

Enterasys Matrix[®]

N Standalone Series

Installation Guide

2G4072-52



Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

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Part Number: 9033973-04 July 2008

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Federal Communications Commission (FCC) Notice

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NOTE: This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses, generates, and can radiate radio frequency energy and if not installed in accordance with the operator's manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.

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WARNING: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Clase A. Aviso de ITE

ADVERTENCIA: Este es un producto de Clase A. En un ambiente doméstico este producto puede causar interferencia de radio en cuyo caso puede ser requerido tomar medidas adecuadas.

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WARNHINWEIS: Dieses Produkt zählt zur Klasse A (Industriebereich). In Wohnbereichen kann es hierdurch zu Funkstörungen kommen, daher sollten angemessene Vorkehrungen zum Schutz getroffen werden.

Product Safety

This product complies with the following: UL 60950, CSA C22.2 No. 60950, 2006/95/EC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.

Seguridad del Producto

El producto de Enterasys cumple con lo siguiente: UL 60950, CSA C22.2 No. 60950, 2006/95/EC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.

Produktsicherheit

Dieses Produkt entspricht den folgenden Richtlinien: UL 60950, CSA C22.2 No. 60950, 2006/95/EC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.

Electromagnetic Compatibility (EMC)

This product complies with the following: 47 CFR Parts 2 and 15, CSA C108.8, 2004/108/EC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS CISPR 22, VCCI V-3.

Compatibilidad Electromagnética (EMC)

Este producto de Enterasys cumple con lo siguiente: 47 CFR Partes 2 y 15, CSA C108.8, 2004/108/EC, EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR 22, VCCI V-3.

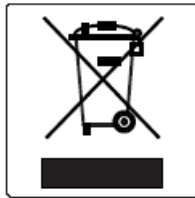
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Hazardous Substances

This product complies with the requirements of European Directive, 2002/95/EC, Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment.

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In accordance with Directive 2002/96/EC of the European Parliament on waste electrical and electronic equipment (WEEE):

1. The symbol above indicates that separate collection of electrical and electronic equipment is required and that this product was placed on the European market after August 13, 2005, the date of enforcement for Directive 2002/96/EC.
2. When this product has reached the end of its serviceable life, it cannot be disposed of as unsorted municipal waste. It must be collected and treated separately.
3. It has been determined by the European Parliament that there are potential negative effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment.
4. It is the users' responsibility to utilize the available collection system to ensure WEEE is properly treated.

For information about the available collection system, please go to www.enterasys.com/support/ or contact Enterasys Customer Support at 353 61 705586 (Ireland).

产品说明书附件

Supplement to Product Instructions

部件名称 (Parts)	有毒有害物质或元素 (Hazardous Substance)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr ⁶⁺)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件 (Metal Parts)	×	○	○	×	○	○
电路模块 (Circuit Modules)	×	○	○	×	○	○
电缆及电缆组件 (Cables & Cable Assemblies)	×	○	○	×	○	○
塑料和聚合物部件 (Plastic and Polymeric parts)	○	○	○	○	○	×
电路开关 (Circuit Breakers)	○	○	×	×	○	○

○： 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。
Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T 11363-2006 standard.

×： 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006 标准规定的限量要求。
Indicates that the concentration of the hazardous substance of at least one of all homogeneous materials in the parts is above the relevant threshold of the SJ/T 11363-2006 standard.

对销售之日的所售产品, 本表显示,

凯创供应链的电子产品信息产品可能包含这些物质。注意: 在所售产品中可能会也可能不会含有所有列出的部件。

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除非另外特别的标注, 此标志为针对所涉及产品的环保使用期标志。某些零部件会有一个不同的环保使用期(例如, 电池单元模块)贴在其产品上。

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This is a class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

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This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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Safety Information

Class 1 Laser Transceivers

**The single mode interface modules use Class 1 laser transceivers.
Read the following safety information before installing or operating these modules.**

The Class 1 laser transceivers use an optical feedback loop to maintain Class 1 operation limits. This control loop eliminates the need for maintenance checks or adjustments. The output is factory set, and does not allow any user adjustment. Class 1 Laser transceivers comply with the following safety standards:

- 21 CFR 1040.10 and 1040.11 U.S. Department of Health and Human Services (FDA).
- IEC Publication 825 (International Electrotechnical Commission).
- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

When operating within their performance limitations, laser transceiver output meets the Class 1 accessible emission limit of all three standards. Class 1 levels of laser radiation are not considered hazardous.

When the connector is in place, all laser radiation remains within the fiber. The maximum amount of radiant power exiting the fiber (under normal conditions) is -12.6 dBm or 55×10^{-6} watts.

Removing the optical connector from the transceiver allows laser radiation to emit directly from the optical port. The maximum radiance from the optical port (under worst case conditions) is 0.8 W cm^{-2} or $8 \times 10^3 \text{ W m}^2 \text{ sr}^{-1}$.

Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

Declaration of Conformity

Application of Council Directive(s): **2004/108/EC
2006/95/EC**

Manufacturer's Name: **Enterasys Networks, Inc.**

Manufacturer's Address: **50 Minuteman Road
Andover, MA 01810
USA**

European Representative Address: **Enterasys Networks, Ltd.
Nexus House, Newbury Business Park
London Road, Newbury
Berkshire RG14 2PZ, England**

Conformance to Directive(s)/Product Standards: **EC Directive 2004/108/EC
EN 55022
EN 61000-3-2
EN 61000-3-3
EN 55024
EC Directive 2006/95/EC
EN 60950
EN 60825**

Equipment Type/Environment: **Networking Equipment, for use in a Commercial
or Light Industrial Environment.**

Enterasys Networks, Inc. declares that the equipment packaged with this notice conforms to the above directives.

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Preface

This guide provides an overview, installation and troubleshooting instructions, and specifications for the Enterasys Matrix® N Standalone (NSA) Series 2G4072-52. For information about the CLI (Command Line Interface) set of commands used to configure and manage the 2G4072-52, refer to the *Enterasys Matrix N Standalone Series Configuration Guide*.

Important Notice

Depending on the firmware version used in the Enterasys Matrix N SA, some features described in this document may not be supported. Refer to the Release Notes shipped with the Enterasys Matrix N SA to determine which features are supported.

Who Should Use This Guide



Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

This guide is intended for a network administrator responsible for installing and setting up the 2G4072-52.

Structure of This Guide

This preface provides an overview of this guide, explains the symbols used throughout this guide, and instructs how to obtain technical support from Enterasys Networks.

This guide provides information about the following:

For...	Refer to...
An overview of the 2G4072-52	Chapter 1, Introduction
Network requirements that must be met before installing the 2G4072-52	Chapter 2, Network Requirements
Installation instructions for the 2G4072-52 hardware	Chapter 3, Installation
Troubleshooting installation problems and diagnosing network/operational problems using the LANVIEW LEDs	Chapter 4, Troubleshooting
Specifications, environmental requirements, and physical properties of the 2G4072-52 and Mini-GBICs	Appendix A, Specifications
Instructions to set the mode switches when necessary and to remove and replace DIMM and DRAM SIMM memory	Appendix B, Mode Switch Bank Settings and Optional Installations

Related Documents

The manuals listed below can be obtained from the World Wide Web in Adobe Acrobat Portable Document Format (PDF) at the following site:

<http://www.enterasys.com/support/manuals>

- *Enterasys Matrix N Standalone Series Configuration Guide* provides information on how to use the Command Line Interface to set up and manage the DFE modules.
- *Cabling Guide* provides information on dB loss and cable specifications.

Unlike the *Enterasys Matrix N Standalone Series Configuration Guide*, the *Cabling Guide* is not listed alphabetically on the web site. Instead, it is listed under the *Overview Guides* link.

Document Conventions

This guide uses the following conventions:

blue type Indicates a hypertext link. When reading this document online, click the text in blue to go to the referenced figure, table, or section.



Note: Calls the reader's attention to any item of information that may be of special importance.



Caution: Contains information essential to avoid damage to the equipment.

Precaución: Contiene información esencial para prevenir dañar el equipo.

Achtung: Verweist auf wichtige Informationen zum Schutz gegen Beschädigungen.



Warning: Warns against an action that could result in personal injury or death.

Advertencia: Advierte contra una acción que pudiera resultar en lesión corporal o la muerte.

Warnhinweis: Warnung vor Handlungen, die zu Verletzung von Personen oder gar Todesfällen führen können!



Electrical Hazard: Warns against an action that could result in personal injury or death.

Riesgo Electrico: Advierte contra una acción que pudiera resultar en lesión corporal o la muerte debido a un riesgo eléctrico.

Elektrischer Gefahrenhinweis: Warnung vor sämtlichen Handlungen, die zu Verletzung von Personen oder Todesfällen – hervorgerufen durch elektrische Spannung – führen können!

Getting Help

For additional support related to the module or this document, contact Enterasys Networks using one of the following methods:

World Wide Web	www.enterasys.com/services/support/
Phone	1-800-872-8440 (toll-free in U.S. and Canada) or 1-978-684-1000 For the Enterasys Networks Support toll-free number in your country: www.enterasys.com/services/support/contact/
Internet mail	support@enterasys.com To expedite your message, type [SWITCHING] in the subject line.

To send comments concerning this document to the Technical Publications Department:
techpubs@enterasys.com

Please include the document Part Number in your email message.

Before contacting Enterasys Networks for technical support, have the following information ready:

- Your Enterasys Networks service contract number
- A description of the failure
- A description of any action(s) already taken to resolve the problem (for example, changing mode switches, rebooting the unit)
- The serial and revision numbers of all involved Enterasys Networks products in the network
- A description of your network environment (for example, layout and cable type)
- Network load and frame size at the time of trouble (if known)
- The device history (for example, have you returned the device before, is this a recurring problem)
- Any previous Return Material Authorization (RMA) numbers

Introduction

This chapter provides an overview of the Enterasys Matrix N Standalone (NSA) Series 2G4072-52 capabilities.

