitor information about modules in chassis slots and PS/130 power supplies.**
Chapter 6	**Describes how to reset or inhibit (hold) a processor module or PS/130 power supply.**
Appendix A	**Network 9000 Type 1 and Type 2 Options**
Appendix B	**Status and Error Messages**
Glossary	**Defines some commonly used Network 9000 terms.**

Syntax

Throughout this manual, the word "Enter" means type something and then press the New Line key, Carriage Return key, or Enter key; for example, "Enter the SHOW CHASSIS SLOT STATUS command" means type the command SHOW CHASSIS SLOT STATUS and then press the New Line, Carriage Return, or Enter key to execute that command.

This manual also uses the following conventions:

COMMAND KEYWORD | *variable* KEYWORD [*variable*]

Where	Means
COMMAND	**Enter the command, or its accepted abbreviation, as shown.**
KEYWORD [KEYWORD]	**Enter a keyword, or its accepted abbreviation, as shown. Sometimes the manual shows [KEYWORD] . This means you have the option of entering this keyword. Do not enter the braces; they only set off what is optional.**
***variable* [*variable*]**	**Enter a variable such as a host name, file name, character string, or keyword. Sometimes the manual shows [*variable*] . This means you have the option of entering this variable. If you do not enter a value for the variable, the device uses a default value. Do not enter the braces; they only set off what is optional.**

If the command syntax shows KEYWORD | *variable*, you have the option of entering one or the other keyword or variable, but you must enter one of them. The bar separates the choices.

Additionally, this manual uses certain symbols in special ways:

Symbol	Means
↵	**Press the New Line, Carriage Return <CR>, or Enter key on your terminal's keyboard.**
`Xyplex>`	**This is the Xyplex prompt at Secure and Nonprivileged ports.**
`Xyplex>>`	**This is the Xyplex prompt at Privileged ports.**

In examples, this manual uses

`This typeface to show your entry.`

`This typeface to show system response.`

End of Preface

Chapter 1

Introducing the Network 9000™ Hub

A Xyplex Network 9000™ Intra-Networking Hub is a family of products that provide highly reliable connections to local and remote resources through links to Local Area Networks (LANs) and Wide Area Networks (WANs). The Network 9000 Hub can support many different network configurations, and network managers can adapt it to suit the needs of different users and computing environments.

An Overview of Network 9000 Product Features

The Network 9000 Intra-Networking Hub includes a variety of chassis options, communication options, and power supply options that support the requirements of your network. The chassis options include six and fifteen slot chassis. These Network 9000 chassis can support many combinations of communication and power supply options. You can add communication options and power supplies to the chassis as the network grows. Figure 1-1 shows a Network 9000 chassis with six slots and compartments for two power supplies. Figure 1-2 shows a Network 9000 chassis with fifteen slots and compartments for five power supplies.

The communication options include these: terminal and printer servers, local and remote bridges, local and remote routers, gateways, and 10BASE-T and 10BASE-F concentrators. For each communication need, there are a variety of Network 9000 products which allow you to choose the most cost-effective combination of performance, functionality, management options, and port density for your site.

The power supply options include managed and unmanaged power supplies. Managed power supplies provide status information over the network, and respond to certain commands entered by a network manager. The Network 9000 power supply system is designed so that you can add power supplies as your network needs grow.

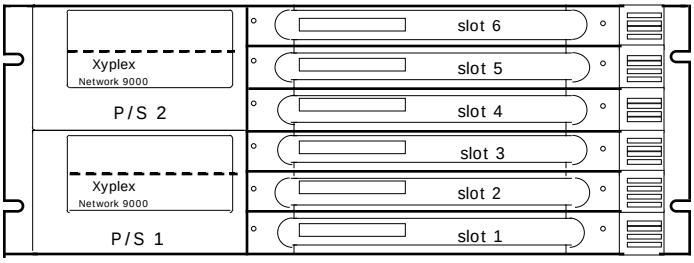

Figure 1-1. A Six-Slot Network 9000 Chassis

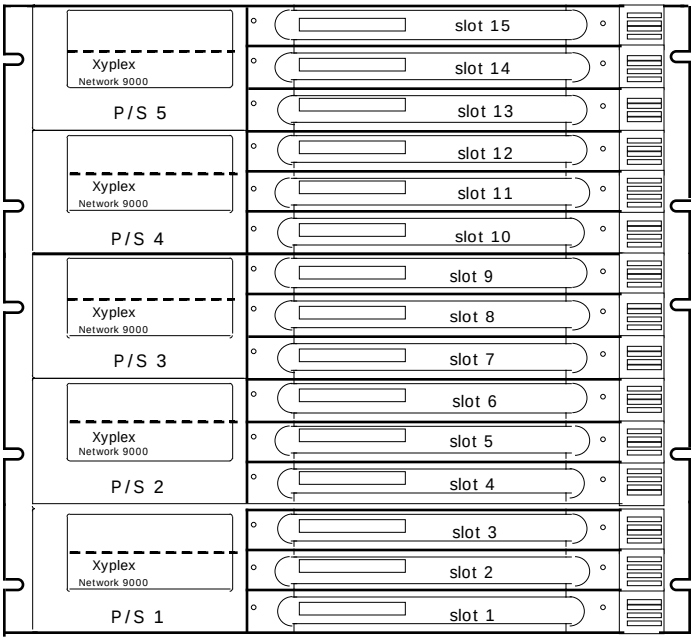

Figure 1-2. A Fifteen-Slot Network 9000 Chassis

Chassis

A Network 9000 chassis includes the physical enclosure, slots for the processor modules and I/O modules, the power supplies, and the midplane. The manual *Installing the Network 9000 Intra-Networking Hub* describes the chassis in detail and explains how to install the chassis at your site.

Slots and Modules

The Network 9000 chassis in Figures 1-1 and 1-2 provide compartments for power supplies and slots for I/O modules and processor modules. An I/O module is a component which provides links to the network and cabling. A processor module is a component which provides the central processor for the Network 9000 product and the management capabilities. Each slot can accommodate one I/O module and one processor module which enter the chassis from opposite sides. Each Network 9000 chassis also includes one I/O module called an AC input module, which occupies the I/O portion of the first chassis slot.

Some products such as managed 10BASE-T/10BASE-F concentrators, multiprotocol terminal servers, LAN bridge/routers, and WAN bridge/routers are module sets. These products include a processor module and an I/O module. Other products such as an unmanaged 10BASE-T Concentrator 201 consists of an I/O module only. [1]

1 The Network 9000 Intra-Networking Hub also offers an adaptor card, which allows you to use Xyplex MAXserver family products in a Network 9000 chassis. If you currently use MAXserver products, you can still use them as part of a Network 9000 Intra-Networking Hub.

Power Supplies

The Network 9000 power supply system is designed so that you can add power supplies as your network needs grow. Some configurations permit you to configure power supplies for redundancy and "hot-swapping," to ensure a constant supply of power to the modules in the chassis. When more than one Network 9000 power supply is installed in a chassis, the supplies will share the load.

The Midplane

The midplane is central to the operation of the modules in the Network 9000 chassis. The midplane is a hardware component in the middle of the chassis which joins the processor modules and an I/O modules for each product. The *Getting Started* guides for each product explain how to install the the separate modules. In addition to providing the physical connections for the processor modules and I/O modules, the midplane supports the following features which add flexibility and performance to the Network 9000 Intra-Networking Hub:

- **The Local Management Bus (LMB)**

The Local Management Bus (LMB) transports management information among the chassis slots, and to the control storage of the chassis. It also allows you to monitor the status of modules and power supplies. While the LMB provides the means of communication among the different components of the chassis, it operates automatically and needs no control or maintenance from users. When you enter a chassis management command and specify a remote slot in the chassis, for example, the LMB automatically transports the information to the target slot.

- **Multiple Ethernet™ Segments**

The midplane of a Network 9000 chassis supports three independent Ethernet segments: segment A, segment B, and segment C. These separate segments allow you segregate network traffic for different user groups, and reduce congestion on the network. Most Network 9000 modules can connect to Ethernet segments A, B, or C. A few Network 9000 modules, and MAXserver family cards installed in a Network 9000 chassis can connect to Ethernet segment A only.

Control Storage

The AC input module includes an area of memory which contains information about each slot in the chassis, called control storage. The control storage maintains the information that the processor modules use at initialization time to load software and parameters, as well as other slot-specific information. The section on Managing Initialization Records later in this chapter explains more about the information in control storage.

Type 1 and Type 2 Communication Options

The Network 9000 product family offers you a choice of communication options which let you decide the most cost-effective combination of performance, functionality, and management options for your network. Xyplex categorizes Network 9000 products into two types: Type 1 and Type 2. These categories are based on whether or not an option supports certain Network 9000 chassis management capabilities, which are described later in this chapter, as well as its ability to connect to Ethernet segments A, B, or C. Appendix A includes a list of Type 1 and Type 2 communication options.

Type 1 products can be managed using methods listed in the next section, rather than the Network 9000 chassis management capabilities. Also, Type 1 products can only be connected to Ethernet segment A. Network 9000 products such as the 3605 LAN Interface Card (LIC) and the 6800 WAN Loader Card are Type 1 products. All MAXserver family cards are Type 1 products.

Type 2 products can be managed using either the Network 9000 chassis management capabilities or any of the other methods listed in the next section. The products can be connected to Ethernet segments A, B, or C.

Managing Network 9000 Products

Network managers can use a variety of software tools to manage Network 9000 products. Some of these tools are supplied by Xyplex. Other tools are supplied by vendors such as Digital Equipment Corporation, Sun Microsystems, Inc., etc.

All products support the following network management tools:

- **ControlPoint™**
- **SNMP**
- **The DECnet Network Control Program (NCP)**
- **DEC Terminal Server Manager (TSM)**

Each of these tools are briefly described later in this section. Only Type 2 products support the following network management tool:

- **Network 9000 Chassis Management Commands**

This management method is described in the section on Managing Modules and Power Supplies with Chassis Management Commands.

ControlPoint

MAXview ControlPoint is a network management software package that runs on Sun Workstations® . ControlPoint provides a SunNet™ Manager application that enables you to manage Xyplex units and DECserver™ units from the SunNet Manager user interface. Because ControlPoint can coexist with other SunNet Manager applications, ControlPoint adds to the versatility of the SunNet Manager as a network management tool.

ControlPoint allows you to do the following:

- **Manage the configuration data of Xyplex units and DECserver units, or individual ports . For example, you can send configuration data to a unit or port, save or restore a unit or port's configuration data, and copy one unit or port's configuration data to another unit or port.**
- **Manage a group of units or ports as an individual Object.**
- **Set up standard configurations as Templates to simplify configuring units or ports.**
- **Generate reports of unit configuration information.**
- **Generate inventory reports.**

Contact your local Xyplex Sales Representative for more information about ControlPoint.

SNMP

SNMP (Simple Network Management Protocol) is an Internet protocol, defined by RFC 1098, that specifies how network management information is carried through a network. Network 9000 products store information defined in RFC 1066, Management Information Base (MIB), and makes it available when requested through SNMP.

Refer to the software documentation supplied with your Network 9000 products for more information about SNMP support. You can obtain a copy of Xyplex MIBs from the Internet MIB repository at venera.isi.edu, or from Xyplex.

The DECnet Network Control Program (NCP)

The NCP utility allows you to make connections to the console port of many Network 9000 products through the Maintenance Operations Protocol (MOP) Remote Console Facility. (Chapter 2 explains more about the console port.) You can use the NCP utility to define unit as a node to the DECnet software and to troubleshoot network problems. The NCP utility is supplied as part of the DECnet software.

You use the NCP utility at a VMS host to manage the operation of the Xyplex units . This utility is described in the documentation supplied by DEC. Refer to the Master Index supplied with your release of VMS software for more information.

The DEC Terminal Server Manager (TSM) Utility

You can use this utility to manage the configuration of many Network 9000 products from a central location, not just from terminal servers. The TSM utility allows you to make connections to the console port of a unit through the Maintenance Operations Protocol (MOP) Remote Console Facility. The TSM utility is supplied by DEC as a separate layered product.

You use the TSM utility at a VMS host to manage the operation of the Xyplex products. This utility is described in the documentation supplied by DEC. Refer to the Master Index supplied with your release of VMS software for more information.

Managing Modules and Power Supplies with Common Commands

Network 9000 Type 2 modules support a set of common chassis management commands. These commands can change the configuration of the network and the initialization parameters of a Type 2 module from the Xyplex command interface of any other Type 2 module in the chassis. They can also reset and monitor managed power supplies.

The next sections of this chapter describe the Network 9000 features that you can change and monitor with chassis management commands:

- **Managing Links to Midplane Ethernet Segments**
- **Managing Initialization Records**
- **Viewing Chassis Management Characteristics**
- **Summary**

Managing Links to Midplane Ethernet Segments

The connection between a Network 9000 module and either a midplane Ethernet segment or an external network is called a *link*. Different Network 9000 products have varying numbers of links, and you can change the link connections with a chassis management command. Chapter 3 describes the possible link connections for most Network 9000 Type 2 products and the command that changes them.

Figure 1-3 represents a Network 9000 chassis with three managed concentrators and a LAN bridge/router. The Ethernet link of each managed concentrator connects to a different midplane segment. Each managed concentrator supports a different department within a company: Sales, Accounting, and Manufacturing.

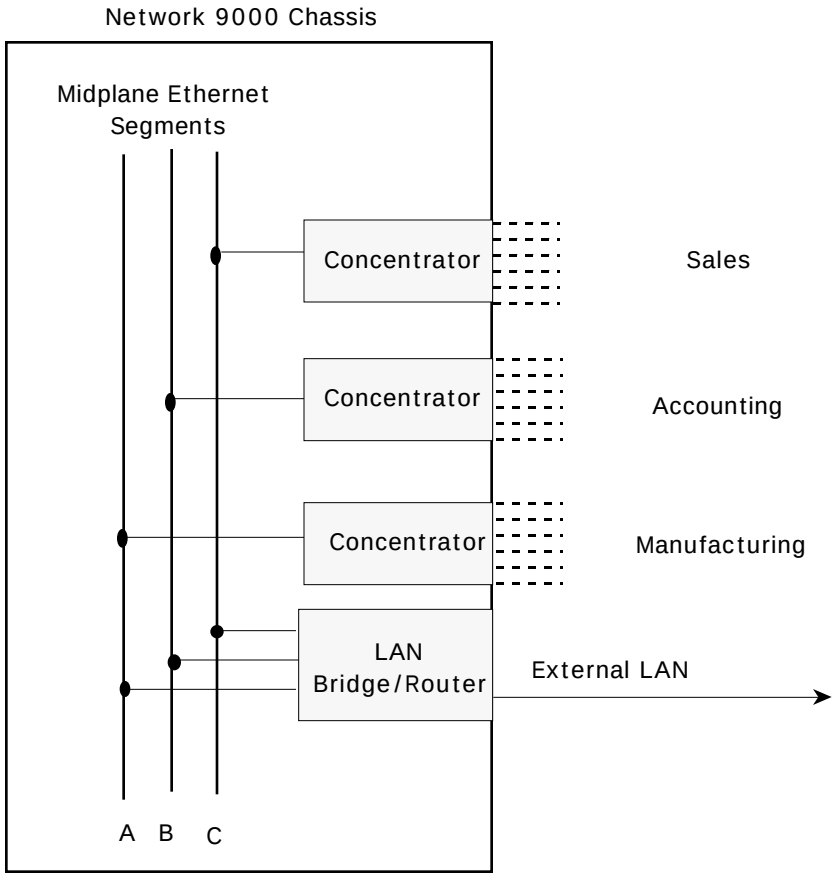

Figure 1-3. Midplane Ethernet Segment Configuration 1

The LAN bridge/router has three Ethernet links, and in this example each one connects to a different midplane segment. The fourth link on the LAN bridge/router provides a connection to an external LAN. This configuration allows the users on the managed concentrators to communicate and share resources transparently.

With the configuration in Figure 1-3, a user in Sales can obtain information from a host in Accounting because the Managed Concentrator on Segment C is linked to the Managed Concentrator on Segment B. Similarly, a user in manufacturing can gain access to resources in Sales or Accounting through the LAN Bridge/Router.

You can add another concentrator to any of the three midplane segments, or you can add other modules to the chassis. Figure 1-4 represents the same chassis with the addition of a terminal server and a WAN Bridge/Router.

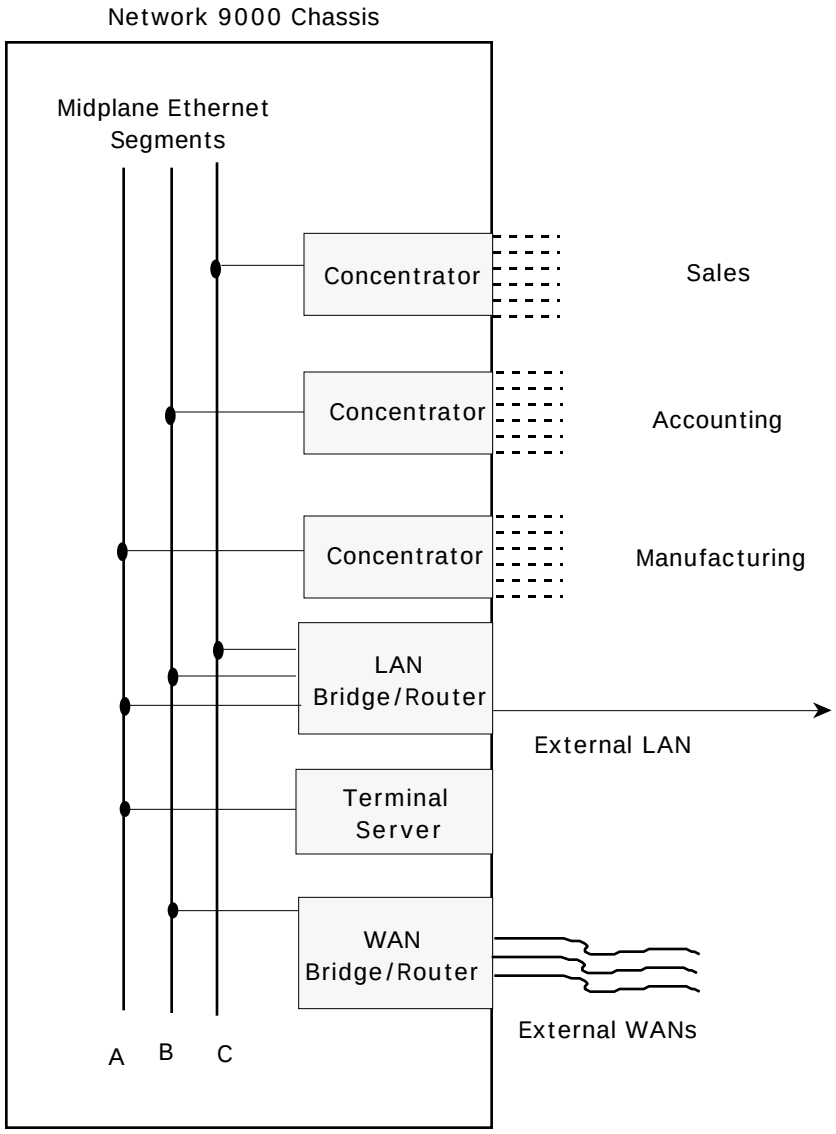

Figure 1-4. Midplane Ethernet Segment Configuration 2

Figure 1-4 shows that the terminal server connects to midplane Ethernet segment A and the Ethernet link of the WAN Bridge/Router connects to midplane Ethernet Segment B. The external connections of the WAN Bridge/Router provide access to remote networks.

The Link Map

The combination of links on a Network 9000 product to either midplane Ethernet segments or external networks is called a *link map*. Each Network 9000 product has a default link map which also supports optional connections. Chapter 3 describes the default link map of managed concentrators, terminal servers, LAN bridge/routers, and WAN bridge/routers in detail.

Managing Initialization Records

Initialization records contain a set of parameters that a Network 9000 module uses to obtain software and operational parameters at initialization time, and to send diagnostic information to a host on the network. Each Network 9000 processor module has three initialization records associated with it that reside in the control storage. If the processor module cannot load software and parameters using one initialization record, it can attempt to load software and parameters using the information in another.

Usually, you change initialization parameters through the Chassis management commands provide another method of doing this, while the processor module is operational. Furthermore, you can use these commands to change the initialization records of any Type 2 module in the chassis simply by specifying a slot number. Chapter 4 describes initialization records in detail, as well as how to change each initialization parameter.

Viewing Chassis Management Characteristics

Several Chassis Management commands display and monitor information about modules, managed power supplies, and initialization records. You can obtain general information about the entire chassis, or specific information about Type 2 modules in any chassis slot. You can also obtain general information about all managed power supplies in the chassis, or specific information about an individual managed power supply. These commands allow you to view the status of different Network 9000 components from any Type 2 module in the chassis.

Summary

The chassis management commands provide a generic method of changing the network configuration and initialization parameters of any Network 9000 module from any Network 9000 module in the chassis. For example, from a Management Processor 210, you can can log on to a Terminal Server 720 and change link map on the terminal server. From the terminal server, you can specify a module in a target slot and change the software load image name in an initialization record for the module in that slot.

These commands also generate displays which show and monitor information about any chassis slot containing a network 9000 module or PS/130 power supply. For example, from the Network 9000 module in slot 2, you can display the status of the Network 9000 module in slot 4 or a PS/130 power supply. The remaining chapters of this manual explains how to log on to a Network 9000 processor module and use the chassis management commands.

End of Chapter

Chapter 2

Entering Chassis Management Commands

This chapter explains how to log on to the command interface of a processor module and enter the chassis management commands. This chapter includes the following sections:

- **Logging On to the Command Interface of a Processor Module**
- **Using the CHASSIS CONSOLE SLOT command**
- **Entering Commands**
- **Editing the Command Line**

The chassis management commands include the following:

The command that allows you to log on to other Type 2 modules in the chassis through the LMB:

CHASSIS CONSOLE SLOT

The commands that changes the operational link map:

DEFINE [SERVER] CHASSIS SLOT

Commands that change initialization record parameters:

DEFINE [SERVER] CHASSIS SLOT DUMP PROTOCOL
DEFINE [SERVER] CHASSIS SLOT LOAD INTERNET ADDRESS
DEFINE [SERVER] CHASSIS SLOT LOAD INTERNET [LOAD] GATEWAY
DEFINE [SERVER] CHASSIS SLOT LOAD INTERNET [LOAD] FILE
DEFINE [SERVER] CHASSIS SLOT LOAD INTERNET [LOAD] HOST
DEFINE [SERVER] CHASSIS SLOT LOAD PROTOCOL
DEFINE [SERVER] CHASSIS SLOT LOAD SOFTWARE
DEFINE [SERVER] CHASSIS SLOT LOADDUMP LINK
DEFINE [SERVER] CHASSIS SLOT LOADDUMP ENABLED | DISABLED
DEFINE [SERVER] CHASSIS SLOT LOADDUMP DEFAULT

The command that resets or inhibits a processor module or power supply:

[DEFINE SERVER] RESET CHASSIS [HOLD]

Commands that display information:

SHOW/MONITOR [SERVER] CHASSIS POWER [SUPPLY] STATUS
SHOW/MONITOR [SERVER] CHASSIS SLOT LMB COUNTERS
SHOW/MONITOR [SERVER] CHASSIS SLOT STATUS
SHOW/MONITOR [SERVER] CHASSIS SUMMARY
SHOW/MONITOR PARAMETER SERVER
LIST/MONITOR [SERVER] CHASSIS SLOT LOADDUMP CHARACTERISTICS

Logging On To the Command Interface of a Processor Module

After a processor module has loaded its software and operational parameters, you can log on to the Xyplex command interface. How you do this depends on whether your terminal is directly connected to the I/O module, or connected to another device on the network such as a host or another Xyplex product . Figure 2-1 shows these two types of connections.

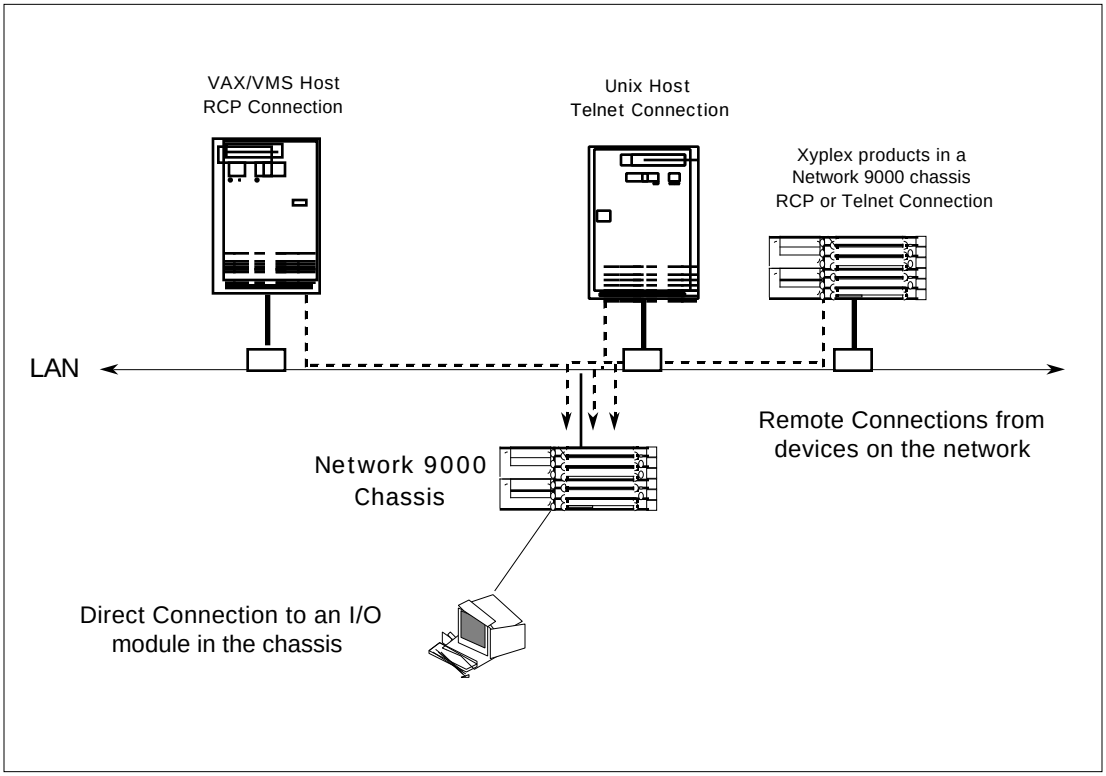

Figure 2-1 Direct and Remote Connections

Direct connection: If your terminal is directly connected to a serial port on the I/O module, press the Return key until one of the Xyplex login prompts appears, shown in Table 2-1.

Connection from the Network: If your terminal is connected to a Xyplex Type 1 or Type 2 product on the network, use the TELNET CONSOLE or REMOTE CONSOLE commands to log on to the command interface of the processor module. The last sections of this chapter describe these commands in detail.

If your terminal is connected to a UNIX host , you can connect to the processor module through TELNET with the host-specific TELNET command. If your terminal is connected to a VAX/VMS host, you can connect to the processor module through RCP with a host-specific CONNECT command. Consult the host documentation for information about these commands.

Table 2-1. Xyplex Login Prompts

#	**Enter your login password and press the Return key. The default password on most processor modules is *access*, but the password you use may be different. When you enter the correct password, the** Enter username> **prompt appears.**
Enter username>	**Enter a username and press the Return key. You can enter any username between 1 and 16 characters, or enter <CTRL><Z> to automatically assign the username PORT_*x* at this port, where *x* is the port number. When you enter the username correctly, the** Xyplex> **prompt appears.**
Xyplex>	**This is the default local command prompt, and it means that you are logged in to a port. When you see this prompt, you can enter Xyplex commands.**

Using the CHASSIS CONSOLE SLOT Command

The CHASSIS CONSOLE SLOT command establishes a connection to the console port of a Network 9000 Type 2 processor module in the chassis through the local management bus (LMB) of the chassis. You must already be logged on to a Type 2 processor module in the chassis to use this command.

The following is the syntax for this command:

CHASSIS CONSOLE SLOT *slot-num*

The *slot-num* variable specifies the chassis slot holding the Type 2 processor module where you want to log on. For example, to connect to the module in slot 6 of the chassis from another Type 2 module in the chassis, you can enter the following command:

```
Xyplex>>  chassis console slot 6
```

One of the Xyplex login prompts in Table 2-1 will appear on the screen. Enter a username or password, depending on the type of prompt which appears.

Entering Commands

Most commands in this manual require that the privilege level of the user interface be set to Privileged. If you have not already done so, set the privilege level to Privileged with the SET PRIVILEGE command:

```
Xyplex>  set privilege

Password>
```

The user interface requests a password. The factory default password is *system*, but the password you use may be different. When you enter the correct password, the privileged prompt appears:

```
Xyplex>>
```

The Privileged prompt includes a double carrot (>>) rather than a single carrot (>).

Note: **Xyplex recommends that you change the default Privilege password on all processor modules in the chassis to ensure the security of your network. The *Software Management Guide* for each product describes how to change the Privilege password.**

You enter commands at the Xyplex prompt using this syntax:

`Xyplex>>` **COMMAND KEYWORD *variable* [KEYWORD *variable*]. . .[[KEYWORD] *variable*]**

Most commands allow you to enter two or more keywords and variables on the command line. If you do this, separate each characteristic with a space, a comma, or a combination of both. You can enter a command line that exceeds the line length of the screen as long as you do not press the Return key until the command line is complete. The maximum length of a command line is 132 characters.

Abbreviating Commands and Keywords

You can abbreviate many chassis management commands and keywords to the shortest unambiguous string of characters that the command interface can interpret. For example, you can abbreviate the command DEFINE CHASSIS SLOT [*list*] LOADDUMP as DEF CHAS SL [*list*] LOADDU .

Specifying Slot Lists

Many chassis management commands include the *list* variable, which allows you to enter one or more chassis lost numbers. Valid chassis slot numbers are 1-6 for a six-slot chassis and 1-15 for a fifteen-slot chassis. You can specify a sequence of numbers separated by commas or a range of numbers with a hyphen. The list can include a sequence and a range, but no spaces. For example, the slot list 2, 5-7 includes slot numbers 2, 5, 6, and 7.

If you do not specify one or more slot numbers in the *list* variable, the command interface uses the *local slot* as the default. The local slot is the slot holding the processor module where you are logged on.

If a slot you specify contains a module that is busy for some reason, or if you specify slot 1, which contains the AC Input module, this message appears:

```
Xyplex - 1921 - Specified slot(s) not responding
```

If a module is decompressing a software load image, for example, it will not respond to a chassis management command.

If the slot you specify is empty, this message appears:

```
Xyplex - 1919 - Slot x is empty
```

The variable *x* indicates a slot number. This message can also appear if either a MAXserver family card or a Network 9000 Type 1 product exists in the slot.

The SHOW/MONITOR [SERVER] CHASSIS SUMMARY command displays the status of each chassis slot. Chapter 5 describes this display in detail.

Specifying Power Supply Numbers

Valid power supply numbers are 1 and 2 for a six-slot chassis and 1-5 for a fifteen-slot chassis. You can specify a sequence of numbers separated by commas or a range of numbers with a hyphen. The list can include a sequence and a range, but no spaces. For example, the list 1, 3-5 includes power supplies 1, 3, 4, and 5.

You must specify a power supply number if one is required in the command syntax. No default exists for a power supply number. If you specify the number of an unmanaged power supply, the following message appears:

```
Xyplex - 1920 - Specified power supply is unmanaged or does not exist.
```

Unmanaged power supplies do not support chassis management commands.

Editing the Command Line

You can change, correct, or edit the command line before you press the Return key, or recall previous command lines with certain control characters. To use control characters, press the Control key and the second character simultaneously. Table 2-2 lists the default editing control characters.

To ensure that you can use these control characters, check that the LINE EDITOR characteristic is set to ENABLED (this characteristic is enabled by default). Use the DEFINE/SET PORT LINE EDITOR ENABLED command, described in the Commands Reference manual for each Network 9000 product to do this.

Table 2-2. Editing Characters

Key Sequence	Function
<CTRL> <A>	**Alternates between insert character mode and overstrike character. Oversrike mode is the default. This function does not apply to hardcopy terminals.**
<CTRL> <B> or up arrow key ↑	**Recalls the previous command.**
<CTRL> <D> or left-arrow key ←	**Moves the cursor one position to the left. This function does not apply to hardcopy terminals.**
<CTRL> <E>	**Moves the cursor to the end of the current command line. This function does not apply to hardcopy terminals.**
<CTRL> <F> or right-arrow key →	**Moves the cursor one position to the right. This function does not apply to hardcopy terminals.**
<CTRL> <H>	**Moves the cursor to the beginning of the command line. This function does not apply to hardcopy terminals.**
<CTRL> <N> or down-arrow key ↓	**Recalls the next command in the command history.**
<CTRL> <R>	**Redisplays the current command line. This command is useful after you have deleted characters on a hardcopy terminal.**
<CTRL> <U>	**Deletes all characters from the cursor position to the beginning of the command line.**
<CTRL> <V>	**Quotes the next character, so that the software interprets it as a variable. (This function is useful if you want to redefine control characters.)**
<CTRL> <X>	**Deletes the current command line.**
<CTRL> <Z>	**Cancels an interactive operation, such as changing a password, or deletes the current command line.**
<DELETE> or <backspace>	**Deletes the character to the left of the cursor. On hardcopy terminals, the software adds a backslash (\) to previously printed characters to indicate that you have deleted them.**

The following example shows how to use the command line recall and editing features. Suppose that you enter the following command, which contains a typographical error:

```
Xyplex> shw parameter server
```

The software will not accept SHW as a valid command. Instead of retyping the whole command line, however, you use the up-arrow key or <CTRL><B> to recall the incorrect command and then edit it:

```
Xyplex> ↑

Xyplex> shw parameter server
```

The cursor appears at the end of the command line. Next, type <CTRL><H> to move the cursor to the beginning of the command line. Press the right-arrow key (or type <CTRL><F>) so that the cursor is under the letter W in SHW. Type <CTRL><A> to enter insert mode, and then add the letter O to spell SHOW. Press the Return key to enter the correct command.

TELNET CONSOLE

Log on to a remote console port through the Internet

The TELNET CONSOLE command allows you to log on to the console port (port 0) of a Network 9000 Type 1 or Type 2 product, or a MAXserver product, through Telnet.

Notes

The console port in the target slot cannot have an active session. The console LED on the processor module remains lit whenever a session is active on the console port.

If you do not see the Xyplex login prompt when you connect to the console port, press the Return key once or twice until the prompt appears. After you have logged on to the console port, you can enter any Xyplex command that the product supports.

Privilege Level

Nonprivileged

Syntax

TELNET CONSOLE *internet-address* | *domain-name* [:*telnet-port-number*]

Where	Means
internet-address	**The Internet address on the network of the Telnet destination where you want to establish a session. An Internet address consists of four numbers separated by periods. Valid values for the numbers are the whole numbers 1-255. For example 128.10.2.30 is a valid Internet address.**
domain-name	**The domain name of the Telnet destination where you want to establish a session. A domain name can consist of up to four segments separated by periods. Each segment can include up to 50 ASCII characters. A fully qualified domain name includes at least one period. For example,** `host.financesun.xyplex.com` **is a valid domain name.**
telnet-port-number	**A specific port number at the Internet address or domain name where you want to establish a session.**

Examples

1. This example uses an Internet address to with the TELNET CONSOLE command:

```
Xyplex> telnet console 117.29.10.30 ↵

Enter Username>
```

2. This example uses a domain name with the TELNET CONSOLE command:

```
Xyplex> telnet console host.financesun.xyplex.com ↵

Enter Username>
```

3. This example uses a domain name with a Telnet port number:

```
Xyplex> telnet console host financesun.xyplex.com:2000 ↵
```

REMOTE CONSOLE

Log on to a remote console port through RCP

The REMOTE CONSOLE command allows you to log on to the console port (port 0) of another module from a terminal server using the Remote Console Protocol (RCP).

Notes

Network 9000 Type 2 managed concentrators support this command, although Type 1 concentrators do not.

The console port in the target slot cannot have an active session. The console LED on the processor module remains lit whenever a session is active on the console port.

If you do not see the Xyplex login prompt when you connect to the console port, press the Return key once or twice until the prompt appears. After you have logged on to the console port, you can enter any Xyplex command that the product supports.

Privilege Level

Privileged

Syntax

REMOTE CONSOLE NODE *node-name*|*ethernet address* [MAINTENANCE [PASSWORD] "*password*"]

Where	Means
NODE	**A keyword which indicates that you will supply the node name of a remote server where you want to establish a session.**
node-name	**The node name of the module where you want to establish as session. Node names consist of 1-16 ASCII characters. For example, TS720 is a valid node name. If you include lower-case letters in a node name, the command interface translates them to upper-case letters.**
ethernet-address	**The Ethernet address of of the remote module where you want to establish a session. An Ethernet address consists of six pairs of hexadecimal numbers which are separated by hyphens. For example, AA-01-04-C9-56-F1 is a valid Ethernet address.**
[MAINTENANCE [PASSWORD]]	**A keyword which indicates that you will supply a maintenance password.**

Where	Means
"*password*"	**A maintenance password which is a hexadecimal number that can include up to sixteen digits (0-FFFFFFFFFFFFFFFF). Enclose the password in quotes. A user on the remote server specifies the maintenance password with the DEFINE or SET SERVER MAINTENANCE PASSWORD command. The default password is 0, and if you do not specify a password the the REMOTE CONSOLE command, the remote server assumes the default.**

Examples

1. This command uses the node name of the remote server. It does not include a maintenance password.

```
Xyplex>> remote console ts720
```

2. This command uses the same node name as in example 1, and includes a maintenance password.

```
Xyplex>> remote console node ts720 maint password "9c"
```

3. This command uses the Ethernet address of the remote server and a maintenance password.

```
Xyplex>>  remote console AA-01-C4-11-73-F8 maint password
"7a"
```

CHASSIS CONSOLE SLOT

Connect to another processor module in the chassis

The CHASSIS CONSOLE SLOT command establishes a connection to the Xyplex command interface on any Network 9000 Type 2 processor module in the chassis through the local management bus (LMB).

Notes

The console port in the target slot cannot have an active session. The console LED on the processor module remains lit whenever a session is active on the console port.

You cannot use the CHASSIS CONSOLE SLOT command to connect to Network 9000 Type 1 cards. Use the TELNET CONSOLE or REMOTE CONSOLE commands to do this. These commands are described in Chapter 2 of this manual and the *Commands Reference Manual* for each product.

Privilege Level

Privileged

Syntax

CHASSIS CONSOLE SLOT *slot-num*

Where	Means
slot-num	The number of the slot holding the processor module where you want to make a connection . Valid slot numbers are 1-15. You can specify only one slot number in this command line.

Example

A user enters the CHASSIS CONSOLE command to establish a connection to the Xyplex command interface of a processor module in slot 4.

```
Xyplex>> chassis console slot 4
```

```
#
```

The # character is the password prompt. The default password is `access`**. Enter a password and press the Return key. The password does not appear on the screen. When you enter the correct password, the** `Enter Username>` **prompt appears.**

```
Enter username> Chris
```

Enter a username and press the Return key. When you enter a valid username, the `Xyplex>` **prompt appears and you can enter Xyplex commands.**

```
Xyplex>
```

End of Chapter

Chapter 3

Managing the Operational Link Map

The operational link map determines the connections between the links on a Network 9000 module and either the midplane Ethernet segments or an external LAN or WAN. This chapter explains the default and optional connections on Type 2 modules and how to change them. These are the sections in this chapter:

- **Changing Link Maps**
- **Description of the DEFINE [SERVER] CHASSIS SLOT command**

You can change the link map only on the processor module where you are logged on. To change the link map of any other Type 2 processor module in the chassis, log on to the command interface of that processor module. Use the CHASSIS CONSOLE SLOT command to log on through the LMB. You can also use the REMOTE CONSOLE or TELNET CONSOLE command. Chapter 2 describes these commands in detail.

Changing Link Maps

Each processor module has a default link map which becomes operational when you initialize the processor module. You can change this link map with a chassis management command or through SNMP.

The following command changes a connection in the link map:

DEFINE [SERVER] CHASSIS SLOT [LINK] [*identifier*] *selection*

The LINK keyword is optional. The *identifier* variable specifies the type of link: either Ethernet or Ethernet Repeater. The *selection* variable specifies either a midplane Ethernet segment or an external LAN. See the command description later in this chapter for complete information about the keywords and variables in this command. When you change a link connection with this command, the change takes effect immediately, and remains in effect until you change it again.