Overview of Enterasys Matrix N Standalone (NSA) Series Capabilities

The 2G4072-52 provides robust functionality, including the following:

- Superior performance and capacity to support more high-bandwidth and latency sensitive applications
- 10/100/1000 Base-TX and 10 Gigabit Ethernet connectivity
- Integrated Services Design that reduces the number/type of modules required, simplifies network design, and lowers entry cost
- Port- and User-Based Policy and Multilayer Packet Classification that provides granular control and security for business-critical applications
- High-availability services with stateful failover for services and management
- Self-learning configuration modules with increased reliability and fault tolerance that reduces configuration time and maximizes uptime
- Network-wide configuration, change, and inventory management that is easier to install, troubleshoot, and maintain
- Reduced support and maintenance costs, and decreased configuration time
- Support for a variety of converged applications including VoIP with Power-over-Ethernet

The 2G4072-52

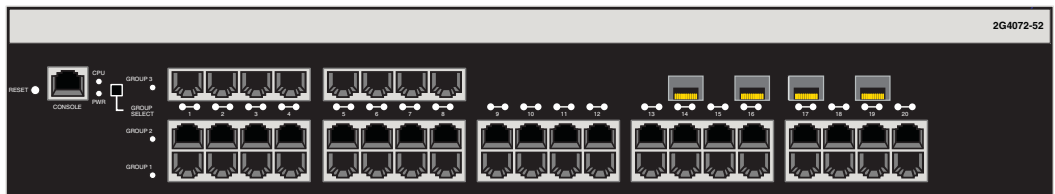
This section provides an overview of the Enterasys Matrix N SA 2G4072-52. For information about software features of the 2G4072-52 and how to configure them, refer to the *Enterasys Matrix N Standalone Series Configuration Guide*.

2G4072-52

The Enterasys Matrix N SA 2G4072-52 has 48, 10/100/1000BASE-T/-TX compliant ports, through fixed front panel RJ45 connectors and 4 Mini-GBIC ports, as shown in [Figure 1-1](#). Each of the fixed front panel ports can operate in either half-duplex or full-duplex mode which can be determined by either auto-negotiation or manual configuration.

Enterasys Matrix N SA 2G4072-52 ports can be configured to control traffic by limiting its rate and prioritizing it to expedite higher priority flows through the device.

Figure 1-1 2G4072-52 Front Panel



Connectivity

Depending on how the 2G4072-52 is configured, it can support up to 48, 10BASE-T/100BASE-TX switched ports connected through the front panel connectors.

Management

Management of the device can be either in-band or out-of-band. In-band remote management is possible using Telnet, Enterasys Networks' NetSight[®] management application, or WebView[™] application. Out-of-band management is provided through the RJ45 COM (Communication) port on the front panel using a VT100 terminal or a VT100 terminal emulator.

Switch Configuration Using WebView

Enterasys Networks' HTTP-based Web management application (WebView) is an intuitive web tool for simple management tasks.

Switch Configuration Using CLI Commands

CLI commands enable you to perform more complete switch configuration management tasks. For CLI command set information and how to configure the device, refer to the *Enterasys Matrix N Standalone Series Configuration Guide*.

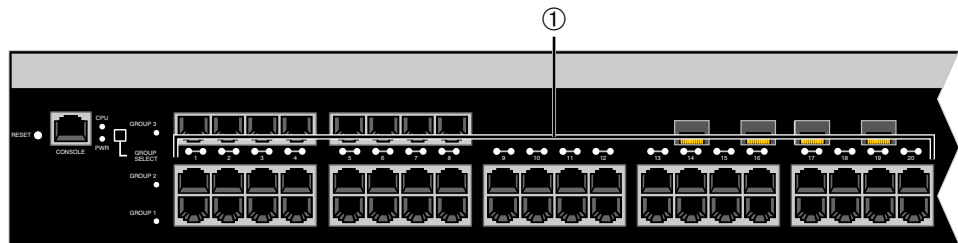
Standards Compatibility

The Enterasys Matrix N SA 2G4072-52 is fully compliant with the IEEE 802.3-2002, 802.3ae-2002, 802.1D-1998, and 802.1Q-1998 standards. It provides IEEE 802.1D-1998 Spanning Tree Algorithm (STA) support to enhance the overall reliability of the network and protect against “looping” conditions.

LANVIEW Diagnostic LEDs

LANVIEW diagnostic LEDs, as shown in [Figure 1-2](#), serve as an important troubleshooting aid by providing an easy way to observe the status of individual ports and overall network operations.

Figure 1-2 LANVIEW LEDs



1 LANVIEW LEDs

Network Requirements

Before installing the module, review the requirements and specifications referred to in this chapter concerning the following:

For information about...	Refer to page...
Link Aggregation	2-1
10BASE-T Network	2-2
100BASE-TX Network	2-2
1000BASE-SX/SX+/LX Network	2-2
1000BASE-T Network	2-2

The network installation must meet the requirements to ensure satisfactory performance of this equipment. Failure to do so will produce poor network performance.



Note: The *Enterasys Matrix N Standalone Series Configuration Guide* and the *Cabling Guide* referred to in the following sections can be found on the Enterasys Networks World Wide Web site: <http://www.enterasys.com/>

Link Aggregation

Link Aggregation is a method of grouping multiple physical ports on a network device into one logical link according to the IEEE 802.3ad-2002 standard. Because Link Aggregation is standards based, it permits automatic configuration with manual overrides (if applicable), and can operate on 10 Mbps, 100 Mbps, or 1000 Mbps Ethernet full duplex ports. So, you can combine a group of five 100 Mbps ports in a logical link (trunk) that functions as a single 500 Mbps port. As long as the 2G4072-52 accepts which ports are in the trunk, there are no problems with looping, and the Spanning Tree can treat this trunk as a single port.

In normal usage (and typical implementations) there is no need to enable/disable ports for Link Aggregation. The default values will result in the maximum number of aggregations possible. If the switch is placed in a configuration with its peers not running the protocol, no aggregations will be formed and the 2G4072-52 will function normally (that is, Spanning Tree will block redundant paths).

For details about the commands involved with configuring the Link Aggregation function, refer to the *Enterasys Matrix N Standalone Series Configuration Guide*.

10BASE-T Network

When connecting a 10BASE-T segment to any RJ45 front panel ports of the 2G4072-52, ensure that the network meets the Ethernet network requirements of the IEEE 802.3-2002 standard for 10BASE-T. Refer to the *Cabling Guide* for details.



Note: If a port operates at 100 Mbps, Category 5 cabling must be used. Category 3 cabling does not meet 100 Mbps specifications. For 10 Mbps operations *only*, Category 3 or Category 5 cabling can be used.

100BASE-TX Network

The RJ45 front panel ports provide a connection that supports Category 5 UTP cabling. The device at the other end of the twisted pair segment must meet IEEE 802.3-2002 100BASE-TX Fast Ethernet network requirements for the devices to operate at 100 Mbps. Refer to the *Cabling Guide* for details.



Note: The RJ45 ports support Category 5 UTP cabling with an impedance between 85 and 111 ohms for 100 Mbps operation.

The 2G4072-52 is capable of operating at either 10 or 100 Mbps. It automatically senses the speed of the connected device and adjusts its speed accordingly.

1000BASE-SX/SX+/LX Network

The four Mini-GBICs provide Gigabit Ethernet fiber-optic connections operating at 1000 Mbps (1 Gbps). Other Mini-GBICs may support different types of cabling connections. The device at the other end of the fiber-optic connection must meet IEEE 802.3-2002 Gigabit Ethernet requirements for the devices to operate at Gigabit speed. Refer to [Appendix A](#) for Mini-GBIC specifications.

1000BASE-T Network

The 2G4072-52's 48 ports support 10/100/1000 Mbps through RJ45 front panel connectors. These links accommodate copper wire connections that can operate up to 1000 Mbps. The device at the other end of the twisted pair segment must meet IEEE 802.3-2002 10/100/1000BASE-T network requirements for the devices to operate at Gigabit speed.



Note: The 48 ports of the device support Category 5 UTP cabling with an impedance between 85 and 111 ohms for 100 and 1000 Mbps operation.

Ports 1 through 48 can operate at either 10, 100, or 1000 Mbps. The device automatically senses the speed of the connected device and adjusts its speed accordingly.

Installation

This chapter provides the instructions to install the 2G4072-52.

A Phillips screwdriver is required only to attach two optional rack-mounting brackets on the 2G4072-52. Follow the order of the sections listed below for correct installation:

For information about...	Refer to page...
Unpacking the 2G4072-52	3-1
Rack Mounting	3-2
Connecting Power	3-4
Connecting to the Network	3-5
Connecting to the COM Port for Local Management	3-13
Completing the Installation	3-18

Important Notice

Read the Release Notes shipped with the 2G4072-52 to check for any exceptions to the supported features and operation documented in this guide.

Unpacking the 2G4072-52

Unpack the 2G4072-52 as follows:

1. Open the box and remove the packing material protecting the Enterasys Matrix N SA 2G4072-52.
2. Open the accessory kit and remove the power cord, rack-mount ears, screws, DB9 to RJ45 converter, and adhesive feet (for desk-top placement).
3. Verify the contents of the carton as listed in the table below.

Table 3-1 Contents of 2G4072-52

Item
Matrix N Standalone Series 2G4072-52
Accessory Kit including: power cord, rack-mount ears, eight M4 x 6 mm flathead screws, DB9 to RJ45 converter, and adhesive feet
Installation Guide
Release Notes

- Inspect the Enterasys Matrix N SA 2G4072-52 for any signs of physical damage. Contact Enterasys Networks if it is damaged. Refer to “[Getting Help](#)” on page xviii for details.