You can view the link map of any processor module with the SHOW/MONITOR CHASSIS SLOT STATUS command, described in detail in Chapter 5. The following sections show the default link map for a concentrator, a terminal server, a LAN bridge/router, and a WAN bridge/router, and the optional connections that are available for each link.

The Link Map for a Managed Concentrator 210

A managed concentrator includes a processor module such as a Management Processor 210, and an I/O module such as a model 10BASE-T Concentrator 202. The processor module has one Ethernet link which connects to the concentrator. The concentrator connects to midplane Ethernet segment A by default. While concentrator I/O modules are available as independent products, they must be managed from a processor module such as a Management Processor 210.

Figure 3-1 shows the network map for a managed concentrator with a model 202 10BASE-T Concentrator I/O module, which includes 24 ports, an AUI (LAN) link, and a FOIRL (fiber optic) link.

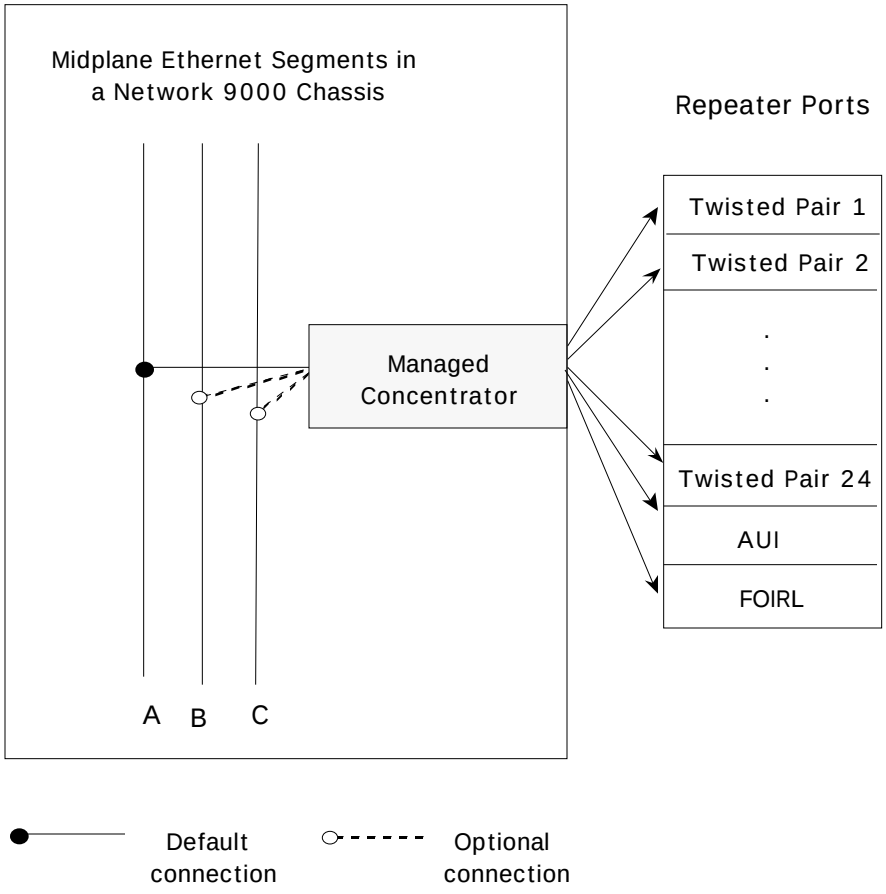

Figure 3-1. The Default Link Map for a Concentrator With Optional Connections

The default connection in the link map for a managed concentrator is Ethernet link 1 Segment A.

Figure 3-2 shows the Chassis Slot Status display for a managed concentrator.

```
Slot 6 Status:       Operational          Firmware Version:            410000
Processor Module:    MP/210               Proc Mod. Serial #:       000034723
I/O Module    :      CN/202               I/O Mod.Serial #:         000045891
Installed Memory:    2 Megabytes          SCM Version:                 100000
802.x Address        08-00-87-01-C7-65    Uptime:                  5 11:27:04
IP Address:          140.179.80.113

Link  Mappings                                          Worst   Case    Power
--------------------                                    ---------------------
Ethernet Repeater 1 Segment A                           +5V            14.5W
                                                        +12V            2.4W
                                                        -12V            0.0W
                                                        ---------------------
                                                        Total          16.9W
```

Figure 3-2. A Show Chassis Slot Status Display For a Managed Concentrator

The default link map in the display shows that Ethernet 1 connects to midplane Ethernet segment A.

To change the connection to segment B or C, you can enter a command such as the following, which specifies segment B:

```
Xyplex>>  define chassis slot ethernet repeater 1 segment b

Xyplex>>
```

The link map looks like the one in Figure 3-3 after the change.

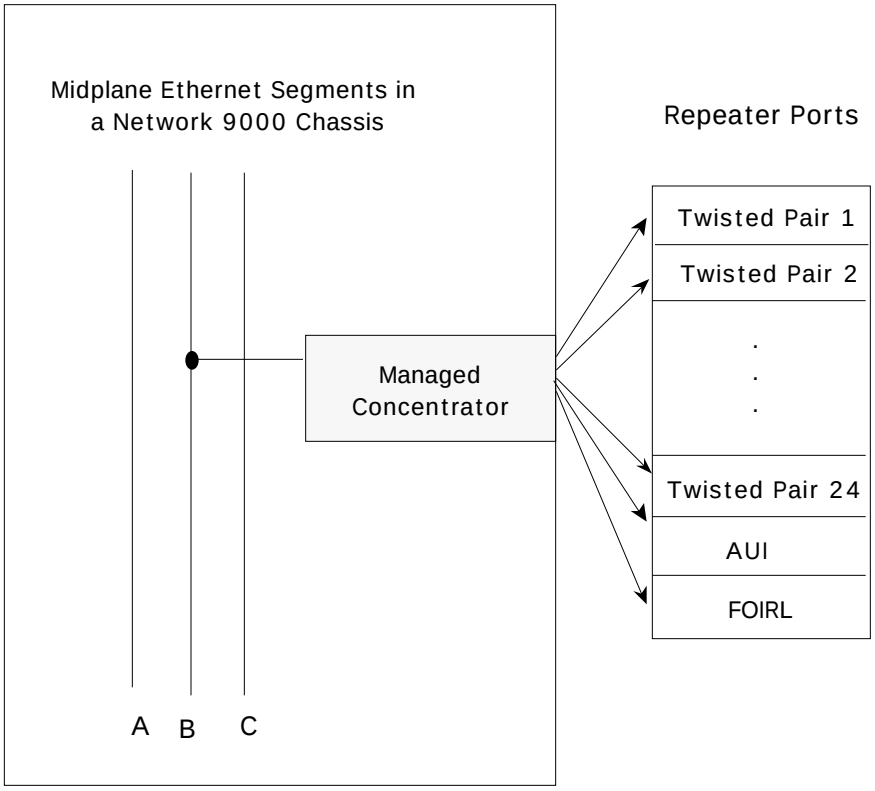

Figure 3-3. A Sample Link Map for a Managed Concentrator

The Link Map for a Terminal Server 720

A Terminal Server 720 has one Ethernet link which can connect to any one of the three midplane Ethernet segments. Figure 3-4 shows the link map for a Terminal Server 720 with the default and optional connections.

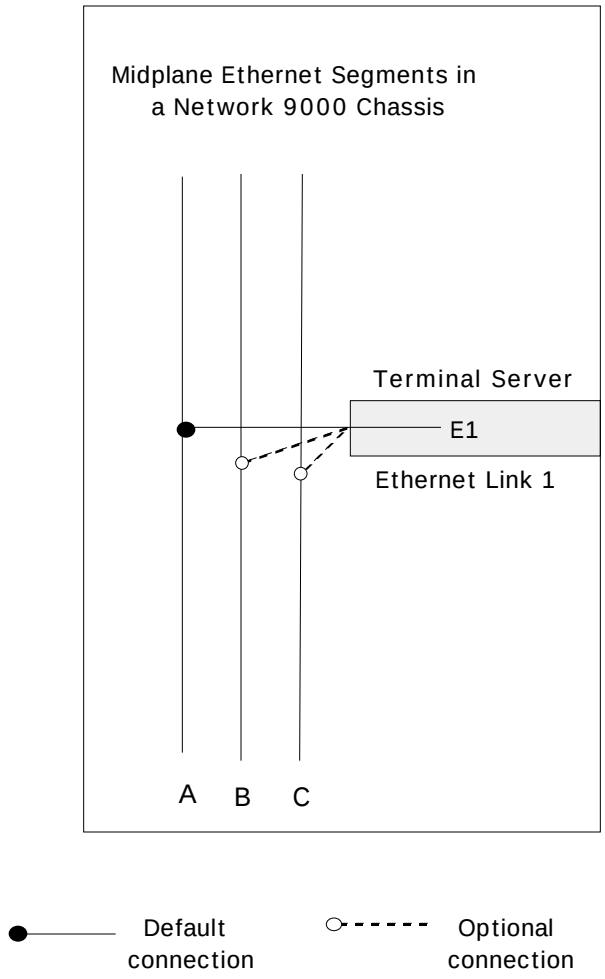

Figure 3-4. The Default Link Map for a Terminal Server 720 with Optional Connections

The default connection in the link map of a terminal server is Ethernet 1 Segment A. Several types of modules can provide access to an external LAN for the Ethernet link. These include a 3605 LAN interface card (LIC), a LAN bridge/router, or a concentrator.

Figure 3-5 shows a Chassis Slot Status display for a terminal server in slot 3 with with the default connections in the Link Mappings section of the display.

```
Slot 3 Status:       Operational          Firmware Version:            410000
Processor Module:    TS/720               Proc Mod. Serial #:        000087956
I/O Module           TS/723               I/O Mod. #:                000089765
Installed Memory:    4 Megabytes          SCM Version:                  100000
802.x Address        08-00-87-01-C7-65    Uptime:                    5 11:27:04
IP Address:          140.179.80.113

Link  Mappings                                        Worst    Case     Power
--------------------                                  ---------------------
Ethernet 1 Segment A                                  +5V             13.5W
                                                      +12V             7.2W
                                                      -12V             7.2W
                                                      ---------------------
                                                      Total           37.9W
```

Figure 3-5. A Show Chassis Slot Status Display For a Terminal Server 720

To change the connection to segment B or C, you can enter a command such as the following, which specifies segment B:

```
Xyplex>>  define chassis slot ethernet 1 segment b ↵

XYPLEX - 1901-WARNING-This command will change the ethernet segment NOW!

Press <Return> to modify parameter, any other key to abort. ↵

Xyplex>>
```

The link map looks like the one in Figure 3-6 after the change.

Figure 3-6 shows the terminal server with the Ethernet link to segment B, and a LAN bridge/router with an Ethernet link to segment B. The LAN bridge/router provides access to the external LAN for the Ethernet link of the terminal server.

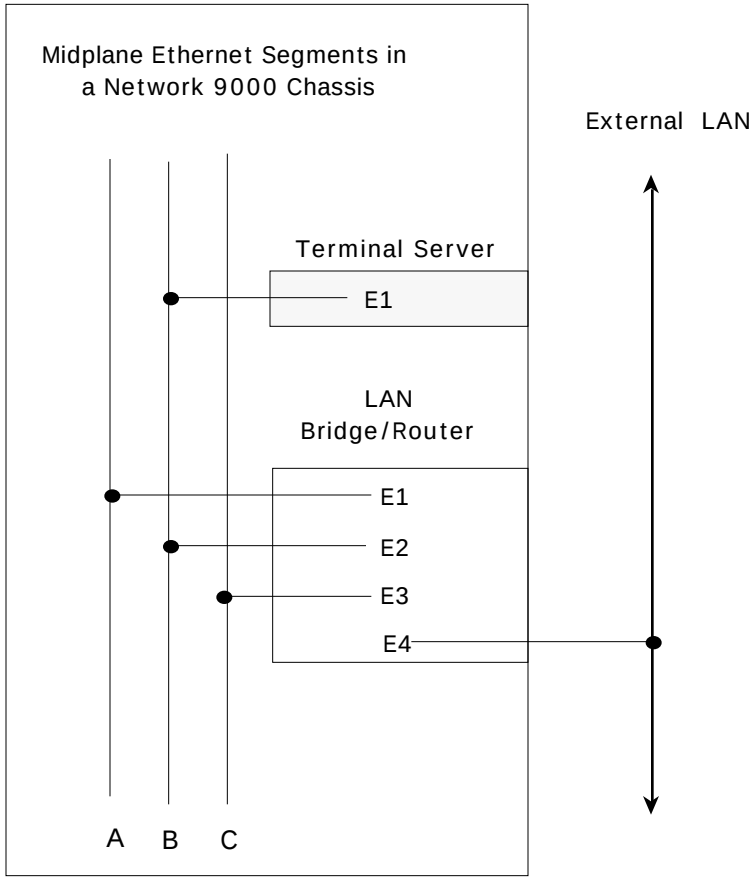

Figure 3-6. A Sample Link Map for a Terminal Server with a LAN Bridge/Router

The Link Map for a LAN Bridge/Router 410

A LAN Bridge/Router 410 has four Ethernet links. The first three links can connect to any one of the three midplane Ethernet segments or to an external LAN. The fourth Ethernet link connects to an external LAN only. Figure 3-7 shows the link map for a LAN bridge/router 410 with the default and optional connections.

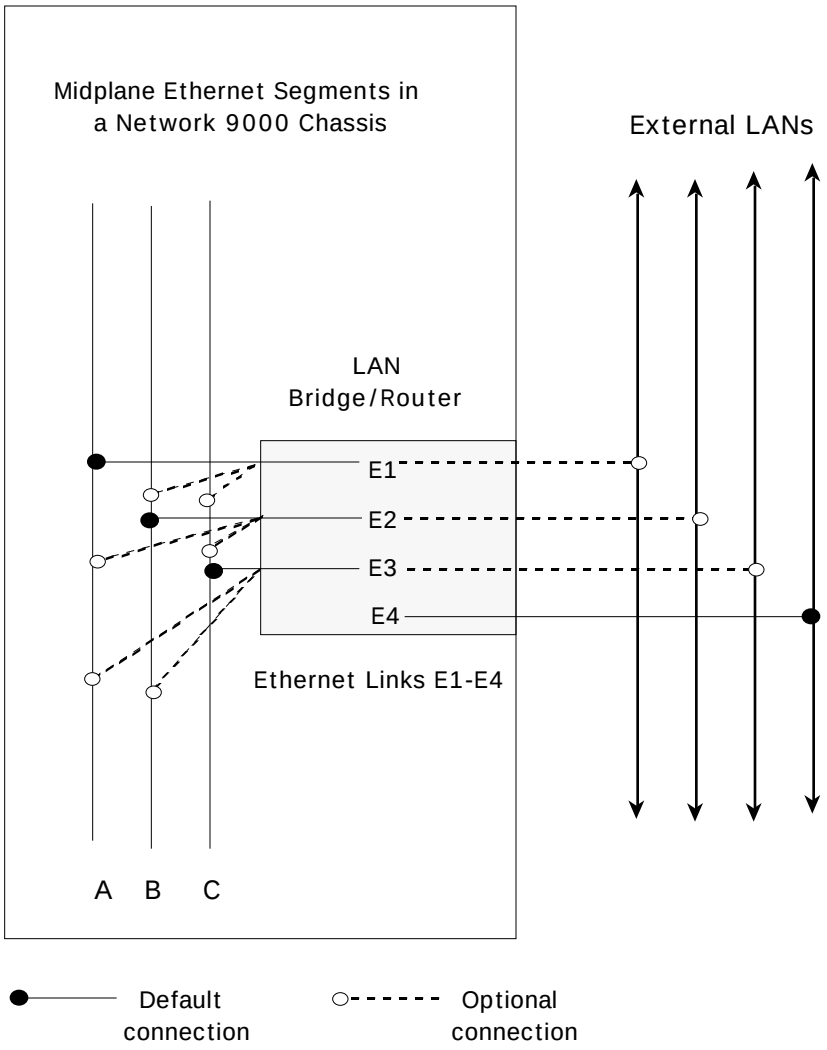

Figure 3-7. The Default Link Map for a LAN Bridge/Router 410 with Optional Connections

The default connections in the link map for a LAN bridge/router are Ethernet 1 Segment A, Ethernet 2 Segment B, Ethernet 3 Segment C, Ethernet 4 External.

Figure 3-8 shows the Chassis Slot Status display for a LAN bridge/router in slot 4 with the default settings in the Link Mappings section of the display.

```
Slot 4 Status:       Operational          Firmware Version:            410000
Processor Module:    BR/410               Proc Mod. Serial #:       000076594
I/O Module:          BR/412               I/O Mod. Serial #         000034512
Installed Memory:    4 Megabytes          SCM Version:                 100000
802.x Address        08-00-87-01-C7-65    Uptime:                   5 11:27:04
IP Address:          140.179.80.113

Link    Mappings                                        Worst    Case     Power
--------------------                                    ---------------------
Ethernet 1 Segment A                                    +5V             17.5W
Ethernet 2 Segment B                                    +12V             9.6W
Ethernet 3 Segment C                                    -12V             0.0W
Ethernet 4 External 4                                   ---------------------
                                                        Total           27.1W
```

Figure 3-8. A Show Chassis Slot Status Display for a LAN Bridge/Router 410

To connect any of the first 3 Ethernet links to an external LAN, you need only specify EXTERNAL in the command line. The LAN bridge/router automatically associates the link with the correct external LAN. For example, these commands connect Ethernet 2 to external LAN 2, and Ethernet 3 to external LAN 3:

```
Xyplex>> define chassis slot link ethernet 2 external ↵

Xyplex>> define chassis slot link ethernet 3 external ↵
```

The LAN bridge/router connects link 2 to external 2, and link 3 to external 3. The link map looks like the one in Figure 3-9 after the change.

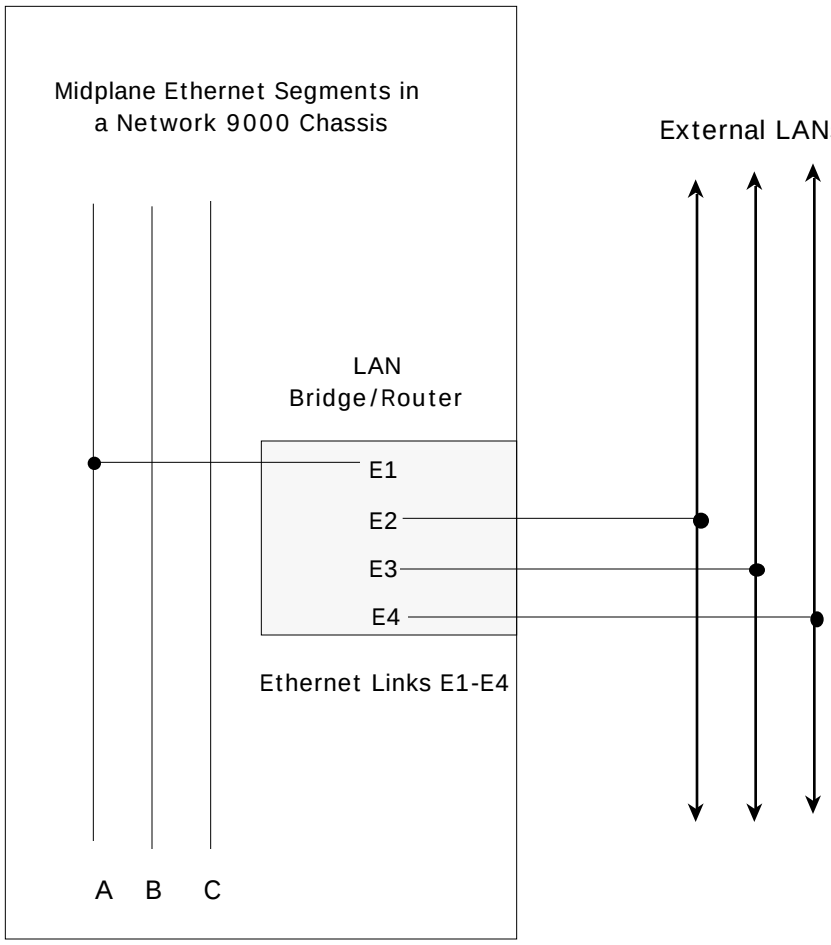

Figure 3-9. A Sample Link Map for a LAN Bridge/Router 410

The Link Map for a WAN Bridge/Router 460

A WAN Bridge/Router 460 has one Ethernet link and either two or four WAN links. The Ethernet link can connect to any one of the midplane Ethernet segments or an external LAN. The WAN links connect to external WANs only. Figure 3-10 shows the link map for a WAN Bridge/Router 460 with the default and optional connections.