Rack Mounting

The installation site must be within reach of the network cabling and meet the requirements listed below:

- Appropriate grounded power receptacles must be located within 7 feet of the site.
- A temperature of between 5°C (41°F) and 40°C (104°F) must be maintained at the installation site with fluctuations of less than 10°C (18°F) per hour.



Caution: To ensure proper ventilation and prevent overheating, leave a minimum clearance space of 5.1 cm (2.0 in.) at the left, right, and rear of the device.

Precaución: Para asegurar una buena ventilación y evitar que el sistema se sobrecaliente, deje un espacio mínimo de 5.1 cm (2 pulgadas) con respecto a los lados y a la parte posterior del aparato.



Warning: Before rack-mounting the device, ensure that the rack can support it without compromising stability. Otherwise, personal injury and/or equipment damage may result.

Advertencia. Antes de montar el equipo en el rack, asegurarse que el rack puede soportar su peso sin comprometer su propia estabilidad, de otra forma, daño personal o del equipo puede ocurrir.

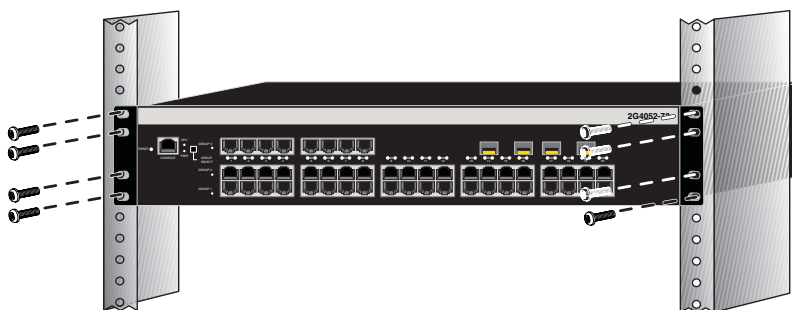
Warnhinweis: Überzeugen Sie sich vor dem Einbau des Gerätes in das Rack von dessen Stabilität, ansonsten könnten Personenschäden oder Schäden am Gerät die Folge sein.

The Enterasys Matrix N SA 2G4072-52 can be mounted in a standard 19-inch rack with the two ears provided in the carton. The procedure is as follows:

- With four of the supplied M4 x 6 mm flathead screws, attach an ear to the side of the Enterasys Matrix N SA 2G4072-52 as shown in [Figure 3-1](#). Repeat the procedure for the other ear.

Figure 3-1 Attaching Rack-mount Ears to Enterasys Matrix N SA 2G4072-52

2. Position the Enterasys Matrix N SA 2G4072-52 in the rack and attach to the rack as shown in [Figure 3-2](#).

Figure 3-2 Mounting Enterasys Matrix N SA 2G4072-52 to Rack

Connecting Power

To connect the module to the power sources, refer to [Figure 3-3](#) and proceed as follows.

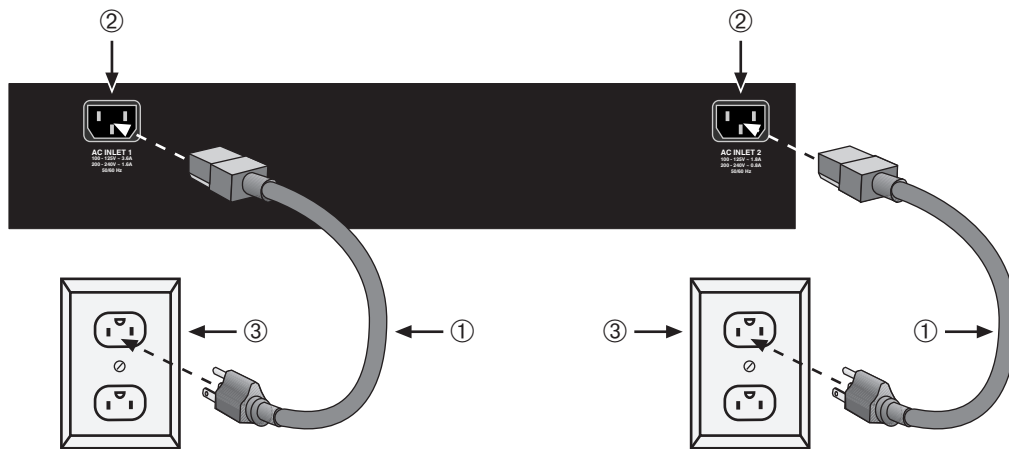


Note: The two power supplies in the module have automatic voltage sensing that allows connection to power sources ranging from 100–125 Vac, 2.5 A or 200–240 Vac, 1.25 A, 50/60 Hz.

To connect the module to the power sources, refer to [Figure 3-3](#) and proceed as follows:

1. Plug a power cord into each switch AC power receptacle. To take advantage of redundancy capabilities, plug each power cord into a separate dedicated AC outlet.
2. Plug the cord into a dedicated grounded AC outlet as shown in [Figure 3-3](#).

Figure 3-3 Connecting Power



1 AC power cords

2 AC power outlets

3 AC power receptacles

3. Observe the LANVIEW LEDs. The Power (PWR) LED (not shown), located on the front panel, turns ON (green) and the CPU turns red until the module completes its initialization. It takes under 30 seconds for the module to boot up.



Note: If the power-up sequence is interrupted on this device, or if optional hardware has been installed or removed, this device may run an extended diagnostics sequence that may take up to two minutes to complete.

If the initialization process is successful, the CPU LED turns green. If the CPU LED does not turn green, refer to [Chapter 4](#) for troubleshooting information.

Connecting to the Network

This section provides the procedures for connecting unshielded twisted pair (UTP) segments from the network or other devices to the 2G4072-52. For connections to Mini-GBIC ports, refer to [page 3-9](#).



Note: If the Enterasys Matrix N SA 2G4072-52 is being installed in a network using Link Aggregation, there are rules concerning the network cable and port configurations that must be followed for Link Aggregation to operate properly. Before connecting the cables, refer to the *Enterasys Matrix N Standalone Series Configuration Guide* for the configuration information. For details on how to obtain manuals, refer to “[Related Documents](#)” on page xvi.

Connecting UTP Cables

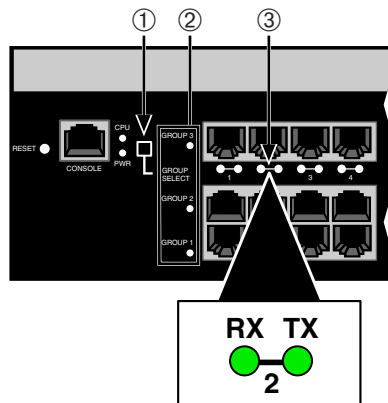
The fixed RJ45 front panel connections of the 2G4072-52 are 10/100/1000 Mbps ports. They have internal crossovers and support automatic-polarity sensing which eliminates the need for a crossover cable, regardless if the connection is to another network device or a workstation.



Note: All RJ45 front panel ports on the 2G4072-52 support Category 5 Unshielded Twisted Pair (UTP) cabling with an impedance between 85 and 111 ohms. You can use Category 3 cable only for 10 Mbps connections.

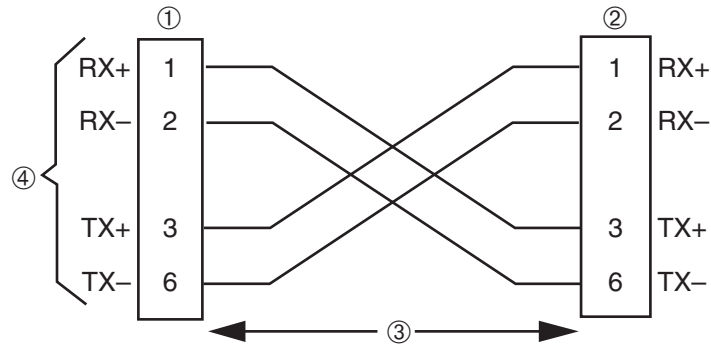
In this procedure, the 2G4072-52 is used as the example to connect a twisted pair segment to the device, as shown in [Figure 3-4](#).

1. Ensure that the device connected to the other end of the segment is powered ON.
2. Connect the twisted pair segment to the device by inserting the RJ45 connector on the twisted pair segment into the appropriate RJ45 port connector.

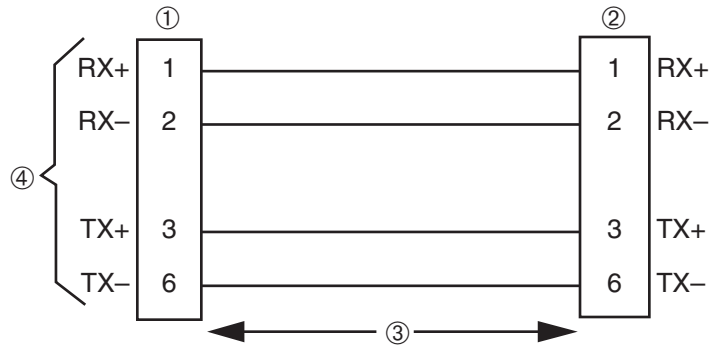
Figure 3-4 Connecting a Twisted Pair Segment to the 2G4072-52

- 1 RJ45 connector 2 RJ45 port connector 3 GROUP SELECT button

3. Verify that a link exists by checking that the port RX (Receive) LED is ON (flashing amber, blinking green, or solid green). If the RX LED is OFF and the TX (Transmit) LED is not blinking amber, perform the following steps until it is on:
 - a. To view the receive and transmit activity on a group of segments, press the GROUP SELECT button (see [Figure 3-4](#)) to step to the group of interest (Groups 1 through 3). Each time the button is pressed, the GROUP LED lights up in sequence, indicating the selected Group. Receive and transmit activity for that group of segments is then indicated by the RX and TX LEDs for each segment.
 - b. Verify that cabling is Category 5 UTP with an impedance between 85 and 111 ohms. If the port is to operate at 100 Mbps, Category 5 cabling must be used.
 - c. Verify that the device at the other end of the twisted pair segment is on and properly connected to the segment.
 - d. Verify that the RJ45 connectors on the twisted pair segment have the proper pinouts and check the cable for continuity. Typically, a crossover cable is used between hub devices. A straight-through cable is used to connect between switches or hub devices and an end user (computer). Refer to [Figure 3-5](#) and [Figure 3-6](#) for four-wire RJ45 connections. Refer to [Figure 3-7](#) and [Figure 3-8](#) for eight-wire RJ45 connections.