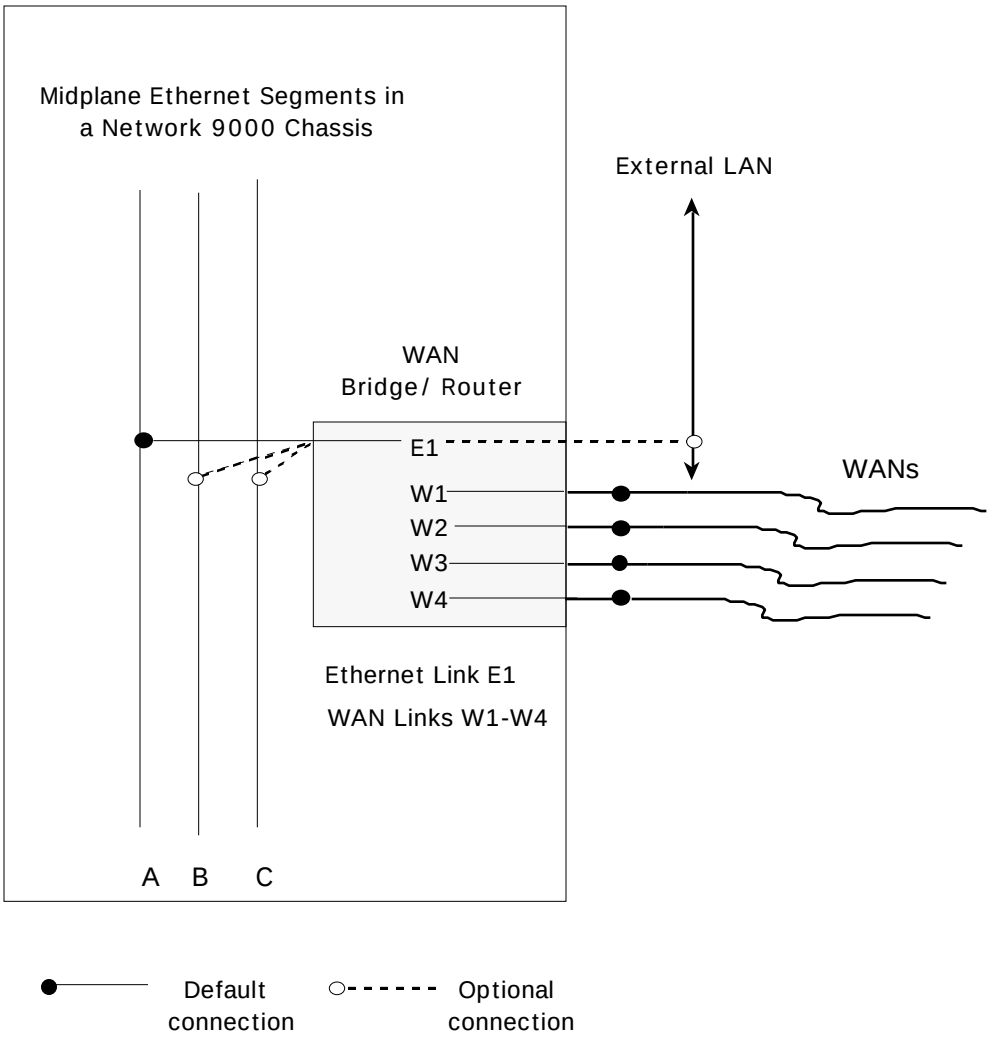

Figure 3-10. The Default Link Map for a WAN Bridge/Router 460 with Optional Connections

The default connections in the link map for a WAN bridge/router are Ethernet 1 Segment A, WAN 1 External 1, WAN 2 External 2, WAN 3 External 3, and WAN 4 External 4. Several types of modules can provide access to an external LAN for the Ethernet link. These include a 3605 LAN interface card (LIC), a LAN bridge/router, or a concentrator with an AUI link.

Figure 3-11 shows the Chassis Slot Status display for a WAN bridge/router in slot 5 with the default settings in the Link Mappings Section of the display.

```
Slot 5 Status:       Operational          Firmware Version:            410000
Processor Module:    BR/460               Proc Mod. Serial #:       000056438
I/O Module:          BR/462               I/O Mod. Serial #:        000087531
Installed Memory:    4 Megabytes          SCM Version:                 100000
802.x Address        08-00-87-01-C7-65    Uptime:                   5 11:27:04
IP Address:          140.179.80.113

Link    Mappings                                      Worst    Case     Power
--------------------                                  ---------------------
Ethernet 1 Segment A                                  +5V             17.5W
WAN 1 External 1                                      +12V             6.0W
WAN 2 External 2                                      -12V             3.6W
WAN 3 External 3                                      ---------------------
WAN 4 External 4                                      Total           27.1W
```

Figure 3-11. A Show Chassis Slot Status Display for a WAN Bridge/Router 460

External connections are numbered sequentially according to the network type, although the network type does not appear on the display. For example, if Ethernet 1 were connected to an external LAN, it would appear as Ethernet 1 External 1, just as WAN 1 connects to External 1.

To connect the Ethernet link to an external LAN, specify EXTERNAL in the command line. The WAN bridge/router automatically associates the link with the correct external LAN. For example, this command connects Ethernet 1 to segment B:

```
Xyplex>> define chassis slot link ethernet 1 segment b
```

The software automatically connects the Ethernet link to segment B. The link map looks like the one in Figure 3-12 after the change. This figure includes a LAN bridge/router with an Ethernet link to segment B, which provides access to the external LAN for the Ethernet link of the WAN bridge/router, which also connects to segment B.

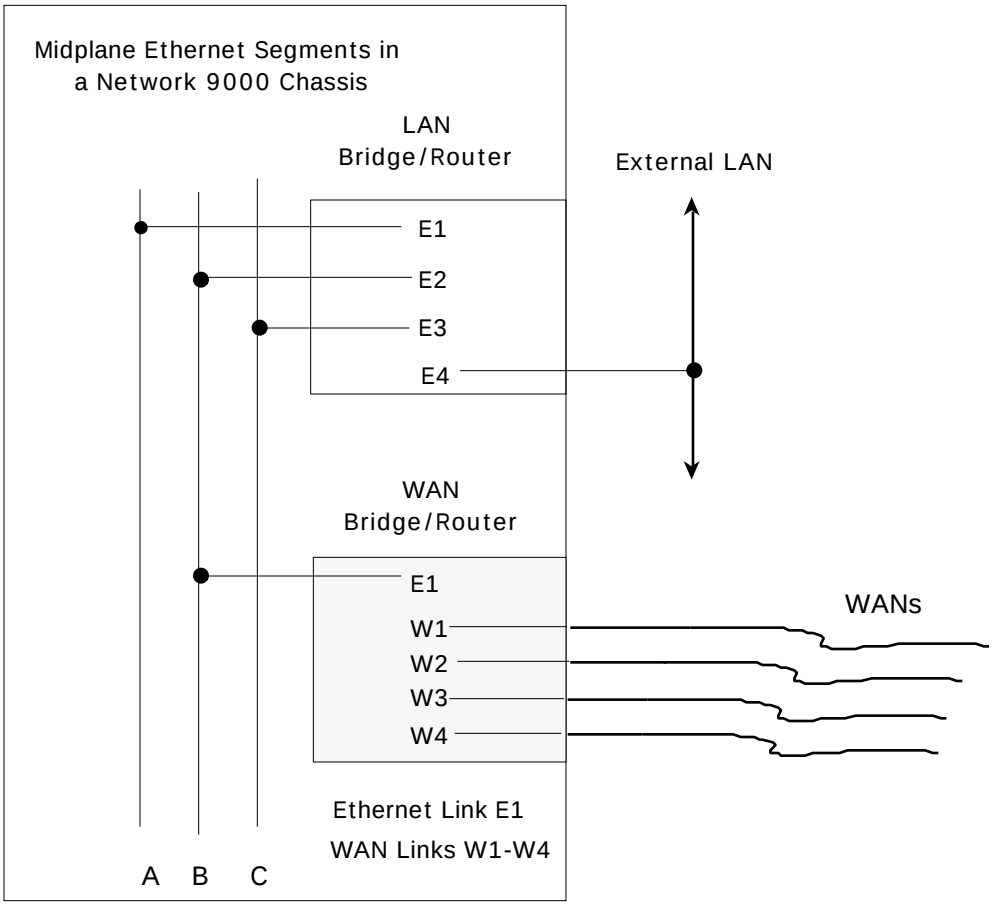

Figure 3-12. A Sample Link Map for a WAN Bridge/Router 460 with a LAN Bridge/Router

DEFINE [SERVER] CHASSIS SLOT

Change a connection in the link map

The DEFINE [SERVER] CHASSIS SLOT command changes the link connection on a managed Network 9000 module, such as a managed concentrator, a terminal server, a LAN bridge/router, or a WAN bridge/router to either a midplane Ethernet segment or an external LAN. When you use this command, the change takes effect immediately.

Notes

Certain combinations of keywords are not valid on all products. For example, you cannot specify an external link on a terminal server. If you attempt to specify a connection that is not valid for a particular product, the command interface generates an error message. The first part of this chapter describes the possible connections in the link map for each product.

A Management Processor 210 can change the Ethernet link of a concentrator I/O module in a target slot. For other products, this command is valid only on the processor module where you are logged on.

Privilege Level

Privileged

Syntax

DEFINE [SERVER] CHASSIS SLOT [#] [LINK] [*identifier*] *selection* | [SEGMENT DISABLED]

Where	Means
[LINK]	**Change a link on this module. This keyword is optional.**
[#]	**An optional variable which indicates the number of a chassis slot holding a concentrator I/O module. This variable does not apply to other Network 9000 products. You can specify a target slot only from a Management Processor.**

Where	Means
[*identifier*]	**A network identifier which specifies the type of network connection.**
	[ETHERNET *num*] | [E*x*] — **Where *num* or *x* is the number of an Ethernet link. The default Ethernet link is ETHERNET 1 or E1. This keyword is optional.**
	[ETHERNET REPEATER *num*] — **Where *num* is the number of the Ethernet link. ETHERNET REPEATER 1 is the default. While these keywords are optional, you must include both keywords if you use them. (You cannot abbreviate this phrase to ETHERNET *num* to change segments on a managed concentrator.)**

Table 3-1 shows the network identifiers available for each Network 9000 Type 2 product.

Table 3-1. Network Identifiers

identifier	Managed Concentrators	Terminal Servers	LAN Bridge/Routers	WAN Bridge/Routers
ETHERNET *num* E*x* ETHERNET REPEATER *num*	ETHERNET REPEATER 1	ETHERNET 1, *or* E1	ETHERNET 1, 2, 3 *or* E1, E2, E3	ETHERNET 1 *or* E1

selection	**A midplane Ethernet segment or an external connection. The keywords for this variable are the following:**
	SEGMENT *sid* — **Where *sid* is A, B, or C, and represents a midplane Ethernet segment.**
	EXTERNAL — **Where EXTERNAL specifies an external LAN. When you specify EXTERNAL, the bridge or router automatically associates the Ethernet link with the correct external LAN.**
[SEGMENT DISABLED]	**Disable a midplane Ethernet segment on a Managed Concentrator. (This keyword does not apply to other Network 9000 Type 2 products.)**

Table 3-2 shows the selections available for each Network 9000 Type product.

Table 3-2. Network Selections

selection	Managed Concentrators	Terminal Servers	LAN Bridge/Routers	WAN Bridge/Routers
SEGMENT *sid*	SEGMENT A, B, or C.	SEGMENT A, B, or C.	SEGMENT A, B, or C for E1, E2, and E3. Each segment can support one link.	SEGMENT A, B, or C for E1 only.
EXTERNAL	Not Applicable	Not Applicable	EXTERNAL for E1, E2, and E3. The external connections are to LANs.	EXTERNAL for E1 This connection is to a LAN.
SEGMENT DISABLED	Yes	Not Applicable	Not Applicable	Not Applicable

Examples

Each example shows the full syntax of a sample command as well as variations of the same command eliminating one or more optional keywords.

1. The following command specifies a connection to midplane Ethernet segment B for a link on a managed concentrator.

```
Xyplex>> define chassis slot link ethernet repeater 1
segment B
```

Other valid versions of this same command are the following:

```
Xyplex>> define chassis slot link ethernet repeater
segment B

Xyplex>> define chassis slot ethernet repeater segment B

Xyplex>> define chassis slot segment B.
```

The following command disables the connection to the midplane Ethernet segment on a managed concentrator:

```
Xyplex>> define chassis slot link ethernet repeater 1
segment disabled
```

2. The following command specifies a connection to midplane Ethernet segment B for the link on a terminal server.

```
Xyplex>> define chassis slot link ethernet 1 segment B

XYPLEX-1901-WARNING-This command will change the ethernet segment NOW!

Press <Return> to modify parameter, any other key to abort.

Xyplex>>
```

Other valid versions of this same command are the following:

```
Xyplex>> define chassis slot ethernet segment B

Xyplex>> define chassis slot segment B
```

3. The following command specifies the connection to an external LAN for Ethernet link 1 on a LAN bridge/router.

```
Xyplex>> define chassis slot link ethernet 1 external

Xyplex>>
```

Other valid versions of this same command are the following:

```
Xyplex>> define chassis slot ethernet 1 external

Xyplex>> define chassis slot ethernet external
```

***Note*:** **When you do not specify an Ethernet link on a LAN bridge/router, the command interface uses Ethernet link 1 as the default.**

4. The following command specifies an external connection for the Ethernet link on a WAN bridge/router.

```
Xyplex>> define chassis slot link Ethernet 1 external
```

Other valid versions of this command are the following:

```
Xyplex>> define chassis slot ethernet 1 external

Xyplex>> define chassis slot ethernet external
```

End of Chapter

Chapter 4

Managing Initialization Parameters

The chassis management commands in this chapter provide an alternate way of changing parameters in initialization records if you do not do so through the initialization configuration menu. The *Getting Started Guide* for each product describes how to use the initialization configuration menu. Most of the time, the default values in initialization records load software automatically, so often you do not have to change them.

When you initialize a processor module, the module obtains the software load image and operational parameters using the information in an initialization record. The control storage for each chassis slot maintains three initialization records for the processor module in that slot. The processor module first attempts to load software and operational parameters 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 record, if it is enabled. If all three attempts fail, the processor module begins this sequence again with the primary initialization record.

This chapter describes each parameter in an initialization record, as well as how to change it. It also includes information about how to reset all initialization parameters back to their default values. The sections in this chapter include the following:

- **Viewing Initialization Parameters**
- **Changing the Status of an Initialization Record**
- **Changing the Link Selection**
- **Enabling and Disabling Protocols**
- **Resetting Parameters in Initialization Records to Default Values**
- **Command Descriptions**

Viewing Initialization Parameters

You can view the parameters in an initialization record with the LIST/MONITOR [SERVER] CHASSIS SLOT LOADDUMP CHARACTERISTICS display for the primary, secondary, and tertiary initialization records of any slot in the chassis. Figure 4-1 shows a sample display for a terminal server in slot 2 with default settings for each parameter.

```
Xyplex> list chassis slot 2 loaddump primary characteristics
```

```
Primary Record:             Enabled
Link Selection              Ethernet 1 Segment A
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:  Card, XMOP, MOP, BOOTP, RARP
```

Figure 4-1. A Chassis Slot Loaddump Characteristics Display

The following sections describe the parameters in each field of the display, the possible values for each of these parameters, and how to change them. See Chapter 5 for more detailed information about this display.

The Status of the Initialization Record

Each processor module has certain initialization records enabled or disabled by default, although all types have the primary initialization record enabled by default. The first line on the display in Figure 4-1 shows that the primary record is enabled for this terminal server. Enabling two or more initialization records can provide alternate sources for the processor module to obtain software and parameters if it fails to obtain them from the primary initialization record.

Table 4-1 shows the default status for the initialization records on each Network 9000 product. Initialization records have values for all parameters, whether they are enabled or disabled.

Table 4-1. Default Initialization Record Status

	Managed Concentrators	Terminal Servers	LAN Bridge/Router	WAN Bridge/Router
Primary	**Enabled**	**Enabled**	**Enabled**	**Enabled**
Secondary	**Disabled**	**Disabled**	**Enabled**	**Enabled**
Tertiary	**Disabled**	**Disabled**	**Disabled**	**Enabled**

The following is the syntax of the command which changes the status of an initialization record:

> **DEFINE [SERVER] CHASSIS SLOT [*list*] LOADDUMP [*record*] ENABLED | DISABLED**

The [*record*] variable specifies the primary, secondary, or tertiary initialization record. The primary initialization record is the default. The following is an example of a command which enables the initialization record for the terminal server in slot 2:

```
Xyplex>> define chassis slot 2 loaddump secondary enabled
```

During the initialization process, the processor module can attempt to load software and parameters using the information in the secondary initialization record if it fails using the information in the primary record.

Link Selection

The link selection is a connection between a link and either a midplane Ethernet segment or an external network. A processor module uses this connection while loading and dumping over the network. The Link Selection in Figure 4-1 is Ethernet 1 Segment A, which is the default for the primary initialization record on all Network 9000 processor modules.

You can change the link selection in the initialization records of terminal servers, LAN bridge/routers, and WAN bridge/routers with a chassis management command. You cannot change the link selection on managed concentrators with a chassis management command, although you can change it through the initialization configuration menu, commands specific to repeaters, and SNMP. Table 4-2 lists the default Link Selections for all initialization records on each Network 9000 product.

Table 4-2. Default Link Selections

	Managed Concentrators **	Terminal Servers	LAN Bridge/Routers	WAN Bridge/Routers
Primary	Ethernet 1 Disabled *	Ethernet 1 * Segment A	Ethernet 1 * Segment A	Ethernet 1 * Segment A
Secondary	Ethernet 1 Disabled	Ethernet 1 Segment A	Ethernet 4 * External	Ethernet 1 * External
Tertiary	Ethernet 1 Disabled	Ethernet 1 Segment A	Ethernet 2 Segment B	WAN 1* External

*** Enabled by default**

**** You cannot change the Link Selection through chassis management commands on Network 9000 managed concentrators.**

The following is the syntax of the command which changes the link selection of an initialization record:

> **DEFINE SERVER CHASSIS SLOT [*list*] LOADDUMP [*record*] LINK *identifier selection***

The [*record*] variable specifies the primary, secondary, or tertiary initialization record. The *identifier* variable specifies either an Ethernet or a WAN link, and the *selection* variable specifies either a midplane Ethernet segment or an external connection. The following is an example of a command which changes the link selection in the secondary initialization record of the processor module in slot 2:

```
Xyplex>> define chassis slot 2 loaddump secondary link ethernet 1
segment b
```

The link selections you specify must coincide with the possible connections for that product. Chapter 3 describes the possible connections in the link map for each product. The connections you specify in the link selection can differ from the connections in the operational link map, however, as long as they are valid. For example, the operational link map of a LAN bridge/router can specify that Ethernet 1 connects to Segment A, but the primary initialization record can specify that Ethernet 1 connects to Segment B or an external LAN.

The link selection in each initialization record is also independent of the link selections in the other records for the same processor module. Because of this, two or more Ethernet links can connect to the same midplane Ethernet segment in different initialization records. For example, Ethernet 1 in the primary initialization record can connect to Segment A, while Ethernet 2 in the secondary initialization record can also connect to Segment A.

Enabling and Disabling Protocols

By default, a Network 9000 module obtains its software load image and parameters from a flash memory card. If a flash card is not present, the module requests the software load image and parameter file from the flash card of another module in the chassis, or one or more hosts on the network. The enabled protocols determine where the module obtains the files: XMOP indicates the flash card of another module or a Xyplex loader on the network, MOP indicates a VAX/VMS host, and RARP, BOOTP and DTFTP indicate UNIX hosts. Each initialization record has several loading and dumping protocols enabled by default if the processor module attempts to obtain software and parameters from the network.

The SHOW/MONITOR SERVER STATUS display for each processor module shows the name and location of the software load host, if the module obtained the software load image from the network. The SHOW/LIST/MONITOR PARAMETER server display shows the name and location of the parameters server.

By default, all available dump protocols and parameter file protocols are enabled, and all available software load image protocols are enabled except DTFTP, as shown in Figure 4-1. Table 4-3 lists the protocols which are available for each process.

Table 4-3. Default Protocols

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

***Not enabled by default.**

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

The syntax of the command that enables or disables software load image protocols and operational parameter protocols is the following:

DEFINE CHASSIS SLOT [*list*] LOAD [*record* | ALL] *usage* PROTOCOL *protocol* | ALL [ENABLED | DISABLED]

The [*record*] variable specifies the primary, secondary, or tertiary initialization record. The *usage* variable specifies either the software load image or the operational parameters with one of these sets of keywords: IMAGE [LOAD] or PARAMETERS [LOAD]. You cannot disable all protocols in an initialization record. The following is an example of a command that disables XMOP as a software load image protocol in the primary initialization record for the terminal server in slot 2:

```
Xyplex>> define chassis slot 2 load primary image protocol
xmop disabled
```

The syntax of the command that enables or disables dump protocols is the following:

DEFINE CHASSIS SLOT [*list*] DUMP [*record*] PROTOCOL *protocol* | ALL [ENABLED | DISABLED]

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

The following is an example of a command that disables RARP as a dump protocol in the primary initialization record of the terminal server in slot 2:

```
Xyplex>> define chassis slot 2 dump primary protocol rarp disabled
```

Using the CARD, XMOP, and MOP Protocols

The processor module uses the CARD, XMOP, and MOP protocols to search for a software load image or parameter file on a particular location on the network determined by the protocol. You can change the load image file name with a chassis management command, which appears in the Software field of the Loaddump characteristics display. The XMOP and MOP protocols can also send diagnostic information to a dump server.

The CARD Protocol

The CARD protocol looks for a software load image and a parameter file on a flash memory card in the local processor module. This is the default protocol for most Network 9000 products which have flash card drives. This protocol does not apply to dump servers, because flash cards do not function as dump servers due to size limitations.

The XMOP and MOP Protocols

The XMOP and MOP protocols look for a software load image file, a parameter file, or a dump server in a particular location. The protocol determines the location. The module first attempts to use XMOP and then MOP. See the *Software Installation Guide for MAXserver Loaders* for information about how to configure a MOP host.

The Xyplex Maintenance Operations Protocol (XMOP) looks for the files on the flash card of another Network 9000 processor module in the chassis, or a Xyplex loader on the network. The *Software Installation Guide for Xyplex Loader Kits* contains information about Xyplex loaders, Network 9000 flash memory cards, and 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 module 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.

Changing the Software Filename

The software load image filename appears in the Software field of the Loaddump characteristics display. Figure 4-1 shows `XPCSRV20` in this field, which is the default filename for terminal servers. Table 4-4 lists the default software load image filenames for all Network 9000 products. The filenames in Table 4-4 apply to primary, secondary, and tertiary initialization records.

Table 4-4. Default Software Load Image Filenames for CARD/XMOP/MOP Protocols

Network 9000 Products	Managed Concentrators	Terminal Servers	LAN Bridge/Routers	WAN Bridge/Routers
Software Load Image Name	XPHUB2UI	XPCSRV20	XPRR2	XPRR2

The following is the syntax for the command which specifies a name for the software load image file:

DEFINE CHASSIS SLOT [*list*] LOAD [*record* | ALL] SOFTWARE *filename*

The [*record*] variable specifies the primary, secondary, or tertiary initialization record. The *filename* variable specifies the software load image filename. The following is an example of a command which specifies the software load image filename for the primary initialization record of the terminal server in slot 2:

```
Xyplex>> define chassis slot 2 load primary software XPCSRV20
```

Using the BOOTP and RARP Protocols

The Bootstrap Protocol (BOOTP) and the Reverse Address Resolution Protocol (RARP) look for the software load image and parameter file names on a UNIX host. The module first tries BOOTP, then RARP. You do not need to supply any additional information in the initialization records for the module to use these protocols successfully, if the BOOTP and RARP hosts are configured with the correct information. The *Software Installation Guide for UNIX Hosts* describes BOOTP and RARP in detail.

Using the DTFTP Protocol

The Directed Trivial File Transfer Protocol (DTFTP) searches for a specific software load image file on a UNIX host. You supply the name of the software load image file, the Internet address of the load host, and the Internet address of the module. If the load host exists on a remote branch of the network, you must also provide the Internet address of a gateway host. Default values do not exist for this information. The module does not use DTFTP to obtain a parameter file or to send information to a dump server. Unless you use DTFTP, you do not have to specify Internet parameters in the initialization record.

The following commands provide Internet information for loading with DTFTP:

Internet Load Address:

DEFINE [SERVER] CHASSIS SLOT [*list*] LOAD [*record* | ALL] INTERNET ADDRESS *internet-address*

Internet Load Host:

DEFINE CHASSIS SLOT [*list*] LOAD [*record* | ALL] INTERNET [LOAD] HOST *internet-address*

Internet Load Gateway:

DEFINE CHASSIS SLOT [*list*] LOAD [*record* | ALL] INTERNET [LOAD] GATEWAY *internet-address*

Internet Load File:

DEFINE CHASSIS SLOT [*list*] LOAD [*record*] INTERNET [LOAD] FILE " */pathname/filename*"

The following sections describe variable in these commands and give examples

Internet Load Address

The Internet load address specifies the Internet address for the processor module in the chassis. The Internet load host on the network uses this address during DTFTP loading. Figure 4-1 shows 0.0.0.0 in this field, because that is the default. The following is an example of the command which specifies an Internet address in the primary initialization record of the terminal server in slot 2:

```
Xyplex>> define chassis slot 2 load primary internet address
140.180.118.2
```

Internet Load Host

The Internet load host specifies the Internet address of the host on the network where the software load image file resides. Figure 4-1 shows 0.0.0.0 in this field, because that is the default. The following is an example of the command which specifies an Internet address for an Internet load host in the primary initialization record of the terminal server in slot 2:

```
Xyplex>> define chassis slot 2 load primary internet host
140.179.119.3
```

Internet Load Gateway

The Internet load gateway specifies the Internet address of a gateway on the network which the processor module uses to gain access to the Internet load host. Not all network configurations include a gateway, so you may not need to specify this address, even if the module uses DTFTP to obtain the software load image. Figure 4-1 shows 0.0.0.0 in this field, because this is the default. The following is an example of a command which specifies the address of an Internet load gateway in the primary initialization record of the terminal server in slot 2:

```
Xyplex>> define chassis slot 2 load primary internet gateway
140.179.111.5
```

Internet Load File

The Internet Load File field specifies the pathname and filename of the software load image on the Internet Load Host. The processor module searches for this filename when it uses the DTFTP protocol to obtain the software load image during initialization. The following is an example of a command which specifies the Internet Load File in the primary initialization record of the terminal server in slot 2:

```
Xyplex>> define chassis slot 2 load primary internet file
"/usr/xyplex/images/xpcsrv20.sys"
```

Resetting Initialization Parameters To Default Values

If you want to reset the values of parameters in an initialization record after you have changed them, you can do so with one command, rather than resetting each value individually. The following is the syntax of the command that resets all initialization parameters to the defaults:

DEFINE CHASSIS SLOT [*list*] 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. The following is an example of this command which resets the secondary initialization record on a terminal server in slot 2:

```
Xyplex>> define chassis slot 2 loaddump secondary default
```

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

DEFINE [SERVER] CHASSIS SLOT DUMP PROTOCOL

Enable or disable dump protocols

The DEFINE [SERVER] CHASSIS SLOT DUMP PROTOCOL command enables or disables one or all dump protocols. The processor module specifies uses a dump protocol for sending information to a dump server.

Notes

All available dump protocols are enabled by default: XMOP, MOP, BOOTP, and RARP.

Privilege Level

Privileged

Syntax

DEFINE [SERVER] CHASSIS SLOT [*list*] DUMP [*record* |ALL] PROTOCOL *protocol* |ALL [ENABLED | DISABLED]

Where	Means
[*list*]	**One or more chassis slot numbers in the range of 1-15. The local slot is the default.**
[*record*]	**One or more of the following initialization records:** **PRIMARY** **SECONDARY** **TERTIARY** **ALL** **The PRIMARY initialization record is the default.**
protocol	**One of the following protocols or the keyword ALL:**

Protocol	Means
XMOP	**Xyplex MOP Protocol**
MOP	**Digital Equipment Corporation Maintenance Operations Protocol**
BOOTP	**Bootstrap protocol**
RARP	**UNIX Reverse Address Resolution Protocol**
ALL	**All protocols**

ENABLED	**Enable the protocol on the processor modules in the slots 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 for the processor modules in the slots you specify. You can use the keyword ALL to disable all protocols.**

Examples

1. This example enables BOOTP as the dump protocol for the primary dump record of the processor module in slot 5. Because PRIMARY is the default record type, the command line does not include it.

```
Xyplex>> define chassis slot 5 dump protocol bootp
enabled ↵
```

2. This example disables MOP as a dump protocol for the secondary initialization record for the processor module in the local slot.

```
Xyplex>> define chassis slot dump secondary protocol mop
disabled ↵

Xyplex>>
```

DEFINE [SERVER] CHASSIS SLOT LOAD INTERNET ADDRESS

Specify the Internet address of a processor module for DTFTP loading

The DEFINE [SERVER] CHASSIS SLOT LOAD INTERNET ADDRESS command specifies the Internet address of the module or module set in the slot you specify for DTFTP loading.

Notes

Use this command if DTFTP is enabled for the software load image. You must also specify the Internet address of the load host, and the name of the file that contains the load image. If the processor module gains access to the load host through a gateway, you must also specify the Internet address of the gateway. Use the DEFINE CHASSIS SLOT LOAD INTERNET commands to specify this information.

The Internet address of the processor module appears in the Chassis Slot Status display. When you define the address for DTFTP loading, it appears in the Chassis Slot Loaddump Characteristics display.

Privilege Level

Privileged

Syntax

DEFINE [SERVER] CHASSIS SLOT [*list*] LOAD [*record* | ALL] INTERNET ADDRESS *internet-address*

Where	Means
[*list*]	**One or more chassis slot numbers in the range of 1-15. The slot numbers you specify here must correspond to the slot numbers where the DTFTP protocol enabled. The local slot is the default.**
[*record*]	**One or more of the following initialization records:** **PRIMARY** **SECONDARY** **TERTIARY** **ALL** **The PRIMARY initialization record is the default.**
internet-address	**The Internet address of the processor module in the slot you specify.**

Example

This example specifies an Internet address for the processor module in slot 6.

```
Xyplex>> define chassis slot 6 load internet address
150.169.70.133

Xyplex>>
```

DEFINE [SERVER] CHASSIS SLOT LOAD INTERNET [LOAD] GATEWAY

Specify the Internet address of a gateway for DTFTP loading

The DEFINE [SERVER] CHASSIS SLOT LOAD INTERNET GATEWAY command specifies the Internet address of a gateway on the network for DTFTP software image loading.

Notes

Only processor modules that use a gateway to gain access to an Internet load host through DTFTP require that you specify a gateway address with this command.

When you define the Internet gateway address for DTFTP loading, it appears in the Chassis Slot Loaddump Characteristics display.

Privilege Level

Privileged

Syntax

DEFINE [SERVER] CHASSIS SLOT [*list*] LOAD [*record* | ALL] INTERNET [LOAD] GATEWAY *internet-address*

Where	Means
[*list* | ALL]	**One or more chassis slot numbers in the range of 1-15. The slot numbers you specify here must correspond to the slot numbers of processor modules with the DTFTP protocol enabled. The local slot is the default.**
[*record*]	**One or more of the following initialization records:** **PRIMARY** **SECONDARY** **TERTIARY** **ALL** **The PRIMARY initialization record is the default.**
internet-address	**The Internet address of the gateway.**

Example

This example specifies an Internet address for the gateway used by a LAN bridge/router in slot 6 to gain access to the load host.

```
Xyplex>> define chassis slot 6 load internet gateway
150.122.30.164

Xyplex>>
```

DEFINE [SERVER] CHASSIS SLOT LOAD INTERNET [LOAD] FILE

Specify the software load image filename for DTFTP loading

The DEFINE [SERVER] CHASSIS SLOT LOAD INTERNET [LOAD] FILE command specifies the pathname and name of the file that contains the software load image on the Internet host you specify for DTFTP loading.

Notes

Use this command if DTFTP is enabled for the software load image. You must also specify the Internet address of the module or module set in the chassis slot and the Internet address of the load host. If the processor module in the slot you specify gains access to the load host through a gateway, you must also specify the Internet address of the gateway. Use the the other DEFINE CHASSIS SLOT LOAD INTERNET commands to specify this information.

When you define the load host Internet address for DTFTP loading, it appears in the Chassis Slot Loaddump Characteristics display. The Internet address you specify with this command overrides the Internet address you specify with the DEFINE/SET SERVER INTERNET ADDRESS command if they are different.

Privilege Level

Privileged

Syntax

DEFINE [SERVER] CHASSIS SLOT [*list*] LOAD [*record* | ALL] INTERNET [LOAD] FILE "/*pathname*/*filename*"

Where	Means
[*list* | ALL]	**One or more chassis slot numbers in the range of 1-15. The slot numbers you specify here must correspond to the slot numbers where the DTFTP protocol enabled. The local slot holding is the default.**

Where	Means
[*record*]	**One or more of the following initialization records:** **PRIMARY** **SECONDARY** **TERTIARY** **ALL** **The PRIMARY initialization record is the default.**
" /*pathname*/ *filename*"	**The pathname and filename of the file that contains the software load image. Most UNIX implementations are case-sensitive, so be sure to use the appropriate upper- and lower-case letters in the filename, or the host may not recognize it. Enclose the pathname and filename in quotes.**

Example

This example specifies the pathname and file name that contains the software load image for a bridge in slot 6.

```
Xyplex>> define chassis slot 6 load internet file
"/usr2/br/1.2/xprr2.sys"

Xyplex>>
```

DEFINE [SERVER] CHASSIS SLOT LOAD INTERNET [LOAD] HOST

Specify the Internet address of the load host for DTFTP loading

The DEFINE [SERVER] CHASSIS SLOT INTERNET [LOAD] HOST command specifies the Internet address of the host where the software load image resides.

Notes

Use this command if DTFTP is enabled to load the software load image. You must also specify the Internet address of the module or module set in the chassis and the name of the file on the load host that contains the software load image. If the module you specify reaches the load host through a gateway, you must also specify the Internet address of the gateway. Use the the other DEFINE CHASSIS SLOT LOAD INTERNET commands to specify this information.

When you define the Internet address of the load host for DTFTP loading, it appears in the Chassis Slot Loaddump Characteristics display.

Privilege Level

Privileged

Syntax

DEFINE [SERVER] CHASSIS SLOT [*list*] LOAD [*record*|ALL] INTERNET [LOAD] HOST *internet-address*

Where	Means
[*list*]	**One or more chassis slot numbers in the range of 1-15. The slot numbers you specify here must correspond to the slot numbers where the DTFTP protocol is enabled. The local slot is the default.**
[*record*]	**One or more of the following initialization records:** **PRIMARY** **SECONDARY** **TERTIARY** **ALL** **The PRIMARY initialization record is the default.**
internet-address	**The Internet address of the host that contains the software load image.**

Example

This example specifies an internet address for the load host that contains the software load image for the terminal server in slot 6.

```
Xyplex>> define chassis slot 6 load internet host
150.122.30.155

Xyplex>>
```

DEFINE [SERVER] CHASSIS SLOT LOAD PROTOCOL

Enable or disable load protocols

The DEFINE [SERVER] CHASSIS SLOT LOAD PROTOCOL command specifies one or all load protocols to use when the module in the slot you specify 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.

Notes

By default, a Network 9000 module attempts to obtain the software load image and parameter file from a flash card using the CARD protocol. If a card is not present, the module attempts to obtain these files using other protocols in this 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 module or module set, and the Internet address of the gateway to the load host, if necessary. Use the DEFINE CHASSIS SLOT LOAD INTERNET commands specify this information.

Privilege level

Privileged

Syntax

DEFINE [SERVER] CHASSIS SLOT [*list*] LOAD [*record* | ALL] *usage* PROTOCOL *protocol* | ALL [ENABLED | DISABLED]

Where	Means
[*list*]	**One or more chassis slot numbers in the range of 1-15. The local slot is the default.**
[*record*]	**One or more of the following initialization records:** **PRIMARY** **SECONDARY** **TERTIARY** **ALL** **The PRIMARY initialization record is the default.**

Where	Means
usage	**One of the following keywords, which indicate whether you are specifying a protocol for a software load image or a parameter file:** **IMAGE [LOAD]** **PARAMETERS [LOAD]**
protocol	**One of the following keywords which represent different protocols, or the keyword ALL:**

Protocol	Means
CARD	**Local flash card protocol**
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)**

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

1. This example enables DTFTP as a protocol to use for the software load image in the primary initialization record of a WAN bridge/router in slot 4. (Enabling this protocol requires that you specify DTFTP information with the DEFINE CHASSIS SLOT LOAD INTERNET commands.)

```
Xyplex>> define chassis slot 4 load primary image protocol
dtftp enabled ↵

Xyplex>>
```

2. This example enables MOP as the protocol to use when loading the parameter file from the primary initialization record of the local router in slot 5.

```
Xyplex>> define chassis slot 5 load primary parameters
protocol mop enabled ↵

Xyplex>>
```

3. This example disables the RARP protocol for use when loading the parameter file from the secondary initialization record of the terminal server in the local slot.

```
Xyplex>> define chassis slot 4 load secondary parameters
protocol rarp disabled

Xyplex>>
```

DEFINE [SERVER] CHASSIS SLOT LOAD SOFTWARE

Specify the CARD/XMOP/MOP file name of the software load image

The DEFINE [SERVER] CHASSIS SLOT LOAD SOFTWARE command specifies the CARD/XMOP/MOP filename that contains the software load image.

Notes

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 CARD/MOP/XMOP software load image names for different processor modules are the following:

Terminal servers:	**XPCSRV20**
LAN and WAN bridges/routers:	**XPRR2**
Managed Concentrators:	**XPHUB2UI**

The CARD/XMOP/MOP load image filename appears in the Chassis Slot Loaddump Characteristics display.

Privilege Level

Privileged

Syntax

DEFINE [SERVER] CHASSIS SLOT [*list*] LOAD [*record* | ALL] SOFTWARE *filename*

Where	Means
[*list*]	**One or more chassis slot numbers in the range of 1-15. The local slot is the default.**
[*record*]	**One of or more the following initialization records:** **PRIMARY** **SECONDARY** **TERTIARY** **ALL** **The PRIMARY initialization record is the default.**
filename	**A CARD/XMOP/MOP filename, which can consist of up to 16 characters.**

Example

This example specifies XPCSRV20 as the filename for the secondary initialization record on the terminal server in slot 4.

```
Xyplex>> define chassis slot 4 load secondary software
XPCSRV20

Xyplex>>
```

DEFINE [SERVER] CHASSIS SLOT LOADDUMP LINK

Specify a link selection for an initialization record

The DEFINE CHASSIS SLOT LOADDUMP LINK command specifies a selection from the link map for an initialization record. The processor module uses the link selection to obtain the software load image and parameter file from a destination on the network, or to send information to a dump server.

Notes

The information you specify on the command line associates the link with either a midplane Ethernet segment or an external connection. Some combinations of keywords are not valid for some products. If you attempt to specify a selection that is not valid for a product, the command interface generates an error message. See Chapter 3 for more information about the valid connections in the link map for each product. Table 4-2 in this chapter lists the default link selections in the primary, secondary, and tertiary initialization record for each product.

The link selection you specify for an initialization record appears on the List/Monitor Chassis Slot Loaddump Characteristics display.

You cannot change the link selection with this command on managed concentrators. You can change the link selection through the initialization configuration menu, product-specific commands, or SNMP. See the manual *Managing the Xyplex Ethernet Repeaters* for more information about these product-specific commands.