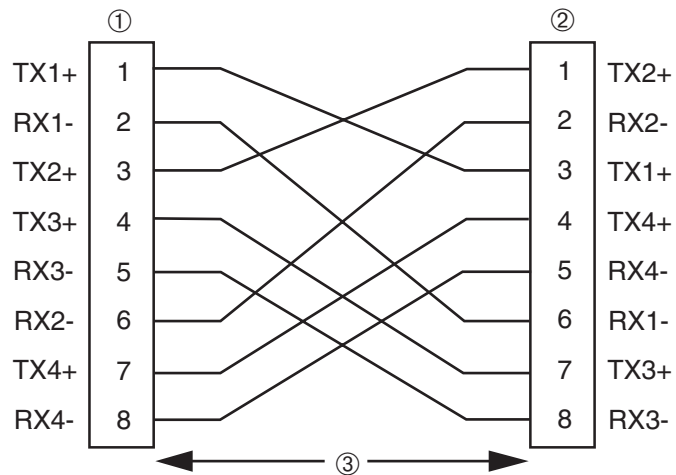
Figure 3-5 Crossover Four-Wire Cable RJ45 Pinouts

- | | | | |
|---|-------------------|---|--|
| 1 | RJ45 device port | 3 | RJ45-to-RJ45 crossover cable |
| 2 | Other device port | 4 | RX+/RX- and TX+/TX- connections (must share a common color pair) |

Figure 3-6 Straight-Through Four-Wire Cable RJ45 Pinouts

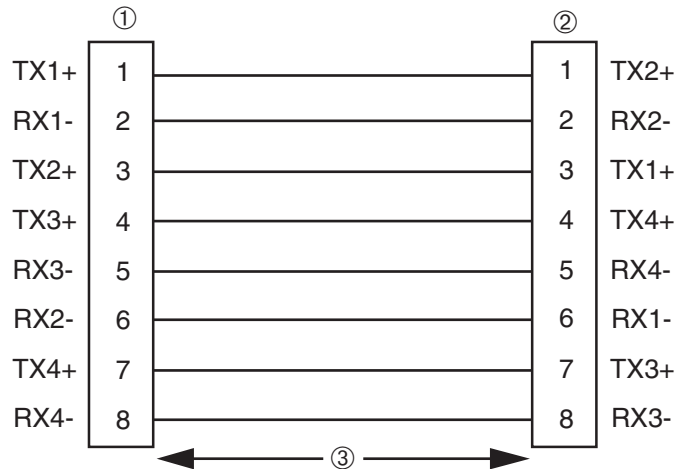
- | | | | |
|---|-------------------|---|--|
| 1 | RJ45 device port | 3 | RJ45-to-RJ45 straight-through cable |
| 2 | Other device port | 4 | RX+/RX- and TX+/TX- connections (must share a common color pair) |

Figure 3-7 Eight-Wire Crossover Cable RJ45 Pinouts



1 RJ45 device port **2** Other device port **3** RJ45-to-RJ45 crossover cable

Figure 3-8 Eight-Wire Straight-Through Cable RJ45 Pinouts



1 RJ45 device port **2** Other device port **3** RJ45-to-RJ45 straight-through cable

- e. Ensure that the twisted pair connection meets the dB loss and cable specifications outlined in the *Cabling Guide*. Refer to “[Related Documents](#)” on page xvi for information on obtaining this document.

If a link is not established, contact Enterasys Networks. Refer to “[Troubleshooting](#)” on page 4-1 for details.

4. Repeat steps 1 through 3 above, until all connections have been made.

Connecting Fiber-Optic Cables to Mini-GBICs

This section describes connecting 1-Gigabit Ethernet fiber-optic segments from the network or other devices to Mini-GBIC MT-RJ or LC port connectors in the Enterasys Matrix N SA 2G4072-52.

Each fiber-optic link consists of two fiber-optic strands within the cable: Transmit (TX) and Receive (RX).

The transmit strand from a module port connects to the receive port of a fiber-optic Gigabit Ethernet device at the other end of the segment. The receive strand of the applicable MT-RJ port on the module connects to the transmit port of the fiber-optic Gigabit Ethernet device (shown in [Figure 3-9](#)) or LC cable connector (shown in [Figure 3-10](#) and [Figure 3-11](#)).

The procedure below describes how to connect an MT-RJ cable ([Figure 3-9](#)) connector to a Mini-GBIC port connector. This procedure also applies to an LC cable connector shown in ([Figure 3-10](#) and [Figure 3-11](#)). Refer to [Figure 3-9](#) as an example and proceed as follows:

1. Remove the protective covers (not shown) from the MT-RJ fiber-optic port on the Mini-GBIC and from the connectors on each end of the cable.



Note: Leave the protective covers in place when the connectors are not in use to prevent contamination.



Caution: Do not touch the ends of the fiber-optic strands, and do not let the ends come in contact with dust, dirt, or other contaminants. Contamination of cable ends causes problems in data transmissions. If the ends of the fiber-optic strands become contaminated, use a canned duster to blow the surfaces clean. A cleaning swab saturated with optical-grade isopropyl alcohol may also be used to clean the ends.

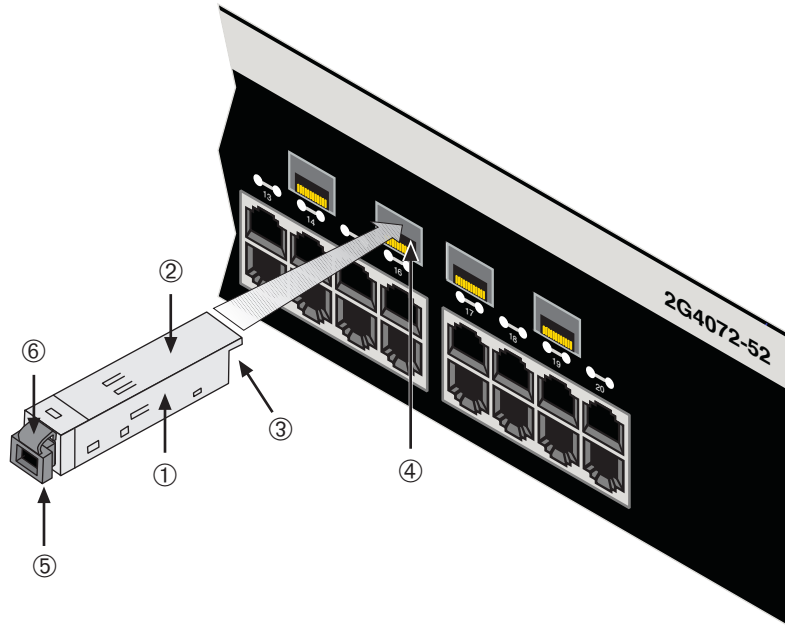
Precaución: No toque los extremos de los cables de fibra óptica y evite su contacto con el polvo, la suciedad o con cualquier otro contaminante. Si los extremos de los cables se ensucian, es posible que la transmisión de datos se vea afectada. Si nota que los extremos de los cables de fibra óptica se ensucian, utilice aire comprimido para limpiarlos. También puede limpiarlos con un estropajo embebido en alcohol isopropílico.

2. Insert the MT-RJ cable connector into the Mini-GBIC until it clicks into place.

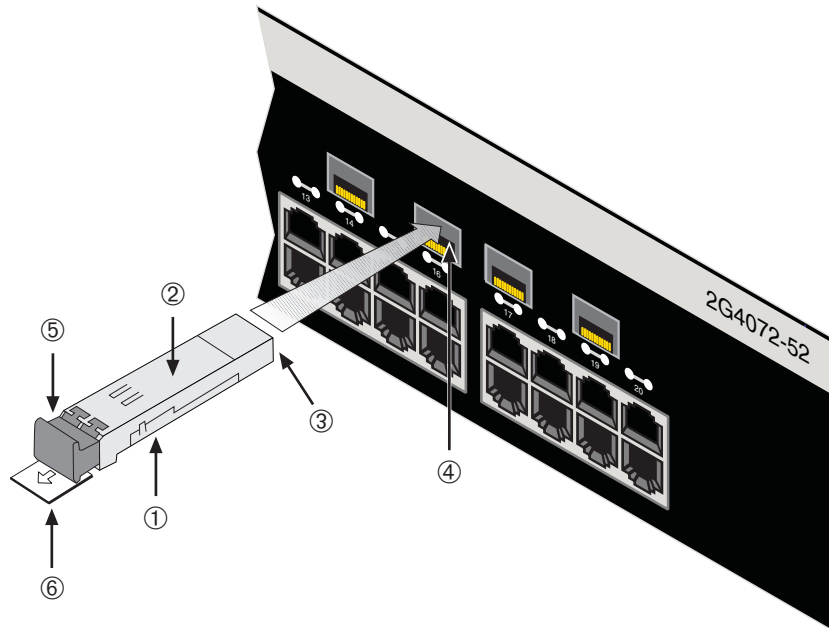


Note: To remove the MT-RJ cable connector, press on its release tab and pull it out of the Mini-GBIC.

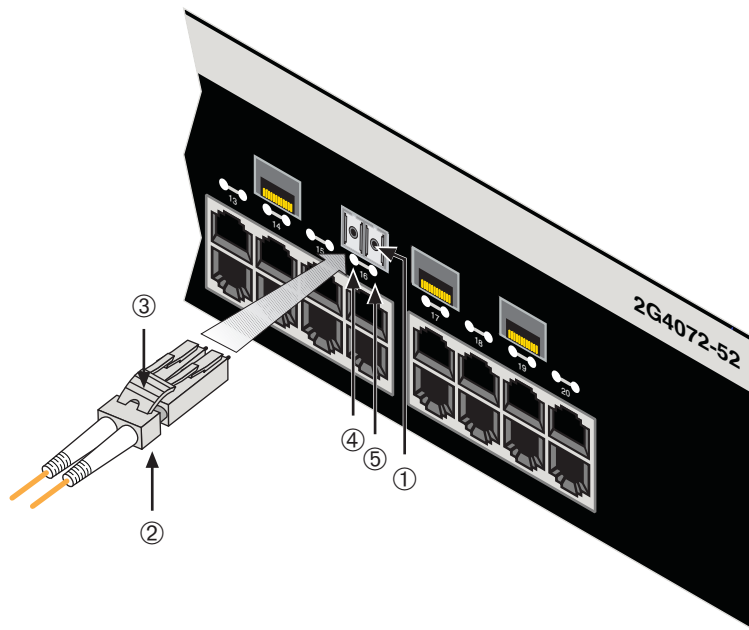
Figure 3-9 Cable Connection to MT-RJ Fiber-Optic Connectors



- | | |
|---|------------------------------------|
| 1 Mini-GBIC (MGBIC-MT01) | 4 Port slot |
| 2 Mini-GBIC, top side | 5 Mini-GBIC, protective dust cover |
| 3 7-Pin edge connector (insertion side) | 6 Release tab |

Figure 3-10 Cable Connection to LC01 or LC09 Fiber-Optic Connectors

- | | |
|---|------------------------------------|
| 1 Mini-GBIC (MGBIC-LC01 or -LC09) | 4 Port slot |
| 2 Mini-GBIC, top side | 5 Mini-GBIC, protective dust cover |
| 3 7-Pin edge connector (insertion side) | 6 Release tab |

Figure 3-11 Cable Connection to LC03 Fiber-Optic Connectors

- | | | |
|---|----------------------------|---------------------------|
| 1 Port slot | 3 Release tab | 5 Receive LED (TX) |
| 2 Mini-GBIC-LC03 cable connector | 4 Transmit LED (RX) | |

3. Verify a link exists by checking that the port RX LED is on (flashing amber, blinking green, or solid green). If the RX LED is off, perform the following steps until it is on:
 - a. Verify the device at the other end of the segment is ON and linked to the segment.
 - b. If there are separate fiber-optic connections on the other device, check the crossover of the cables. Swap the cable connections if necessary.
 - c. Check that the fiber-optic connection meets the dB loss and cable specifications outlined in the *Cabling Guide* for multimode fiber-optic cabling. To obtain this document, refer to [“Related Documents”](#) on page xvi.

If a link has not been established, refer to [Chapter 4](#) for LED troubleshooting details. If a problem persists, refer to [“Getting Help”](#) on page xviii for support.

4. Repeat steps 1 through 3, above, until all connections have been made.
5. Plug the other end of the cable into the appropriate port on the other device. Some cables may be terminated at the other end with two separate connectors, one for each fiber-optic strand. In this case, ensure that the transmit fiber-optic strand is connected to the receive port and the receive fiber-optic strand to the transmit port.

Connecting to the COM Port for Local Management

This section describes how to install a UTP cable with RJ45 connectors and optional adapters to connect a PC, VT series terminal, or modem to an Enterasys Networks device to access Local Management. This section also details adapter pinout assignments.

What Is Needed

The following is a list of the parts that may be needed depending on the connection:

- RJ45-to-DB9 female adapter (supplied in accessory kit)
- UTP cable with RJ45 connectors (user-supplied)
- RJ45-to-DB25 female adapter (user-supplied)
- RJ45-to-DB25 male adapter (user-supplied)

With a UTP cable with RJ45 connectors and RJ45-to-DB9 adapter, you can connect products equipped with an RJ45 COM port to an IBM or compatible PC running a VT series emulation software package.

With a UTP cable and an optional RJ45-to-DB25 female adapter, you can connect products equipped with an RJ45 COM port to a VT series terminal or VT type terminals running emulation programs for the VT series.

With a UTP cable and an optional RJ45-to-DB25 male adapter, you can connect products equipped with an RJ45 COM port to a Hayes compatible modem that supports 9600 baud.

Connecting to an IBM PC or Compatible Device

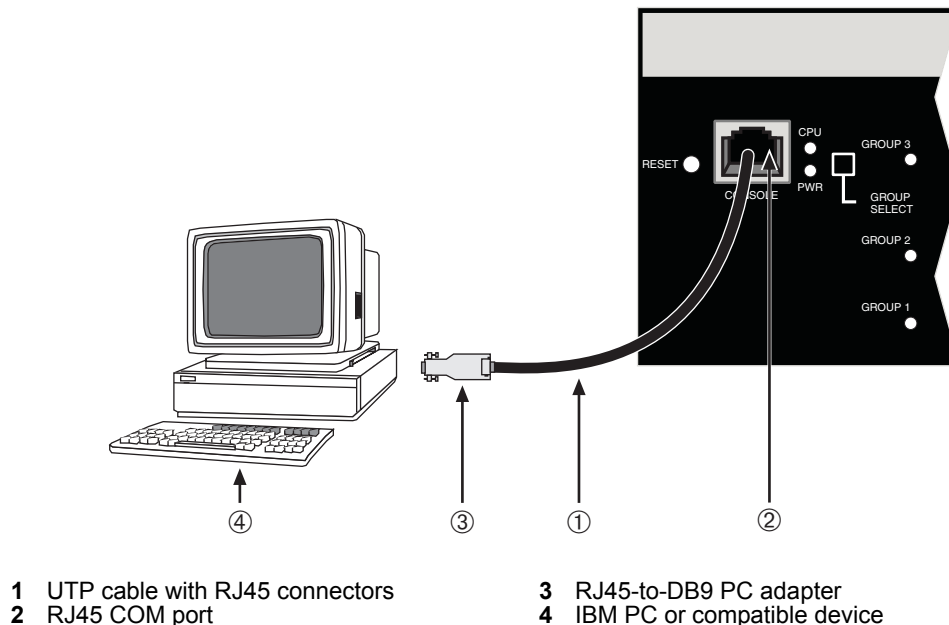
To connect an IBM PC or compatible device, running the VT terminal emulation, to an Enterasys Networks device COM port ([Figure 3-12](#)), proceed as follows:

1. Connect the RJ45 connector at one end of the cable to the communications COM (Console) port on the Enterasys Networks device.
2. Plug the RJ45 connector at the other end of the cable into an **optional** RJ45-to-DB9 adapter.
3. Connect the RJ45-to-DB9 adapter to the communications port on the IBM PC.
4. Turn on the PC and configure your VT emulation package with these parameters:

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

5. When these parameters are set, the Local Management password screen will display. Refer to the appropriate *Enterasys Matrix N Standalone Series Configuration Guide* for further information.

Figure 3-12 Connecting an IBM PC or Compatible



Connecting to a VT Series Terminal

To connect a VT Series terminal to a Enterasys Matrix N SA 2G4072-52 COM port (Figure 3-13), use a UTP cable with RJ45 connectors and an **optional** RJ45-to-DB25 female adapter. Proceed as follows:

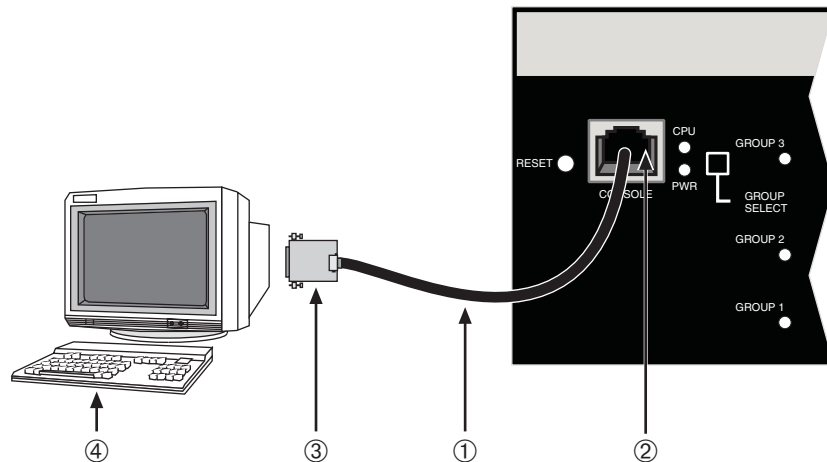
1. Connect the RJ45 connector at one end of the cable to the COM port on the Enterasys Networks device.
2. Plug the RJ45 connector at the other end of the cable into the RJ45-to-DB25 female adapter.
3. Connect the RJ45-to-DB25 adapter to the port labeled COMM on the VT terminal.

- Turn on the terminal and access the Setup Directory. Set the following parameters:

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

When these parameters are set, the Local Management password screen will display. Refer to the *Enterasys Matrix N Standalone Series Configuration Guide* for further information.