Privilege Level

Privileged

Syntax

DEFINE [SERVER] CHASSIS SLOT [*list*] LOADDUMP [*record* | ALL] LINK *identifier selection*

Where	Means
[*list*]	**One or more chassis slot numbers in the range of 1-15. The local slot is the default.**
[*record*]	**One or more of the following initialization records:** **PRIMARY** **SECONDARY** **TERTIARY** **ALL** **The PRIMARY initialization record is the default.**

Where	Means
[LINK]	**You will change a link on this module. This keyword is optional for terminal servers, but you must specify it if you are changing the link on a LAN bridge/router or WAN bridge/router.**
[*identifier*]	**A network identifier which specifies an Ethernet segment. You can specify the Ethernet segment with the following keywords:** **ETHERNET *num* | E*x*** **Where *num* or *x* is the number of an Ethernet link.** **Table 4-5 shows which network identifiers are valid for each Network 9000 product.**

Table 4-5. Network Identifiers

identifier	Terminal Servers	LAN Bridges/Routers	WAN Bridges/Routers
ETHERNET *num* **E*x***	**ETHERNET 1 *or* E1.**	**ETHERNET 1, 2, 3, or 4. *or* E1, E2, E3, E4**	**ETHERNET 1 *or* E1**

selection	**A midplane Ethernet segment or an external connection. The keywords for this variable are the following:**
	SEGMENT *sid* **Where *sid* is A, B, or C, and represents a midplane Ethernet segment.**
	EXTERNAL **Where EXTERNAL specifies an external LAN. When you specify EXTERNAL, the bridge or router automatically associates the Ethernet link with the correct external LAN.**
	Table 4-6 shows the options available for each Network 9000 product.

Table 4-6. Network Selections

selection	Terminal Servers	LAN Bridges/Routers	WAN Bridges/Routers
SEGMENT *sid*	**SEGMENT A, B, or C**	**SEGMENT A, B, or C for E1, E2, and E3 only. Each segment can support only one link**	**SEGMENT A, B, or C for E1 only.**
EXTERNAL	**Not Applicable**	**EXTERNAL for E1, E2, E3, E4. The external connections for Ethernet links are to LANs.**	**The EXTERNAL connection for E1 is to a LAN.**

Examples

1. The following command specifies the link selection for the primary initialization record on a terminal server.

```
Xyplex>> define chassis slot loaddump primary link E1
segment a ↵

Xyplex>>
```

Reinitialize the terminal server for this command to take effect.

2. The following command specifies the link selection for the secondary initialization record on a LAN bridge/router in slot 5 of the chassis.

```
Xyplex>> define chassis slot 5 loaddump secondary link E1
segment b ↵

Xyplex>>
```

3. The following command specifies the link selection for the primary initialization record on a WAN bridge/router in slot 2 of the chassis.

```
Xyplex>> define chassis slot 2 loaddump primary link E1
external ↵

Xyplex>>
```

DEFINE [SERVER] CHASSIS SLOT LOADDUMP ENABLED | DISABLED

Enable or disable an initialization record

The DEFINE [SERVER] CHASSIS SLOT LOADDUMP ENABLED | DISABLED command disables or enables an initialization record.

Notes

Not all initialization records are enabled by default on every product. Managed concentrators and terminal servers have only the primary initialization record enabled. LAN bridge/routers have the primary and secondary initialization record enabled. You must enable the other initialization records on these products if you want the processor module to use them. WAN bridge/routers have all three initialization records enabled by default.

All initialization records have default values for the link selection, 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.

Privilege Level

Privileged

Syntax

DEFINE [SERVER] CHASSIS SLOT [*list*] LOADDUMP [*record*|ALL] DISABLED | ENABLED

Where	Means
[*list*]	**One or more chassis slot numbers in the range of 1-15. The local slot is the default.**
[*record*]	**One or more of the following initialization records:** **PRIMARY** **SECONDARY** **TERTIARY** **ALL** **The PRIMARY initialization record is the default.**
ENABLED	**Enable the initialization records you specify.**

Where	Means
DISABLED	**Disable the initialization records you specify. (You cannot disable all three initialization records.)**

Examples

1. The command in this example disables the primary initialization record on a WAN bridge/router in slot 5. When the primary initialization record is disabled, the I/O module first attempts to load or dump using information in the secondary initialization record.

```
Xyplex>> define chassis slot 5 loaddump primary disabled ↵

Xyplex>>
```

2. The command in this example enables all initialization records for the managed concentrator in the local slot.

```
Xyplex>> define chassis slot loaddump all enabled ↵

Xyplex>>
```

DEFINE [SERVER] CHASSIS SLOT LOADDUMP DEFAULT

Reset initialization records to the default settings

The DEFINE [SERVER] CHASSIS SLOT LOADDUMP DEFAULT command resets the parameters in one or more initialization records to the default settings.

Notes

Initialization parameters include the status of the initialization record, the link selection, protocols, the CARD/XMOP/MOP load image filename, and the Internet characteristics for DTFTP loading. You can change this information through the initialization configuration menu, with the chassis management commands in this chapter, and through SNMP.

The default settings for initialization records vary among managed concentrators, terminal servers, LAN bridge/routers , and WAN bridge/routers. The first sections of this chapter list the default settings for the initialization parameters of each Network 9000 product.

Certain initialization records on some products are disabled by default. The secondary and tertiary initialization records on a managed concentrator or a terminal server, for example, are disabled by default. (Only the primary initialization record on a terminal server is enabled by default.) If you reset one of these initialization records to its default settings with this command, the command also disables the initialization record. See the DEFINE [SERVER] CHASSIS SLOT LOADDUMP ENABLED | DISABLED command for information about how to enable and disable initialization records.

Privilege Level

Privileged

Syntax

DEFINE [SERVER] CHASSIS SLOT [*list*] LOADDUMP [*record* | ALL] DEFAULT

Where	Means
[*list*]	**One or more chassis slot numbers in the range of 1-15. The local slot is the default.**
[*record*]	**One or more of the following initialization records:** **PRIMARY** **SECONDARY** **TERTIARY** **ALL** **The PRIMARY initialization record is the default.**

Example

This example resets the secondary initialization record on a terminal server in slot 2 to its default settings. Because the secondary initialization record on a terminal server is disabled by default, this command also disables the initialization record.

```
Xyplex>> define chassis slot 2 loaddump secondary
default
```

Xyplex>>

The default settings for the secondary initialization record on a terminal server are the following:

Status:	**Disabled**
Link Selection:	**Ethernet 1 Segment A**
Load Image Protocols:	**CARD, XMOP, MOP, BOOTP, RARP**
Dump Protocols:	**XMOP, MOP, BOOTP, RARP**
Parameter Protocols:	**CARD, XMOP, MOP, BOOTP, RARP**
Software filename:	**XPCSRV20**

End of Chapter

Chapter 5

Chassis Management Displays

The chassis management commands in this chapter display and monitor characteristics of the chassis, the Network 9000 modules in chassis slots, the power supplies, and the initialization records. SHOW and LIST commands display current information about the modules and power supplies. MONITOR commands display continuously updated information about modules or managed power supplies.

Most of the displays in this chapter appear throughout this manual in the descriptions of features and procedures. This list includes the command that generates the display, as well as the chapter where the display appears:

- **SHOW | MONITOR [SERVER] CHASSIS SUMMARY**

This display summarizes the contents of each chassis slot and power supply. Chapter 6, Resetting or Inhibiting Processor Modules and Power Supplies, includes examples of this display.

- **SHOW | MONITOR SERVER CHASSIS POWER SUMMARY**

This display shows the wattage each power supply in the chassis provides, the wattage that the modules in each slot consume, and the remaining available wattage.

- **SHOW | MONITOR [SERVER] CHASSIS POWER [SUPPLY] *list* | ALL STATUS**

This display shows detailed information about a managed power supply. Chapter 6, Resetting Modules and Power Supplies, includes an example of this display.

- **SHOW | MONITOR [SERVER] CHASSIS SLOT [*list* | ALL] STATUS**

This display shows detailed information about Type 2 modules in a chassis slot. Chapter 3, Managing the Operational Link Map, includes versions of this display for different Network 9000 products.

- **LIST|MONITOR [SERVER] CHASSIS SLOT [*list* | ALL] LOADDUMP [*record*|ALL] CHARACTERISTICS**

This display shows the initialization parameters in an initialization record. Chapter 4, Managing Initialization Parameters, shows an example of this display.

- **SHOW | MONITOR PARAMETER SERVER**

This display shows detailed information about a parameter server.

- **SHOW|MONITOR [SERVER] CHASSIS SLOT LMB COUNTERS**

This display shows diagnostic information about counters on the local management bus (LMB). These counters a mainly useful for troubleshooting, not normal status.

SHOW/MONITOR [SERVER] CHASSIS SUMMARY

Display current chassis status and power supply information

The SHOW/MONITOR [SERVER] CHASSIS SUMMARY command displays the status of the module or module set in each chassis slot and summary information about each managed power supply.

Privilege Level

Show/Nonprivileged Monitor/Privileged

Syntax

SHOW | MONITOR [SERVER] CHASSIS SUMMARY

Display

The following command produces the chassis summary display:

```
Xyplex> show chassis summary
```

```
Chassis Type:        Network 9000 Rev 0
Base 802.x Address:  08-00-87-00-4F-A0          Backplane Serial #:  2324252627
Status:              No Fault                   Number of Slots:              6

                         - Processor Module -     ---- I/O Module ----
Slot      Status         Hardware  Serial #       Hardware  Serial #   Firmware
----      ------------   --------------------     --------------------  --------
1         LB1 Present    Unknown    Unknown       AC/119     000067349  Unknown
2         Operational    TS/720     000084643     TS/723     000054372  410000
3         Loading        BR/410     000058978     BR/412     000086535  210100
4         Dumping        BR/460     000078219     BR/462     000029653  210101
5         Run Inhibited  MP/210     000057822     CN/202     000024319  110000
6         Param Loading  TS/720     000045892     TS/721     000045792  410000

                                              ----- Warnings ----      -- Power --
Power     Status         Hardware   Serial #   Current    Historical    Max   Used
----      -------------  --------   ---------  --------   ----------    ------------
1         Redundant      PS/130     123456789  No         Yes           150w   75w
2         Redundant      PS/130     345678912  Yes        Yes           150w   75w
                                                                        ----   ---
                                              Chassis Total -->        300w   150w
```

Field	Means
Chassis Type	**The revision number of this Network 9000 chassis.**
Base 802.x Address	**The Ethernet address of the chassis.**
Backplane Serial #	**The serial number of the chassis backplane.**
Number of Slots	**The number of slots in this chassis.**
Slot	**The number of a chassis slot.**
Status	**A summary of the status of each Network 9000 module or module set, or Type 1 product in the slot. For more detailed information about the status of a module or module set, see the Show Chassis Slot Status display, described in this chapter. The different types of status are the following:**

Status	Means
LB1 Present	**A Network 9000 Type 1 product, or a MAXserver product resides in the slot, rather than a Network 9000 module or module set.**
Empty	**The slot is empty, or the slot contains a MAXserver card or Type 1 product .**
Operational	**The Network module or module set that exists in this slot and is operating normally.**
Load Req'd	**The processor module has requested the software load image from a load server.**
Loading	**The Network 9000 processor module is receiving the software load image.**
Param Req'd	**The processor module has requested the parameter file from a parameter server.**
Param Loading	**The Network 9000 processor module is loading its parameter file.**
Dump Req'd	**The Network 9000 processor module has requested dump service from a dump server.**
Dumping	**The Network 9000 processor module is sending diagnostic information to a dump server.**

Field	Means
Run Inhibited	The module is inhibited either because a user pushed the Reset button once, or a user issued a RESET CHASSIS SLOT HOLD command for the module in this slot.
Init Menu	The Network 9000 processor module is running the initialization configuration menu.
ROM Wait	The processor module failed to obtain the software load image using the information in the enabled initialization records, although this information may be valid. For example, the load server specified in the initialization record may be unavailable. The processor module is now waiting for a period of time, from 5 to 12 minutes, before it attempts to load again using the information in the initialization records. Depending on the problem, you may be able to correct this condition by changing the information in the initialization records with the DEFINE CHASSIS SLOT commands, described in Chapter 4.
Invalid CS	The processor module failed to obtain the software load image because the information in the control storage area was invalid or corrupt. To correct this condition, you can change the information in the initialization records with the DEFINE CHASSIS SLOT commands, described in Chapter 4.
Suspended	The processor module is not operational because it has been inhibited either because a user pushed the Reset button on the front panel once, or a user entered the RESET CHASSIS HOLD command for the module in this slot. To reactivate the processor module, press the Reset button or enter the RESET CHASSIS command, described in Chapter 6.
Diagnostics	The processor module is running diagnostic programs.
Failed	The processor module was running diagnostics programs, and these programs failed. If this status appears, contact your Xyplex representative for more information.
Not Responding	The Single Chip Microcontroller (SCM) on the module responded to the request for status, but the operational software did not. When this status appears, other fields in the display, including Installed Memory, Link Mappings, and Uptime do not have status. If the module in the slot returns the status Not Responding, wait 30 seconds and enter the Slot Status command for the module in this slot again. If the module still returns the status Not Responding, contact your Xyplex representative.

Field	Means
Processor Module	**The hardware type and serial number of the Network 9000 processor module. If a Type 1 product is present in this slot,** `Unknown` **appears in this field.**
I/O Module	**The hardware type and serial number of the I/O module. If a MAXserver card is present in this slot,** `AC/119` **or** `MX/101` **appears in this field.**
Firmware	**The version of firmware running on each processor module in the chassis.**
Power	**The number of a PS/130 power supply in the chassis. (If PS/120 power supplies exist in the chassis, they do not appear in this field.)**
Status:	**The current state of the power supply. Possible states are these:**
	Required — **This power supply must be available to support the modules in the chassis. Other power supplies cannot compensate for its power if a required power supply becomes disabled.**
	Redundant — **This power supply need not be available to support the modules in the chassis. Other power supplies can compensate for its power if it becomes disabled. If two or more redundant power supplies become disabled, however, other power supplies do not necessarily compensate for the loss of power. A chassis with three redundant power supplies, for example, can require at least two to be in use.**
	Disabled — **This power supply is not providing power to the slots in the chassis.**
Hardware	**The managed power supply type.**
Serial #	**The serial number of the power supply.**
Warnings	**This field reflects the current and historical warnings. Current warnings are those which have occurred in the last four seconds, since the most current update. Historical warnings are those that have occurred prior to the most current update.**
Power	**The maximum amount of power each power supply can deliver and the actual (current) amount of power each power supply is delivering.**
Chassis Total	**The total amount of maximum power and used power generated by all power supplies in the chassis.**

SHOW/MONITOR [SERVER] CHASSIS POWER SUMMARY

Display the summary information about power provided and power consumed

The SHOW/MONITOR [SERVER] CHASSIS POWER SUMMARY command displays the total wattage that each PS/130 power supply in the chassis provides, the actual power consumed, and the estimated wattage that each slot in the chassis consumes.

Notes

If the power supplies in the chassis are unmanaged PS/120 power supplies, this display includes only the estimated power consumed by each slot.

Privilege Level

Show/Nonprivileged Monitor/Privileged

Syntax

SHOW | MONITOR [SERVER] CHASSIS POWER SUMMARY

```
Power     Hardware              +5V       +12V      -12V       Total
-----     --------------     ------     ------     ------     ------
   1      PS/130             100.0W      35.0W      35.0W     150.0W
   2      PS/130             100.0W      35.0W      35.0W     150.0W
                             ------     ------     ------     ------
   Max. Power Provided       200.0W      70.0W      70.0W     300.0W
   Power Consumed             70.0W      35.0W      45.0W     130.0W
                             ------     ------     ------     ------
   Power Available           130W        35.0W      45.0W     170.0W

 Slot     Hardware              +5V       +12V       -12V      Total
-----     ---------------    ------     ------     ------     ------
  1       Unknown- AC/119     0.0W       0.0W       0.0W       0.0W
  2       BR/410 - BR/412    17.5W       9.6W       0.0W      27.1W
  3       TS/720 - TS/721    12.5W       4.8W       4.8W      22.1W
  4       TS/720 - TS/722    13.0W       6.0W       6.0W      25.0W
  5       TS/720 - TS/723    13.5W       7.2W       7.2W      27.9W
  6       TS/720 - TS/724    14.5W       7.2W       7.2W      28.9W
                             ------     ------     ------     ------
Worst Case Power             70.0W      35.0W      25.0W     130.0W
```

Field	Means
Power	**The number of each power supply in the chassis. (The hardware type and voltage levels which follow appear only for managed power supplies. If the chassis contains unmanaged power supplies, only the slot information appears in the display.)**

Field	Means
Hardware	**The hardware type of each power supply.**
Voltage levels +5V +12V -12V	**The theoretical rating of the maximum power for each voltage level. The total of these individual rated values may exceed the maximum rated total of the power supply. In actual use, the total of the individual levels would not exceed the total rated power.**
Total	**The theoretical rating of the total maximum power for this power supply. (The power supply total may be less than the total of the individual estimates at each voltage level.)**
Max. Power Provided	**This is the total of the theoretical rating of the maximum power for each voltage level of all power supplies in the chassis. The total reflects the maximum combined power for all power supplies in the chassis. (The Max. Power Provided Total may be less than the individual totals for each voltage level.)**
Power Consumed	**The actual power consumed by the modules in the chassis at each voltage level. The Total reflects the actual combined values of Power Consumed at each voltage level.**
Power Available	**The value of the Max. Power Provided minus the Power Consumed at each voltage level. The Total reflects the combined Power Available for each voltage level.**
Slot	**The number of a chassis slot.**
Hardware	**The module types in each slot. The first column lists the processor module, if it exists, and the second column lists the I/O module, if it exists. The type Unknown can indicate either that the Processor or I/O portion of the slot is empty or that a Type 1 card MAXserver card exists in the slot.**
Voltage levels +5V +12V -12V	**The maximum possible power at each voltage level available to the modules in each slot. The Total reflects the combined maximum possible power of each voltage level for each slot.**
Worst Case Power	**The combined maximum possible power at each voltage level that can be used by the modules in all slots. The Total reflects the combined maximum possible power used by the modules in all slots.**

SHOW/MONITOR [SERVER] CHASSIS POWER [SUPPLY] STATUS

Display power supply information

The SHOW/MONITOR [SERVER] CHASSIS POWER [SUPPLY] STATUS command displays information about PS/130 managed power supplies in the chassis. Each PS/130 power supply broadcasts its status over the local management bus (LMB) every four seconds.

PS/120 unmanaged power supplies do not broadcast status information on the local management bus.

Privilege Level

Show/Nonprivileged Monitor/Privileged

Syntax

SHOW | MONITOR [SERVER] CHASSIS POWER [SUPPLY] ***list*** **| ALL STATUS**

Where	Means
list **| ALL**	**One or more power supply numbers between 1-5, or the keyword ALL to indicate all PS/130 power supplies.**

Display

This sample display shows the status for power supply number 2.

```
Xyplex> show chassis power supply 2 status
```

```
Power Supply 2 Type: PS/130                              Serial #:   1234567890
Status:              Redundant                           SCM Version       4101


             --Out of Range-   -----Thermal-----     Hardware
Warnings:    +5v  +12V  -12V   Warning Shutdown      Inhibit
---------    --------------    ------------------    ---------
Current:       X                  X
Historical:    X                  X      X              X

    Voltages                                        ------------ Power -------------
------------------                                  Maximum    Consumed     Available
+5V  Level:  +4.87                                  --------------------------------
+12V Level: +12.43                              +5V:   100W        70W           30W
-12V Level: -11.91                              +12V:  35W         25W           10W
                                                -12V:  35W         15W           20W
                                                  ---------------------------------
                                    Supply Total:     150W       110W           40W
                                    Chassis Total:    300W       200W           100W
```

Field	Means
Power Supply:	**The number of the power supply shown in this display.**
Status:	**The current state of the power supply. Possible states are these:**
	Required — **This power supply must be available to support the modules in the chassis. The other power supplies cannot compensate for its power if it becomes disabled.**
	Redundant — **This power supply need not be available to support the modules in the chassis. Another power supply can compensate for its power if it becomes disabled. If two or more redundant power supplies become disabled, however, other power supplies do not necessarily compensate for the loss of power. In a chassis with two redundant power supplies, for example, at least one must be available.**
	Disabled — **This power supply is not supplying power to the chassis.**
Serial #	**The serial number of this power supply.**
SCM Version	**The version of the single chip microcontroller (SCM) for this power supply.**
Warnings:	**The status of various warnings on the PS/130 power supply. This field includes two categories for each type of warning: Current and Historical. Current warnings are those that represent the status in the the latest message that the power supply broadcast to the LMB. Historical warnings are those that represent the status in previous broadcasts.**

The display includes these warnings:

Warning	Means
Out of Range	**One of the voltage levels was too high or too low.**
Thermal Warning	**The power supply is or was approaching an unacceptably high temperature.**
Thermal Shutdown	**The power supply exceeded the maximum allowable temperature, and this caused the power supply to shutdown.**
Hardware Inhibit	**The power supply is or was inhibited, because a user pushed the On/Off switch into the Off position.**

Field	Means
Power	**The fields in this section show the maximum, actual, and available power generated at each voltage level on this power supply. The values in these fields represent the following information:** **Maximum: This is a theoretical rating of the maximum power for each voltage level. The total of these individual rated values may exceed the maximum rated total of the power supply. In actual use, the total of the individual levels should not exceed the maximum rated power.** **Consumed: This is the actual amount of power being consumed at each voltage level.** **Available: This is a theoretical rating of the available power at each voltage level, based on the rated Maximum power for each voltage level minus the actual Consumed power at each voltage level.**
Supply Total	**The fields in this section show the combined maximum, actual, and available power for all voltage levels on this power supply. The values in these fields represent the following information:** **Maximum: This is the theoretical rating of the maximum amount of power available from all three voltage levels. (This value can be less than the total of the individual values at each voltage level.)** **Consumed: This is the actual amount of power being consumed at all three voltage levels.** **Available: This is a theoretical rating of the combined available power, based on the rated Maximum Supply Total minus the actual Consumed Supply Total.**
Chassis Total:	**The fields in this section show the combined maximum, actual, and available power for all voltage levels on all power supplies in the chassis. The values in these fields reflect the same information as the Supply Total fields, but for all power supplies in the chassis, rather than the specific power supply represented in the display.**

SHOW/MONITOR [SERVER] CHASSIS SLOT STATUS

Display general information about the modules in a chassis slot

The SHOW/MONITOR [SERVER] CHASSIS SLOT STATUS command displays general information about the module or module set in a chassis slot. This information includes the type of processor module and I/O module in the slot, the serial number of these modules, and the link map. The display in this example shows the slot status for a LAN bridge/router. See Chapter 3 for other examples of this display.