Figure 3-13 Connecting a VT Series Terminal



- | | |
|----------------------------------|---------------------------|
| 1 UTP cable with RJ45 connectors | 3 RJ45-to-DB25 VT adapter |
| 2 RJ45 COM port | 4 VT series terminal |

Connecting to a Modem

To connect a modem to the device COM port ([Figure 3-14](#)), use a UTP cable with RJ45 connectors and an **optional** RJ45-to-DB25 male adapter, and proceed as follows:

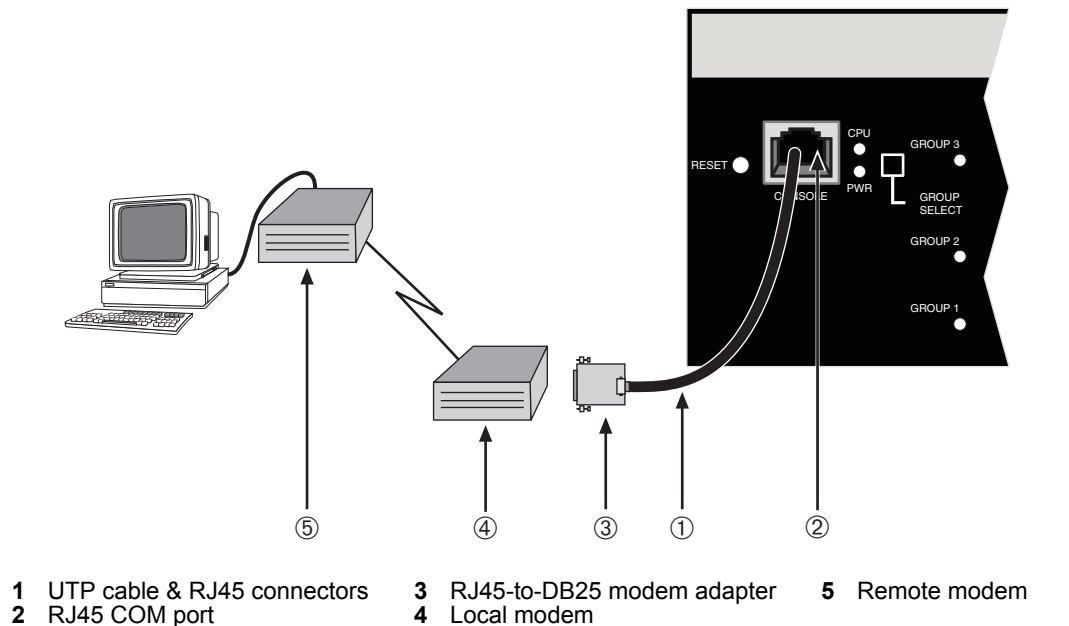
- Connect the RJ45 connector at one end of the cable to the COM port of the module.
- Plug the RJ45 connector at the other cable end into the RJ45-to-DB25 modem adapter.
- Connect the RJ45-to-DB25 adapter to the communications port on the modem.

4. Turn on the modem.
5. With a PC connected to a remote modem, you can configure the switch remotely. To do so, you must configure your PC VT emulation package with these parameters.

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

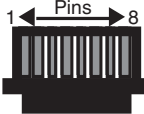
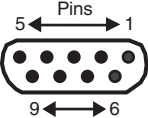
6. When these parameters are set, the Local Management password screen will display. Refer to the *Enterasys Matrix N Standalone Series Configuration Guide* for further information.

Figure 3-14 Connecting to a Modem

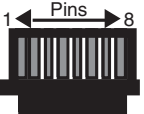
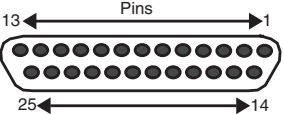


Adapter Wiring and Signal Assignments

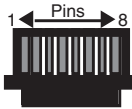
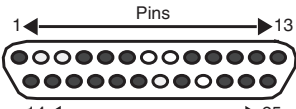
COM Port Adapter Wiring and Signal Diagram			
RJ45		DB9	
Pin	Conductor	Pin	Signal
1	Blue	2	Receive (RX)
4	Red	3	Transmit (TX)
5	Green	5	Ground (GRD)
2	Orange	7	Request to Send (RTS)
6	Yellow	8	Clear to Send (CTS)

 <p>RJ45 Connector (Female)</p>	 <p>DB9 Connector (Female)</p>
--	--

VT Series Port Adapter Wiring and Signal Diagram			
RJ45		DB25	
Pin	Conductor	Pin	Signal
4	Red	2	Transmit (TX)
1	Blue	3	Receive (RX)
6	Yellow	5	Clear to Send (CTS)
5	Green	7	Ground (GRD)
2	Orange	20	Data Terminal Ready

 <p>RJ45 Connector (Female)</p>	 <p>DB25 Connector (Female)</p>
--	---

Modem Port Adapter Wiring and Signal Diagram			
RJ45		DB25	
Pin	Conductor	Pin	Signal
1	Blue	2	Transmit (TX)
2	Orange	8	Data Carrier Detect (DCD)
4	Red	3	Receive
5	Green	7	Ground (GRD)
6	Yellow	20	Data Terminal Ready (DTR)
8	Gray	22	Ring Indicator

 <p>RJ45 Connector (Female)</p>	 <p>DB25 Connector (Male)</p>
--	---

Completing the Installation

After installing the Enterasys Matrix N SA 2G4072-52 and making the connections to the network, access the device management startup screen from your PC, terminal, or modem connection as described in the following section.

Log-In Using a Console Port Connection



Note: This procedure applies only to initial log-in and to logging in to a device not yet configured with administratively-supplied user and password settings.

By default, the Matrix N Standalone Series device is configured with three user login accounts: **ro** for Read-Only access; **rw** for Read-Write access; and **admin** for super-user access to all modifiable parameters. The default password is set to blank (carriage return). For information on changing these default passwords, refer to Chapter 3 in the *Enterasys Matrix N Standalone Series Configuration Guide*.

Start the Command Line Interface (CLI) from the device's local console port as follows:

1. Connect a terminal to the local console port as described in "[Connecting to the COM Port for Local Management](#)" on page 3-13. The startup screen, [Figure 3-15](#), displays.

2. At the login prompt, enter one of the following default user names:
 - **ro** for Read-Only access,
 - **rw** for Read-Write access, or
 - **admin** for Super User access. (This access level allows Read-Write access to all modifiable parameters, including user accounts.)
3. Press **Enter**.
4. The Password prompt displays. Leave this string blank and press **Enter**. The device information and Matrix prompt displays as shown in [Figure 3-15](#).

The Enterasys Matrix N SA 2G4072-52 is now ready to be configured. For information about setting the IP address and configuring Telnet settings for remote access to N Standalone Series management, refer to Chapter 3 in the *Enterasys Matrix N Standalone Series Configuration Guide*.

The CLI commands enable you to initially set up and perform more involved management configurations. The *Enterasys Matrix N Standalone Series Configuration Guide* is available online at:

<http://www.enterasys.com/support/manuals>

Figure 3-15 Matrix Startup Screen Example (N7 Chassis)

login: **admin**

Password:

M A T R I X N7
Command Line Interface

Enterasys Networks, Inc.
50 Minuteman Rd.
Andover, MA 01810-1008 U.S.A.

Phone: +1 978 684 1000
E-mail: support@enterasys.com
WWW: <http://www.enterasys.com>

(c) Copyright Enterasys Networks, Inc. 2003

Chassis Serial Number: xxxxxxxxxxxxxx
Chassis Firmware Revision: xx.xx.xx

Matrix N7(su)->

Troubleshooting

This chapter provides information concerning the following:

For information about...	Refer to page...
Using LANVIEW	4-1
Troubleshooting Checklist	4-4
Overview of Shutdown Procedure	4-5

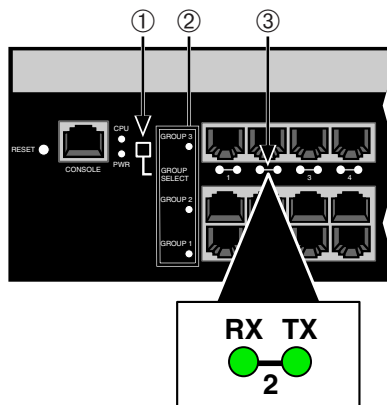
Using LANVIEW

The 2G4072-52 uses a built-in visual diagnostic and status monitoring system called LANVIEW. The LANVIEW LEDs ([Figure 4-1](#)) allow quick observation of the network status to aid in diagnosing network problems.

Viewing the Receive and Transmit Activity

On the 2G4072-52, you can view the receive and transmit activity on the RX and TX LEDs. However, only one group of 20 ports may be viewed at a time on the 2G4072-52.

To view the receive and transmit activity on a group of ports, press the GROUP SELECT button (see [Figure 4-1](#)) to step to the group of interest (Groups 1 through 3). Each time the GROUP SELECT button is pressed, the GROUP LED lights up in sequence, indicating which group is selected. The receive and transmit activity for that group of segments is then indicated by the RX and TX LEDs for each port.

Figure 4-1 LANVIEW LEDs

1 Group Select button 2 Group LEDs 3 LANVIEW LEDs

Table 4-1 describes the LED indications and provides recommended actions.



NOTE: The terms used in Table 4-1 indicate:

Flashing - an LED is flashing randomly.

Blinking - an LED is flashing at a steady rate (approximately 50% on, 50% off).

Solid - a steady LED light. No pulsing.

Alternating - an LED is flashing in a steady rate other than 50% on, 50% off.

Table 4-1 LANVIEW LEDs

LED	Color	State	Recommended Action
PWR	Off	Device not receiving power from power supply.	Ensure the power cords are plugged in and there is power at the source. Contact technical support for help.
	Green	Functional. Power supply operating normally.	None.
	Amber	Indicates loss of power supply redundancy.	Ensure the power cords are plugged in and power is available at the source. Contact technical support for help.