Privilege Level

Show/Nonprivileged Monitor/Privileged

Syntax

SHOW | MONITOR [SERVER] CHASSIS SLOT [*list* | ALL] STATUS

Where	Means
[*list* | ALL]	**One or more chassis slot numbers in the range of 1-15, or the keyword ALL to indicate all chassis slots. The local slot is the default.**

Display

This sample display shows the status for a LAN bridge/router in slot 3.

```
Xyplex> show chassis slot 3 status
```

```
Slot 3 Status:          Operational          Firmware Version:         410000
Processor Module:       BR/410               Proc Mod. Serial #:    1234567890
I/O Module:             BR/412               I/O Mod. Serial #:     2345678901
Installed Memory:       4 Megabytes          SCM Version:              100000
802.x Address           08-00-87-01-C7-65    Uptime:                5 11:27:04
IP Address:             140.179.80.113

Link Mappings                                          Worst   Case   Power
--------------------                                   --------------------
Ethernet 1 Segment A                                   +5V            17.5W
Ethernet 2 External 2                                  +12V            9.6W
Ethernet 3 Segment B                                   -12V            0.0W
Ethernet 4 External 4                                  --------------------
                                                       Total          27.1W
```

Field	Means
Slot *x* Status	**The current status of the module or module set in this slot. The status messages that can appear in this field are the following:**

Status	Means
LB1 Present	**A MAXserver card resides in the slot, rather than a Network 9000 module or module set. This is the only status for MAXserver cards in a Network 9000 chassis.**
Operational	**The Network module or module set that exists in this slot and is operating normally.**
Run Inhibited	**The module is inhibited either because a user pushed the Reset button once, or a user issued a RESET CHASSIS SLOT HOLD command for the module in this slot.**
Load Requested	**The processor module has requested the software load image from a load server.**
Loading	**The Network 9000 processor module is receiving the software load image.**
Parameters Requested	**The processor module has requested the parameter file from a parameter server.**
Parameter Loading	**The Network 9000 processor module is loading its parameter file.**
Dump Requested	**The Network 9000 processor module has requested dump service from a dump server.**
Dumping	**The Network 9000 processor module is sending diagnostic information to a dump server.**
Initialization Menu	**The Network 9000 processor module is running the initialization configuration menu**
ROM Wait	**The processor module failed to obtain the software load image using the information in the enabled initialization records, although this information may be valid. For example, the load server specified in the initialization record may be unavailable. The processor module is now waiting for a period of time, from 5 to 12 minutes, before it attempts to load again using the information in the initialization records. Depending on the problem, you may be able to correct this condition by changing the information in the initialization records with the DEFINE CHASSIS SLOT commands, described in Chapter 4.**

Field	Means	
	Suspended	**The processor module failed to obtain the software load image because the information in control storage was invalid or corrupt. To correct this condition, you can change the information in the initialization records with the DEFINE CHASSIS SLOT commands, described in Chapter 4.**
	Run Inhibited	**The processor module is not operational because it has been suspended, or "held, " either because a user pushed the reset button on the front panel once, or a user entered the RESET CHASSIS HOLD command for this slot.**
	Diagnostics	**The processor module is running diagnostic programs.**
	Failed	**The processor module was running diagnostics programs, and these programs failed. If this status appears, contact your Xyplex representative for more information.**
	Not Responding	**The Single Chip Microcontroller on the module responded to the request for status, but the operational software did not. When this status appears, other fields in the display, including Installed Memory, Link Mappings, and Uptime do not have status. If the module in the slot returns the status Not Responding, wait 30 seconds and enter the Slot Status command for the module in this slot again. If the module still returns the status Not Responding, contact your Xyplex representative.**
Processor Module	**The model number and revision number of the processor module in this slot. This display shows a model 410 bridge. If no processor module exists in this slot, then N/A (not applicable) appears in this field.**	
I/O Module	**The type and revision number of the I/O module in this slot. This display shows a four port LAN bridge/router, the BR/412. If no I/O module exists in this slot, then N/A (not applicable) appears in this field.**	
Installed Memory	**The amount of memory installed on the processor module.**	
802.x Address	**The Ethernet address of the module or module set.**	
IP Address	**The Internet address of the module or module set.**	
Firmware Version	**The version of the firmware running on this processor module.**	
Proc Mod. Serial #	**The serial number of the processor module.**	

Field	Means
I/O Module Serial #	**The serial number on the I/O module.**
SCM Version	**The version of the Single Chip Microcontroller (SCM).**
Uptime	**The amount of time that has elapsed since the processor module was last reset.**
Link Mappings	**The connections from the links to either the midplane Ethernet segments of the LAN or to external connections. Chapter 3 describes the possible link maps for managed concentrators, terminal servers, LAN bridge/routers, and WAN bridge routers.**
Worst Case Power	**The maximum possible amount of power consumed at each voltage level by the module or module set in this chassis slot. Different modules and module sets consume different amounts of power. This display shows the maximum possible power for a LAN bridge/router with a 410 processor module and a 412 I/O module.**

LIST/MONITOR [SERVER] CHASSIS SLOT LOADDUMP CHARACTERISTICS

Display initialization record information

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

Privilege Level

List/Nonprivileged Monitor/Privileged

Syntax

LIST|MONITOR [SERVER] CHASSIS SLOT [*list* | ALL] LOADDUMP [*record*|ALL] CHARACTERISTICS

Where	Means
[*list* | ALL]	**One or more chassis slot numbers in the range of 1-15, or the keyword ALL to indicate all chassis slots. The local slot is the default.**
[*record*]	**One or more of the following initialization records:** **PRIMARY** **SECONDARY** **TERTIARY** **ALL** **The PRIMARY initialization record is the default.**

Display

This sample display shows the primary initialization record for a terminal server in slot 3.

```
Xyplex> list chassis slot 3 loaddump primary
characteristics
```

```
Primary Record:             Enabled
Link Selection              Ethernet 1 Segment A
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:  Card, XMOP, MOP, BOOTP, RARP
```

Field	Means
Primary Record	**The status of the initialization record you specified. This example shows the primary record enabled, but an initialization record can be enabled or disabled.**
Link Selection	**The link that this initialization record uses for loading the software load image, the parameter file, and for sending information to the dump file.**
Internet Load Address	**The Internet address of the host where the processor module in the slot you specify receives its software load image through DTFTP.**
Internet Load Gateway	**The Internet address of a gateway, if the processor module in the slot you specify 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 processor module in the slot you specify 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.**

SHOW/MONITOR PARAMETER SERVER

Display information about the parameter server

The SHOW PARAMETER SERVER command displays information about the parameter server, including the status of the chassis parameters.

Privilege Level

Show/Nonprivileged Monitor/Privileged

Syntax

SHOW | MONITOR PARAMETER SERVER

Display

This sample display shows a parameter server for a terminal server:

```
Xyplex> show parameter server
```

```
Check Timer:                    30          Parameter Server Limit:           4
Retransmit Timer:                5          Parameter Servers:                4
Retransmit Limit:                3          Rejected Servers:                 0
Chassis Parameter Status:  Current          Bad Parameter Messages:           0
Path:

Last Update Version:        60              Storage State:               Idle
Last Update Date:  22 Apr 1992              Loaded From:    08-00-87-00-39-92
Last Update Time:     16:45:55                                     FINANCEVAX
Default Parameters Used

Name             Address            Version Date              Status   Reason
FINANCEVAX       09-00-77-00-29-42       60 22 Apr 1992 16:45 Current
```

Field	Means
Check Timer	**The frequency, in minutes, that the processor module attempts to locate additional eligible parameter servers.**
Retransmit Timer	**The number of minutes that the processor module waits before it attempts to update parameter information at a parameter server that does not acknowledge the attempt.**
Retransmit Limit	**The number of times this processor module will attempt to update a parameter server which does not acknowledge these attempts, after the retransmit timer expires.**

Field	Means
Chassis Parameter Status	**A status that indicates whether or not this host is sending parameters to a module in the chassis. Current indicates that all parameters are up-to-date. Other status messages indicate that a parameter update is being attempted or is in progress. These states include the following:** **Current** **Behind** **Verifying** **Bus Busy** **Retrying** **Failing** **Hold Down**
Path	**The pathname to a parameter file on a UNIX host for TFTP parameter updates.**
Parameter Server Limit	**The maximum number of parameter servers where this processor module can attempt to obtain parameters.**
Parameter Servers	**The current number of parameters server where this processor module can attempt to obtain parameters.**
Rejected Servers	**The number of parameter servers that this module tried to reach but could not reach.**
Bad parameter Messages	**The number of messages from the parameter server that the processor module could not interpret for some reason. Usually, 0 is the value in this field.**
Last Update Version	**The version of the parameter file that is stored in the memory of the processor module since it was last initialized. The processor module creates a new version of the parameter file when you change parameters with the DEFINE or PURGE commands. When this number matches the version indicated in the Version field, the parameter server and the processor module have the same version of the parameter file.**
Last Update Date	**The day that the processor module last attempted to update parameter information stored at parameter servers.**
Last Update Time	**The time that the processor module last attempted to update parameter information stored at parameter servers.**
Storage state	**Whether or not the processor module is attempting to update parameter information at any parameter server. Idle indicates that the processor module is not currently attempting an update. This is a normal storage state. All other storage states indicate that an update is being attempted or is in progress.**

Field	Means
Default Parameters Used	**This message indicates that the processor module is using a set of default parameters.**
Name	**The name of the currently used parameter server.**
Address	**The address of the currently used parameter server.**
Version	**The current version number of the parameter file on the parameter server. When this number matches the version indicated in the Last Update Version Number field, the parameter server and the processor module have the same version of the parameter file.**
Date	**The date and time when the parameter server was last updated.**

SHOW/MONITOR [SERVER] CHASSIS SLOT LMB COUNTERS

Display local management bus (LMB) counters

The SHOW/MONITOR [SERVER] CHASSIS SLOT LMB COUNTERS command displays the accumulated values of the LMB counters since they were last reset to zero. To reset counters to zero, reinitialize the processor module or use the ZERO COUNTERS command. This display is most useful for diagnostic purposes, and not for displaying normal status.

This command displays the LMB counters of the processor module in the local slot only. You cannot specify other slots in the command line.

Privilege Level

Show/Nonprivileged Monitor/Privileged

Syntax

SHOW|MONITOR [SERVER] CHASSIS SLOT LMB COUNTERS

Display

The following is a sample LMB counters display:

```
Xyplex> show chassis slot lmb counters
```

```
Local Management Bus Counters

Messages Sent :             43          Messages Received:                89
Transmit Errors:             0          Receive Errors:                    0
Xmit/Rcv Conflicts:          0          Receive Length Errors:             0
Invalid Transmit State:      0          Receive Checksum Errors:           0
Watchdog Timeouts:           0          Invalid Receive State:             0
Card in Invalid State:       0          Receive Fragment Errors:           0
Loopback Messages:           0          Abnormal Receive End:              0
Undeliverable Loopbacks:     0          Undeliverable Receives:            0
Loopback Resource Errors:    0          Abnormal Aborts:                   0
Abort 1 Resets:              0          Abort 2 Resets:                    0
```

Field	Means
Messages Sent	**The total number of messages sent from this processor module to the LMB.**
Transmit Errors	**The total number of messages that the processor module has attempted to send, but failed to send, because of an error.**

Field	Means
Xmit/Rcv. Conflicts	**The number of I/O conflicts which occurred because the processor module attempted to send and receive messages simultaneously.**
Invalid Transmit State	**The number of times the processor module did not transmit a message because it was running diagnostics, or was in an invalid state for some other reason.**
Watchdog Timeouts	**The number of times the processor module failed to complete sending or receiving a message because the process of sending or receiving it exceeded the time limit.**
Card in invalid State	**The number of times the processor module did not send or receive messages because it was running diagnostics, or was in an invalid state for some other reason.**
Loopback Messages	**The number of times that the processor module received loopback messages.**
Undeliverable Loopbacks	**The number of times the processor module failed to send a message to itself while in loopback mode.**
Loopback Resource Errors	**The number of times the processor module received messages from itself that it did not recognize.**
Abort 1 Resets	**The number of times the processor module stopped processing a message because of a problem communicating with the Single Chip Microcontroller (SCM).**
Messages Received	**The number of messages received at this slot from the LMB.**
Receive Errors	**The accumulated errors from the values in the following fields: Xmit/Rcv Conflicts, Watchdog Timeouts, Abort 1 Resets, Invalid Receive State, and Abort 2 Resets.**
Receive length Errors	**The number of messages the slot did not accept because they did not contain the correct number of packets.**
Receive Checksum Errors	**The number of times the processor module received a packet with an invalid checksum.**
Invalid Receive State	**The number of times the processor module in this slot did not accept a message because it was running diagnostics, or was in an invalid state for some other reason.**

Field	Means
Receive Fragment Errors	**The number of times the processor module did not receive an entire fragment of a message.**
Abnormal Receive End	**The number of times the processor module was in an idle state, while the Single Chip Microcontroller (SCM) was in a receive state.**
Undeliverable Receives	**The number of times the processor module in this slot received messages from the LMB that it did not recognize.**
Abnormal Aborts	**The number of times the processor module stopped processing a message because of an internal software check.**
Abort 2 Resets	**The number of times the processor module stopped processing a message because of abnormal problem communicating with the SCM.**

End of Chapter

Chapter 6

Resetting or Inhibiting

Processor Modules and Power Supplies

Occasionally, you may need to reset or inhibit a processor module or a redundant power supply. To load new software and parameters onto a processor module, for example, you need to reset it to start the initialization process. To do this, you can press the Reset button on the processor module, or use the following chassis management command from any Network 9000 processor module in the chassis:

[DEFINE SERVER] RESET CHASSIS *device*[#] [HOLD]

This command allows you to reset or inhibit (HOLD) a Network 9000 Type 2 processor module or a redundant PS/130 power supply from a remote location, because you do not have to physically press the Reset button on a processor module or turn off the power supply. (This command does not apply to Type 1 modules or PS/120 power supplies.)

Valid keywords for the *device* variable are either SLOT, to indicate a chassis slot, or POWER [SUPPLY], to indicate a power supply. The # variable indicates a slot number, which is optional, or a power supply number, which is required.

The following sections of this chapter describe how to use this command:

- **Resetting or a Processor Module**
- **Inhibiting a Processor Module**
- **Resetting or Inhibiting a PS/130 Power Supply**
- **Command Description**

Resetting a Processor Module

Issuing the RESET CHASSIS SLOT command is equivalent to pressing the Reset button on the front panel twice. When you do this, the processor module reloads software and parameters. Resetting a module also interrupts all activities on that module.

***Notes*:**

- **If a user presses the Reset button once to inhibit the processor module, you cannot override this state through this chassis management command. You must press the Reset button again to reinitialize the processor module.**
- **Resetting a processor module while it is storing operational parameters or sending diagnostic information to a dump server interrupts this process. This can possibly corrupt the parameter file or the dump file.**
- **Issuing a RESET command while a module is operational will interrupt active sessions.**

Before you reset or a processor module, you can check its status with either the SHOW/MONITOR CHASSIS SUMMARY display or the SHOW/MONITOR CHASSIS SLOT STATUS commands. The Chassis Summary display gives a one line status of each slot in the chassis, and the Chassis Slot Status display gives detailed status for a particular slot. The status of the module can indicate certain activities that you would not want to interrupt. Figure 6-1 is a sample Chassis Summary display for a six-slot chassis.

```
Chassis      Type:  Network 9000 Rev 0
Base 802.x Address:  08-00-87-00-4F-A0          Backplane Serial #:  2324252627
Status:              No Fault                   Number of Slots:              6

                        - Processor Module -     ---- I/O Module ----
Slot      Status        Hardware  Serial #       Hardware  Serial #   Firmware
----      ------------  --------  ----------     --------  --------   --------
1         LB1 Present   Unknown   Unknown        AC/119    000067349  Unknown
2         Operational   TS/720    000084643      TS/723    000054372  410000
3         Loading       BR/410    000058978      BR/412    000086535  210100
4         Dumping       BR/460    000078219      BR/462    000029653  210101
5         Run Inhibited MP/210    000057822      CN/202    000024319  110000
6         Param Loading TS/720    000045892      TS/721    000045792  410000

                                          ----- Warnings ----      -- Power --
Power     Status        Hardware  Serial #   Current  Historical     Max   Used
----      ------------  --------  ---------  -------  ----------    ------------
1         Redundant     PS/130    123456789  No         Yes           150w   75w
2         Redundant     PS/130    345678912  Yes        Yes           150w   75w
                                                                      ----   ---
                                          Chassis Total -->          300w   150w
```

Figure 6-1. A Chassis Summary Display for a Six-Slot Chassis With Two Power Supplies

This display shows that some modules are loading software and parameters, or sending information to a dump server. The module in slot 1 is a Type 1 module, and you cannot reset it with a chassis management command. The module in slot 4 is run inhibited, indicating that a user has issued a RESET CHASSIS HOLD command for the module in slot 4 or pressed the Reset button twice. The module in slot 2 is operational. For more information about the fields in this display, see the SHOW/MONITOR [SERVER] CHASSIS SUMMARY command, described in Chapter 5.

The following example resets the terminal server in slot 2, which is operational. Entering the command terminates any active sessions.

```
Xyplex>>  reset chassis slot 2 ↵
```

After you enter this command, the processor module begins the initialization process. As this happens, initialization messages appear on the screen when you press the Return key. When the process is complete, the user interface displays a welcome message, such as the one in this example, and prompts you to log on:

```
Welcome to the Xyplex Terminal Server

Enter Username>
```

The log-on banner and prompt on your system may be different.

Inhibiting a Processor Module

The RESET CHASSIS SLOT HOLD command is equivalent to pressing the reset button on the front panel once. Inhibiting a processor module suspends all activity on that module until you reset it, either with the RESET CHASSIS SLOT command or by pressing the Reset button once.

***Notes*:**

- **If you inhibit (HOLD) the processor module where you are logged on, you cannot reset it from the command interface because the command processor is no longer active. (You can press the reset button on the front panel of the processor module to reinitialize it or issue the RESET CHASSIS SLOT command from another processor module in the chassis.)**
- **If a user inhibits the processor module by pressing the Reset button once, you cannot override this state through this chassis management command. You must press the Reset button again to reinitialize the processor module.**
- **Inhibiting a module while it is loading operational parameters or sending diagnostic information to a dump server interrupts this process. This can possibly corrupt the parameter file or the dump file.**
- **Inhibiting a module is operational will interrupt active users.**

The following example inhibits the terminal server in slot 2. Entering the command terminates all active sessions.

```
Xyplex>> reset chassis slot 2 hold ↵
```

The command interface is now inactive. To activate this processor module, you reset it by pressing the Reset button or with RESET CHASSIS SLOT command.

Resetting or Inhibiting a Power Supply

Most of the time, you will not need to reset or inhibit a PS/130 power supply. The command interface allows you to reset power supplies and inhibit redundant power supplies, however, if you need to do so. You cannot inhibit (HOLD) a *required* power supply through the command interface, because doing so would interrupt the flow of power to modules in the chassis.

The RESET CHASSIS POWER SUPPLY HOLD command is equivalent to turning off the power supply. Doing this shuts off the power supply until you issue a RESET CHASSIS POWER SUPPLY command. You can only inhibit a redundant power supply. If you specify a required power supply, the command resets the processor on the power supply, but does not inhibit it.

Note: **The SHOW [SERVER] POWER SUPPLY STATUS COMMAND and the SHOW [SERVER] CHASSIS SUMMARY command indicate whether a managed power supply is Required, Redundant, or Disabled.**

The RESET CHASSIS POWER SUPPLY command behaves differently, depending on whether the power supply you specify is in use or inhibited. If the power supply is in use, this command resets the SCM on the power supply and does not interrupt power. No physical equivalent of this command exists on power supply itself. This type of reset is available from the command interface of a processor module only.

If you enter the RESET CHASSIS POWER SUPPLY command and specify a power supply that is inhibited through a RESET CHASSIS POWER SUPPLY HOLD command, the reset activates the power supply as well as resetting the SCM. In this case, the command is equivalent to turning on the power supply. (If a user has turned off the power supply, you cannot turn it on with this command. You must physically turn on the power supply.)

The status of a power supply indicates whether it is Required, Redundant, or Inhibited. Before you reset or hold a power supply, you can check the status with either the SHOW/MONITOR CHASSIS SUMMARY display or the SHOW/MONITOR CHASSIS POWER SUPPLY STATUS command. The Chassis Summary display gives a one line status of each managed power supply, and the Power Supply Status display gives detailed status for each power supply. Figure 6-1 is a Chassis Summary display. Figure 6-2 is a Power Supply Status display.

```
Power Supply 2 Type: PS/130                              Serial #:   1234567890
Status:              Redundant                           SCM Version       4101


             --Out of Range-       -----Thermal-----     Hardware
Warnings:    +5v  +12V  -12V       Warning Shutdown      Inhibit
---------    ---------------       ------------------    --------
Current:                               X
Historical:    X                       X      X             X

    Voltages                                          ------------ Power -----------
------------------                                    Maximum   Consumed   Available
+5V  Level:  +4.87                                    ------------------------------
+12V Level: +12.43                          +5V:      100W       70W        30W
-12V Level: -11.91                          +12V:     35W        25W        10W
                                            -12V:     35W        15W        20W
                                                      ------------------------------
                                  Supply Total:       150W       110W       40W
                                  Chassis Total:300W    200W      100W
```

Figure 6-2. A Sample Power Supply Status Display

The status of this PS/130 Power supply is Redundant, so you can inhibit it from the command interface.

Resetting a Power Supply

The following command resets power supply 2, which is Redundant:

```
Xyplex>> reset chassis power supply 2 ↵
```

For a power supply with the status Redundant or Required, this command simply resets the SCM. For a power supply with the status of Inhibited, this command reactivates the power supply and resets the SCM.

Inhibiting a Power Supply

The following command holds power supply 2, which is Redundant.

```
Xyplex>> reset chassis power supply 2 hold ↵
```

Power supply 2 is now inhibited, and is no longer providing power to modules in the chassis. Because it was redundant, one or more other power supplies in the chassis are now providing more power to compensate for the loss of power supply 2. The remaining active power supplies may become Required under these conditions.

[DEFINE SERVER] RESET CHASSIS [HOLD]

Reset or inhibit a processor module or power supply

The [DEFINE SERVER] RESET CHASSIS [HOLD] command resets or inhibits (holds) a processor module or a PS/130 power supply.

Notes

When you reset a processor module, it runs diagnostic programs, and reloads software and parameters. This process takes several minutes. If you press the <Return> key during this time, the initialization program displays status messages on the screen.

When you reset a terminal server, the terminal server restores all characteristics to the values in the permanent database, including those characteristics you specified with the SET command.

The HOLD command suspends all operations on the processor module. To release the HOLD state, issue the RESET command again without the HOLD keyword. If you hold the local processor module with this command, however, you cannot reset it from the command interface because the command processor is no longer active. (You can physically press the reset button on the front panel of the processor module to reinitialize it or issue the RESET CHASSIS command from another processor module in the chassis.)

The HOLD command shuts down or "Inhibits" a redundant power supply, and it stops providing power to modules in the chassis.

Privilege Level

Privileged

Syntax

[DEFINE SERVER] RESET CHASSIS *device* [#] [HOLD]

Where	Means
device	**One of the following keywords:**
	SLOT — **Reset or inhibit the processor module in the slot you specify.**
	POWER [SUPPLY] — **Reset or inhibit the power supply you specify.**
[#]	**The number of a specific slot or power supply. Valid slot numbers are 1-15. The local slot is the default. Valid power supply numbers are 1-5, and you must specify the number if you reset or hold a power supply.**

Where	Means
[HOLD]	**Suspend all operations on the processor module or inhibit a power supply.**

Examples

1. In this example, the command reinitializes a processor module in the local slot.

```
Xyplex>> reset chassis slot
```

2. In this example, the command suspends all activity on the processor module in slot 5 with the HOLD keyword. A user enters this command from a processor module in slot 3.

```
Xyplex>> reset chassis slot 5 hold
```

To reset the processor module in slot 5, the user enters the RESET command again from the processor module in slot 5.

```
Xyplex>> reset chassis slot 5
```

After a short time, system initialization messages appear on the screen to indicate that the reset has occurred.

3. This example inhibits a redundant power supply 4.

```
Xyplex>> reset chassis power supply 4 hold
```

This command resets the power supply in slot 4.

Xyplex>> reset chassis power supply 4

Power supply 4 can now provide power to modules in the chassis.

End of Chapter

Appendix A

Type 1 and Type 2 Options

Network 9000 Type 1 Options

The following are Network 9000 Type 1 options. In addition to the products listed here, all MAXserver family products are Type 1 options. Type 1 options do not support chassis management commands, and connect to midplane Ethernet segment A only.

LAN Interface Card

3605 LAN Interface Card (LIC)

Ethernet Concentrators

3605 Repeater, 1 AUI

3605 Repeater, 1 FOIRL, ST connector

3605 Repeater, 1 FOIRL, SMA connector

Ethernet Communications Server

2120 Terminal server, 8-port Telco

Local Router

3710 Local Router, 2-Port AUI

WAN Loaders

6800 Single Port WAN Loader Card, RS422

6800 Single Port WAN Loader Card, RS423

6800 Single Port WAN Loader Card, V.35

6800 Single Port WAN Loader Card, X.21

6800 Single Port WAN Loader Card, RS232

Network 9000 Type 2 Options

The following are Network 9000 Type 2 products which support chassis management commands, and can connect to midplane Ethernet segment A, B, or C.

Ethernet Concentrators

210 Management Processor

201 24 Port 10BASE-T 2 50-Port Telco, 1 AUI

202 24 Port 10BASE-T, 2 50-Port Telco, 1 AUI, 1 FOIRL

203 I/O Module, 20-port RJ-45

204 12 Port FOIRL, ST connectors

205 12 Port FOIRL, SMA connectors

Ethernet Bridge/Routers

401 Bridge/Router Processor Module

412 Bridge/Router I/O Module, 4-port AUI

461 Bridge/Router I/O Module, 2-port V.35

462 Bridge/Router I/O Module, 4-port V.35

Ethernet Communications Servers

720 Terminal Server Processor Module

721 Terminal Server I/O Module, 16-port Telco

723 Terminal Server I/O Module, 20-port RJ-45

724 Terminal Server I/O Module, 24-port Telco

End of Appendix

Appendix B

Status and Error Messages

This appendix lists some error and status messages that can appear when you enter the chassis management commands in this manual.

```
1901  WARNING - This command will change the Ethernet segment NOW!

Press <Return> to modify, any other key to abort
```

This message appears when you attempt to change the link to a midplane Ethernet segment on a terminal server with the DEFINE [SERVER] CHASSIS SLOT command. When you use this command, the change takes effect immediately, unlike other terminal server DEFINE commands. The change will terminate any active sessions. For the command to take effect, press the <Return> key.

```
1911  Local management bus is busy
```

Heavy network traffic on the local management bus (LMB) prevented the LMB from processing a command. Wait a few seconds and then enter the command again.

```
1912  Local management bus transmit error

1913  Local management bus transaction failed
```

Messages 1912 and 1913 occur if a problem exists at the interface to the Single Chip Microcontroller (SCM), which prevents the processor module from sending a request to the LMB. If either of these messages appear when you issue a command, wait a few seconds and attempt to issue the command again. If these messages continue to appear, contact your Xyplex representative.

```
1914  Invalid Network 9000 selection
```

You attempted to change a link to either a midplane Ethernet segment or an external connection that was not valid for that link with a DEFINE CHASSIS SLOT command. See Chapter 3 for the valid link connections on each Network 9000 Type 2 product.

```
1915  Invalid Network 9000 initialization record
```

You did not specify a valid initialization record, or entered an initialization record incorrectly. Valid initialization records are PRIMARY, SECONDARY, and TERTIARY.

Many commands also accept the keyword ALL to indicate all initialization records, although you cannot disable all initialization records.

1917 Insufficient resources to complete operation

The processor module did not execute the command because of an insufficient amount of available packets. On terminal servers, you can increase the number of available packets with the DEFINE SERVER PACKET COUNT command, which is documented in the *TCP/IP-LAT Commands Reference Manual*.

1918 Disabling all initialization records is not allowed.

You cannot disable the primary, secondary, and tertiary initialization records associated with a chassis slot.

1919 Slot *x* is empty

The slot you specified in the command line does not contain a module, or it contains either a Network 9000 Type 1 product or a MAXserver family card. The variable *x* indicates a chassis slot number.

1920 Specified power supply is unmanaged or does not exist.

The power supply number you specified in the command line either does not exist in the chassis, or the power supply is unmanaged, such as a PS/120 power supply.

1921 Specified slot(s) is not responding

This message can appear if the module in the slot you specify is decompressing its software load image, or is too busy to respond before the requestor timed out. This message can also appear if you specify slot 1, which contains the AC Input module, in a chassis management command line.

1922 Can not map segment *x*

The link you specified in a DEFINE CHASSIS SLOT command could not connect to a midplane Ethernet segment. The link can connect to an external network only. See Chapter 3 for information about valid link connections for each Network 9000 Type 2 product.

1930 Initialization record request rejected

A request to change a parameter in an initialization record failed for some reason. This message appears if you attempt to change the link selection on a managed concentrator. Use the initialization configuration menu, product-specific commands, or SNMP to change the link selection on a managed concentrator.

1931 Initialization record request failed

1932 Specified initialization record update is invalid or out of range

1933 Initialization record write failed.

1934 Initialization record number out of range.

Messages 1931, 1932, 1933, and 1934 appear when a request to update parameters in the initialization record of a target slot fails for some reason. The problem may exist in the control of the target slot. If these messages continue to appear, contact your Xyplex representative.

1935 Attempt to reset default values failed.

You attempted to reset the parameters in an initialization record to their default values with the DEFINE CHASSIS SLOT LOADDUMP DEFAULT command, and this command failed for some reason.

1936 Data corrupted - defaults in use

The control storage of a chassis slot became corrupted for some reason. When this happens, the parameters in initialization records revert to their default values.

End of Appendix

Network 9000 Glossary

This glossary defines some commonly used terms in Network 9000 documentation, including this manual. Terms that appear in *italics* are defined elsewhere in the glossary.

ac input module **The AC input module is a Network 9000 I/O module that provides power to the *control storage* of the chassis.**

adapter card **An adapter card is a Network 9000 I/O module that allows you to use *LANbus I cards* in a Network 9000 chassis.**

chassis **A Network 9000 chassis is the physical enclosure that contains the *midplane,* the slots for the *processor modules* and the *I/O modules,* and compartments for *power supplies* and the *AC input module.* Two types of Network 9000 chassis are available: a six-slot chassis with compartments for two power supplies and a fifteen-slot chassis with compartments for five power supplies.**

chassis management commands **Chassis management commands are a set of commands that reference chassis slots and power supplies, and can change the operational link map, the status and parameters of initialization records, and reset processor modules and power supplies. Network managers can use these commands to manage modules locally or remotely, without using the initialization configuration menu.**

configuration menu **see *initialization configuration menu.***

control storage **The chassis provides control storage that contains slot-specific information, as well as the three initialization records for the processor modules in each chassis slot.**

dump file **A dump file is a file that resides on a dump server, which is a host on the network. If a processor module fails for some reason, it sends the contents of its memory to the dump server, which create the dump file. Xyplex field personnel can then analyze the contents of the dump file to diagnose the failure.**

Ethernet **An Ethernet, as defined by the IEEE 802.3 standard, is a type of local area network (LAN). The Network 9000 *midplane* supports three separate Ethernet segments.**

firmware **Firmware is a type of program that resides in read-only memory (ROM). The firmware in a Network 9000 processor module contains an initialization program which begins executing automatically when you power on a processor module.**

flash card ***See memory card.***

initialization configuration menu **An initialization configuration menu is a set of screens which display fields with values for *initialization parameters,* including the link selection, protocols, and the software load image filename. The firmware on the processor module prompts you to accept or change the values in each field. You can then save the changes or reset the parameters to their default values. You can also change these parameters with chassis management commands.**

To start up the initialization configuration menu, follow these steps:

1. **Press the Reset button on the front of the processor module once.**

2. **Press the Reset button again, and hold the button in. With the button held in, observe the front panel lights. The lights should flash in sequence from left to right and then from right to left. At the end of this sequence, release the Reset button. The processor module runs the standard self-test diagnostics, which last about 20 seconds.**

3. **Press the <Return> key a few times at the terminal connected to the port when the self test has completed; the Run light flashes rapidly. This causes the serial port to set the port speed, or baud rate, automatically (autobaud). Once the processor module has selected a port speed, it generates a message similar to this for a terminal server:**

```
Terminal Server, Type xx, Rev x
Ethernet address 08-00-87-xx-xx-xx, port 1
Configuration in progress. Please wait.
```

4. **Enter the password ACCESS (note that there is no prompt). The main initialization configuration menu appears on the screen.**

initialization parameters **Initialization parameters are characteristics that determine how and where the *processor module* obtains the software load image and parameter file it needs to become operational. Initialization parameters reside in an initialization record, and include load and dump protocols, load image filenames, the Internet addresses of gateways and load hosts, and the status of the initialization record.**

initialization record **An initialization record contains a set of *initialization parameters,* and resides is the *control storage* of the chassis. Each slot has three initialization records: primary, secondary, and tertiary. An initialization record can be enabled or disabled. If it is enabled, the processor module can use it to obtain initialization parameters.**

I/O module **An I/O module is a Network 9000 component that provides links to the network and cabling. Terminal servers, LAN bridge/routers, WAN bridge/routers, and managed concentrators consist of a *processor module* and an I/O module. Unmanaged 10BASE-T concentrators consist of an I/O module only.**

LAN **LAN is an acronym for Local Area Network.**

LANbus I card **A LANbus I card is part of the Xyplex MAXserver family of products, including terminal servers, bridges, and routers. The Network 9000 *adapter card* allows you to use LANbus cards in a Network 9000 chassis.**

LIC **A LAN Interface Card (LIC) is a component of the Network 9000 chassis which provides a connection to an external LAN for Ethernet Link 1 on terminal servers and WAN bridge/routers.**

link **A link is a connection to either a *midplane Ethernet segment* or an external network. Different Network 9000 products have different numbers and types of links. For example, a terminal server has one Ethernet link; a WAN bridge/router has one Ethernet link and four WAN links.**

link map **A link map specifies the connections for all the links on a Network 9000 managed concentrator, terminal server, LAN bridge/router,or WAN bridge/router. Network managers can change the link map with chassis management commands or *SNMP*. Network Managers can change the link map on**

link selection **The link selection is a specific connection to either a *midplane Ethernet segment* or an external network that the *processor module* uses to obtain the software load image and parameter file from the network, or to send information to a dump file.**

load image **see *software load image***

local management bus (LMB) **The local management bus (LMB) is a transport system that is part of the chassis midplane. The LMB transports management information among chassis slots, and allows you to monitor the modules in different chassis slots, and the power supplies. The LMB operates automatically, and users do not need to enable or manage it.**

local slot **The local slot is the slot in the chassis holding the processor module where you are logged on.**

memory card **A memory card is a type of media which contains a software load image and, optionally, operational parameters for a Network 9000 processor module. Two types of memory cards exist: "Flash" cards, which are readable and writeable, and can be upgraded to newer versions of software, and "ROM" or "OTP" cards, which are read-only, and cannot be upgraded to newer versions of software. Flash cards may include operational parameters, and ROM cards do not include operational parameters.**

midplane **The midplane is a hardware component in the middle of the Network 9000 chassis. It connects the *processor module* and the *I/O module* of a Network 9000 product. Independent I/O modules also plug into the midplane. The midplane supports three internal Ethernet segments, four Token Ring Segments, and two FDDI segments.**

midplane Ethernet segment **A midplane Ethernet segment is one of the three Ethernet LANs that the Network 9000 supports for managed concentrators, terminal servers, LAN bridge/routers, or WAN bridge/routers.**

Network 9000™ Intra-Networking Hub **A Xyplex Network 9000 Intra-Networking Hub is a family of products and components that includes chassis, processor modules, I/O modules, power supplies, and software. Together, these products provide highly reliable connections to local and remote resources through LAN and WAN links. The Network 9000 Intra-Networking Hub can support many different network configurations, and network managers can adapt it to suit the needs of different users and computing environments.**

operational parameters **Operational parameters are characteristics that determine how a Network 9000 *processor module* operates after initialization. Some operational parameters are specific to each product, and the network manager can change them with commands specific to that product. Others are common to all processor modules in the chassis, such as the *link map*, and a network manager can change them with chassis management commands.**

parameter file **A parameter file is a file which contains the operational characteristics for a processor module. These include the *link map*, the Internet address, security options, services, and port characteristics for terminal servers. Parameter files can reside on a parameter server, which is a host on the network, or a *flash memory card*.**

power supply **A power supply is a component of the Network 9000 chassis which supplies power to the modules in the chassis. The Network 9000 chassis supports two types of power supplies: model PS/130 managed power supplies and model PS/120 unmanaged power supplies. Network managers can configure power supplies for *redundancy*, so that if one power supply fails the others will compensate for the power loss and the modules will continue to operate without interruption.**

processor module **A processor module is a Network 9000 component that includes the central processor for the unit and the operational software and parameters.**

redundancy **Redundancy is the ability of one component in a system to provide alternate support if another component in the system fails. Network 9000 power supplies can provide redundancy to the processor modules and I/O modules in the *chassis*. For example, if two power supplies in a six-slot chassis each provide adequate power to support all the modules in the chassis, one power supply can compensate if the other one fails.**

software load image **A software load image is a program that contains the executable software that makes a processor modules operational. A software load image can reside on a load server, which is a host on the network, another Xyplex product, or a *memory card*.**

SCM **The Single Chip Microcontroller (SCM) provides the interface between certain Network 9000 components and the *local management bus (LMB)*. These components include the AC Input module, processor modules, I/O modules, and managed power supplies.**

SNMP **The Simple Network Management Protocol (SNMP) is a standard Internet protocol that specifies how network management information is carried through the network.**

target slot **A slot that you specify in a chassis management command line, other than the one where you are logged on.**

type 1 option **A Type 1 option is a Network 9000 product or a MAXserver family product which does not support chassis management commands, and has a *link* to midplane Ethernet segment A only.**

type 2 option **A type 2 option consists of a Network 9000 module or module set. Type 2 options support chassis management commands and have *links* that can connect to *midplane Ethernet segment* A, B, or C.**

WAN **WAN is an acronym for Wide Area Network. A Network 9000 WAN Bridge/Router has four WAN links.**