Table 4-1 LANVIEW LEDs (continued)

LED	Color	State	Recommended Action
CPU	None	Power off.	Ensure chassis has adequate power.
	Amber	Blinking. Device in bootup process.	None.
		Solid. Testing.	If the LED remains amber for several minutes, contact technical support.
	Green	Blinking. Image starts running.	None.
		Solid. Functional.	None.
	Red	Solid. Processor in reset.	None.
	Green and Amber	Blinking. Indicates that the 2G4072-52 is in the process of shutting down.	None. This state is activated when the RESET button is pressed for less than 1 second to start an orderly shutdown.
Amber and off	Alternating (67% on, 33% off). Indicates a shutdown is complete. The indication will hold for 60 seconds then automatically restart.	While in this state, you have 60 seconds before the 2G4072-52 will reboot.	
RX (Receive)	None	No link. No activity. Port enabled or disabled.	None.
	Green	Solid. Link present, port enabled, no traffic is being received by the interface.	None.
	Amber	Flashing. Link present, port enabled, traffic is being received by the interface.	None.
	Red	Blinking. Indicates collisions. (Supported on 10/100 ports only)	Contact technical support.
TX (Transmit)	None	Port enabled, but no activity.	If you know the port should be active and is not, contact technical support.
	Green	Flashing. Indicates data transmission activity. Flashing frequency indicates the data rate.	None.
	Red	Flashing. Fault or Error (collision).	None, unless activity is high in which case check for network configuration problems or a defective device.

Troubleshooting Checklist

If the 2G4072-52 is not working properly, refer to [Table 4-2](#) for a checklist of problems, possible causes, and recommended actions to resolve the problem.

Table 4-2 Troubleshooting Checklist

Problem	Possible Cause	Recommended Action
All LEDs are OFF.	Loss of power.	Ensure the 2G4072-52 was installed properly according to the installation instructions in Chapter 3 , and that the chassis has power.
No Local Management Password screen.	Incorrect terminal setup.	Refer to the <i>Enterasys Matrix N Standalone Series Configuration Guide</i> for proper setup procedures.
	Improper console cable pinouts.	Refer to Appendix A for proper COM port pinouts.
	Corrupt firmware image or hardware fault.	If possible, attempt to download the image to the 2G4072-52 again. Refer to Appendix B for instructions to clear NVRAM.
Cannot navigate beyond Password screen.	Improper username/ password combination entered.	If the username/password combination has been forgotten, refer to Appendix B for instructions on how to set the mode switch to reset the username/password combination to the default values.
Cannot contact the 2G4072-52 through in-band management.	IP address not assigned.	Refer to the <i>Enterasys Matrix N Standalone Series Configuration Guide</i> for the IP address assignment procedure.
	Port is disabled.	Enable port. See <i>Enterasys Matrix N Standalone Series Configuration Guide</i> for instructions to enable/disable ports.
	Host Port policy and/or management VLAN is incorrectly configured, or not configured.	Verify that a management VLAN exists and that it is associated with the Host Port. Refer to the <i>Enterasys Matrix N Standalone Series Configuration Guide</i> for information about Host Port and management VLAN configuration.
	No link to device.	Verify that all network connections between the network management station and the 2G4072-52 are valid and operating. If the problem continues, contact Enterasys Networks for technical support.

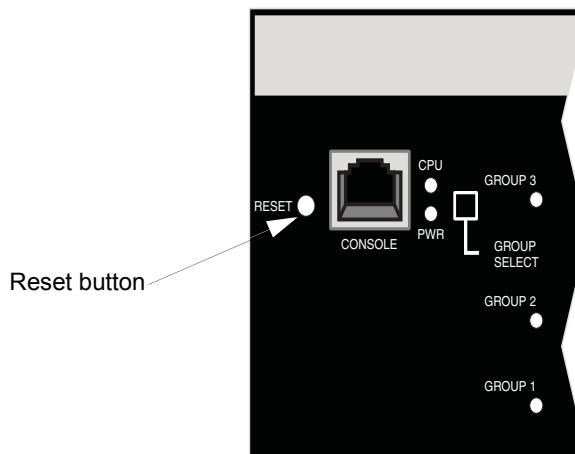
Table 4-2 Troubleshooting Checklist (continued)

Problem	Possible Cause	Recommended Action
Port(s) goes into standby for no apparent reason.	Loop condition detected.	Verify that Spanning Tree is enabled. Refer to the <i>Enterasys Matrix N Standalone Series Configuration Guide</i> for the instructions to set the type of STA. Review the network design and delete loops. If the problem continues, contact technical support.
User parameters (IP address, device and device name, etc.) were lost when the 2G4072-52 power was cycled, the RESET button was pressed.	Position of Mode switch (7), Persistent Data Reset, was changed sometime before either cycling power or pressing the RESET button, causing the user-entered parameters to reset to factory default settings. Clear Persistent Data that was set through Local Management.	Reenter the lost parameters as necessary. Refer to the <i>Enterasys Matrix N Standalone Series Configuration Guide</i> for the instructions to configure the device. If the problem persists, contact Enterasys Networks for technical support.

Overview of Shutdown Procedure

You can shut down a 2G4072-52 in an operating system using the RESET button shown in [Figure 4-2](#). There are two procedures to shut down a 2G4072-52:

- Recommended shutdown procedure ([page 4-6](#))
- Last resort shutdown procedure (not recommended) ([page 4-6](#))

Figure 4-2 RESET Button

Recommended Shutdown Procedure Using RESET Button

Before shutting off power to a 2G4072-52,

press or tap on its RESET button for less than 1 second.

Its CPU LED changes from solid green to blinking between green and amber, indicating that the 2G4072-52 is shutting down. At the end of the shutdown routine, the CPU LED changes to a 67%/33% sequence of amber/off, respectively, indicating the system is in a halt state. At this time it is safe to restart the 2G4072-52.

When you initiate a controlled shutdown with the RESET button, you have 60 seconds from the time the CPU starts flashing amber/off until the device automatically restarts.

Last Resort Shutdown Procedure Using RESET Button



Caution: This method of shutting down a Enterasys Matrix N SA 2G4072-52 is not recommended except as a last resort, because all processes currently running on the module will be interrupted resulting in loss of frames.

Precaución: No se recomienda utilizar este método para apagar los módulos Enterasys Matrix N SA 2G4072-52. Recurra a él sólo como último recurso, puesto que interrumpe todos los procesos del módulo en funcionamiento, lo que podría resultar pérdidas de frames.

To reset a 2G4072-52 without it performing an orderly shutdown routine,

press and hold the RESET button for approximately 6 seconds.



Specifications

This appendix provides the following information:

For information about...	Refer to page...
2G4072-52 Specifications	A-1
Mini-GBIC Input/Output Specifications	A-2
Gigabit Ethernet Specifications	A-3
COM Port Pinout Assignments	A-6
Regulatory Compliance	A-3

Enterasys Networks reserves the right to change specifications at any time without notice.

2G4072-52 Specifications

[Table A-1](#) describes I/O ports, processors and memory, physical, and environmental specifications for the 2G4072-52.

Table A-1 Specifications

Item	Specification
2G4072-52 Ports	
Ports 1 through 48	48, 10BASE-T/100BASE-TX compliant ports via RJ45 connectors.
Mini-GBIC Ports	4 Mini-GBIC slots for mix-and-match 1000BASE-SX, SX+ and LX compliant Mini-GBICs. See page A-2 for supported Mini-GBICs.

Table A-1 Specifications (continued)

Item	Specification
Processors/Memory	
Processor	MPC750CX, 400 MHz processor
Dynamic Random Access Memory	256 MB
FLASH Memory	32 MB
Physical	
Dimensions	46.43 H x 6.05 W x 29.51 D (cm) 18.28 H x 2.38 W x 11.62 D (in.)
Approximate Weight	Gross: 11.79 kg (26 lb)
Mean Time Between Failure (MTBF)	Refer to the MTBF web site at URL http://www.enterasys.com/support/mtbf/
Environmental	
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-30°C to 73°C (-22°F to 164°F)
Operating Relative Humidity	5% to 95% (non-condensing)

Mini-GBIC Input/Output Specifications

Mini-Gigabit Ethernet port interfaces accept 1000BASE-SX short wavelength or 1000BASE-LX long wavelength fiber Mini-GBICs (see [Table A-2](#)) and are hot swappable.

Table A-2 Mini-GBIC Input/Output Port Specifications

Item	Specification
MGBIC-LC01	Provides one LC fiber-optic multimode port that is compliant with the 1000BASE-SX standard LC connector.
MGBIC-LC03	Provides one LC fiber-optic multimode port that is compliant with the 1000BASE-SX standard LC duplex style connector.
MGBIC-LC09	Provides one LC fiber-optic single-mode port that is compliant with the 1000BASE-LX standard LC connector.
MGBIC-MT01	Provides one MT-RJ fiber-optic multi-mode port that is compliant with the 1000BASE-SX standard MT-RJ connector.
MGBIC-08	Provides one LC fiber-optic single-mode port that is compliant with the 1000BASE-ELX standard LC connector.
MGBIC-02	Provides one RJ45 copper connection that is compliant with the 1000BASE-T standard RJ45 connector.

Gigabit Ethernet Specifications

The following specifications for the Mini-GBICs (shown in [Table A-1](#) through [Table A-6](#)) meet or exceed the IEEE 802.3z-1998 standard.

MGBIC-LC01 / MGBIC-MT01 Specifications (1000BASE-SX)

Table A-1 MGBIC-LC01 / MGBIC-MT01 Optical Specifications

Item	62.5 μ m MMF	50 μ m MMF
Transmit Power (minimum)	-9.5 dBm	-9.5 dBm
Receive Sensitivity	-17 dBm	-17 dBm
Link Power Budget	7.5 dBm	7.5 dBm

Table A-2 MGBIC-LC01 / MGBIC-MT01 Operating Range

Item	Modal Bandwidth @ 850 nm	Range
62.5 μ m MMF	160 MHz/km	2-220 Meters
62.5 μ m MMF	200 MHz/km	2-275 Meters
50 μ m MMF	400 MHz/km	2-500 Meters
50 μ m MMF	500 MHz/km	2-550 Meters

MGBIC-LC03 Specifications (1000BASE-SX)

Table A-3 MGBIC-LC03 Optical Specifications

Item	62.5/125 μ m MMF	50/125 μ m MMF
Transmit Power (minimum)	-9.5 dBm	-9.5 dBm
Transmit Power (maximum)	-3 dBm	-3 dBm
Receive Sensitivity	-20 dBm	-20 dBm
Link Power Budget ¹ (Multimode Only)	10.5 dBm	10.5 dBm

1. The maximum drive distance (up to 2 km) depends on the quality of the installed multimode fiber-optic cable segment. Use the Link Power Budget to calculate the maximum cable length of the attached segment. The Link Power Budget must not exceed those specified in this table. The MGBIC-LC03 input power must not exceed -3 dBm. Otherwise, saturation could occur.

Table A-4 MGBIC-LC03 Operating Range

Item	Modal Bandwidth @ 1310 nm	Range
62.5 μ m MMF	160 MHz/km	2,000 Meters
50 μ m MMF	400 MHz/km	2,000 Meters

MGBIC-LC09 Specifications (1000BASE-LX)

Table A-5 MGBIC-LC09 Optical Specifications

Item	62.5 μ m MMF	50 μ m MMF	10 μ m MMF
Transmit Power (minimum)	-11.5 dBm	-11.5 dBm	-9.5 dBm
Receive Sensitivity	-20 dBm	-20 dBm	-20 dBm
Link Power Budget	8.5 dBm	8.5 dBm	10.5 dBm

Table A-6 MGBIC-LC09 Operating Range

Item	Modal Bandwidth @ 1300 nm	Range
62.5 μ m MMF	500 MHz/km	2-550 Meters
50 μ m MMF	400 MHz/km	2-550 Meters
50 μ m MMF	500 MHz/km	2-550 Meters
10 μ m SMF	N/A	2-10,000 Meters

MGBIC-08 Specifications (1000BASE-ELX)

Table A-7 MGBIC-08 Optical Specifications

Item			
Transmit Power (minimum)	-0 dBm, min.	+2 dBm, typical	+5 dBm, max.
Receive Sensitivity	-24 dBm, min.	-26 dBm, typical	
Maximum Input Power	-3 dBm		
Link Power Budget ¹ (Full Duplex Only)	23 dB	28 dB, typical	

1. The maximum drive distance (up to 70 km) depends on the quality of the installed single-mode fiber-optic cable segment. Use the Link Power Budget to calculate the maximum cable length of the attached segment. The Link Power Budget must not exceed those specified in this table. The MGBIC-08 input power must not exceed -3 dBm. Otherwise, saturation could occur.

Table A-8 MGBIC-08 Operating Range

Item	1550 nm	Range
9 or 10 μ m SMF	N/A	70,000 Meters

MGBIC-02 Specifications (1000BASE-T)

Table A-9 MGBIC-02 Specifications

Item	Specification
Supported Cable	
Type:	Copper, Category 5 UTP
Maximum Length	Up to 100 meters
Connector	RJ45
Data Rate	1 Gbps, IEEE 802.3:2000 compatible 1000BASE-T operation only Automatic crossover detection
TX Output impedance	100 ohms, typical at all frequencies between 1 MHz and 125 MHz
RX Input impedance	100 ohms, typical at all frequencies between 1 MHz and 125 Hz

COM Port Pinout Assignments

The COM port is a serial communications port for local access to local management. Refer to the table below for the COM port pin assignments.

Table A-3 COM Port Pin Assignments

Pin	Signal Name	Input/Output
1	Transmit Data (XMT)	Output
2	Data Carrier Detect (DCD)	Output
3	Data Set Ready (DSR)	Input
4	Receive Data (RCV)	Input
5	Signal Ground (GND)	NA
6	Data Terminal Ready (DTR)	Output
7	Request to Send (RTS)	Input
8	Clear to Send (CTS)	NA

Regulatory Compliance

The 2G4072-52 meets the safety and electromagnetic compatibility (EMC) requirements listed in the table below:

Table A-4 Compliance Standards

Regulatory Compliance	Standards
Safety	UL 60950, CSA C22.2 No. 60950, 2006/95/EC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.
EMC	47 CFR Parts 2 and 15, CSA C108.8, 2004/108/EC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS CISPR 22, VCCI V-3.

Mode Switch Bank Settings and Optional Installations



Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Eléctrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

This appendix covers the following items:

For information about...	Refer to page...
Required Tools	B-2
Setting the Mode Switches	B-2
Memory Locations and Replacement Procedures	B-2



Electrical Hazard: Do not remove the cover from the 2G4072-52 while power is applied to the unit. Hazardous voltages are present and could cause personal injury and/or damage the unit.

Do not power up the 2G4072-52 again until the cover and screws are in place.

Riesgo Eléctrico: No debe de remover la tapa durante que este conelgado a la corriente, una descarga electrica le puede causar y probocarle daños, al igual que al aparato.

No enchufe a la corriente hasta que la tapa y los tornillos esten en su lugar.

Elektrischer Gefahrenhinweis: Entfernen sie nicht den Deckel des C, wenn dieser noch an die Stromzufuhr angeschossen ist, gefährliche Spannungen können Personen verletzten oder das Gerät beschädigen.

Schalten Sie den 2G4072-52 nicht ein, bevor der Deckel das Gerät abdeckt und mit den Schrauben fixiert wurde.



Warning: This unit may have more than one power supply cord. Disconnect two power supply cords before servicing to avoid electric shock.

Advertencia: Esta unidad puede tener mas de un cable de fuente de poder. Desconectar dos cables de fuentes de poder antes de dar servicio para prevenir riesgo eléctrico.

Warnhinweis: Dieses Gerät hat mehrere Netzanschlüsse, trennen Sie vor den Wartungsarbeiten beide Netzanschlüsse vom Versorgungsnetz. zum Schutz vor elektrischen Schlägen.

Required Tools

Use the following tools to perform the procedures provided in this appendix:

- Antistatic wrist strap
- Phillips screwdriver



Caution: An antistatic wrist strap is required to perform the procedures in this appendix. Use the antistatic wrist strap to minimize ESD damage to the devices involved.

Precaución: Para llevar a cabo los procedimientos especificados en el apéndice deberá utilizar una pulsera antiestática. Esta pulsera sirve para minimizar los efectos de las descargas de electricidad estática.

Setting the Mode Switches



Caution: Read the appropriate sections to be fully aware of the consequences when changing switch settings.

Only qualified personnel should change switch settings.

Precaución: Si desea modificar la configuración del interruptor, lea las secciones correspondientes para saber cuál será el resultado de hacerlo.

Estas modificaciones a la configuración sólo debe realizarlas personal calificado.

Figure B-1 shows the locations of the mode switches and the switch settings for normal operation. These switches are set at the factory and rarely need to be changed.

Switch definitions and positions are as follows:

- Switches 1 through 6 – For Enterasys Networks use only.
- Switch 7 – Clear Persistent Data. Changing the position of this switch clears Persistent Data on the next power-up of the module. All user-entered parameters, such as the IP address, module names, etc., are reset to the factory default settings. Once the module resets, you can either use the factory default settings or reenter your own parameters.

- Switch 8 – Clear Admin Password. Changing the position of this switch clears the admin password, and restores the factory default password on the next power-up of the module. Once the module resets, you can either use the factory default settings or reenter your own password.



Note: Do not change the position of Switch 8 unless it is necessary to reset the admin password to its factory default setting.

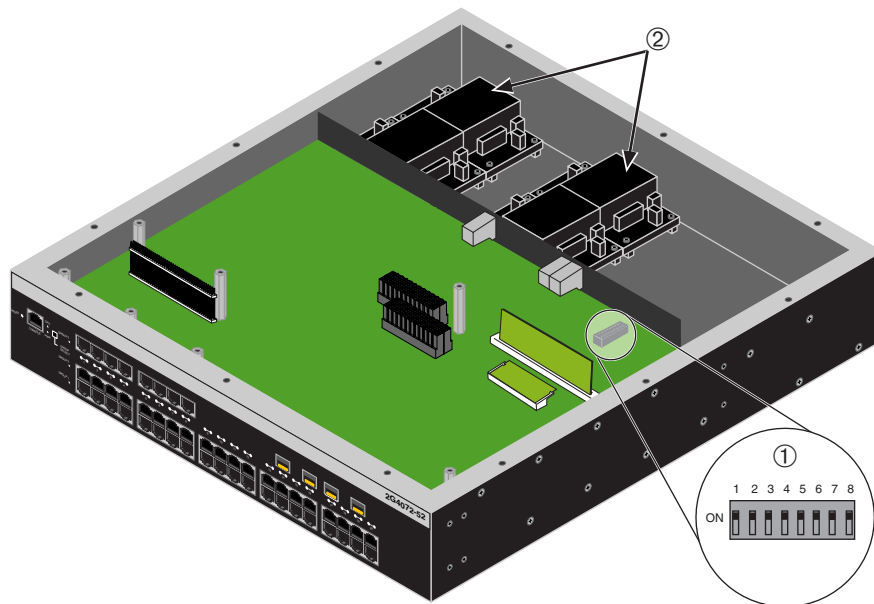


Warning: Do not remove safety cover protecting the power supplies.

Advertencia: No quitar tapa de seguridad que protege las fuentes de poder.

Warnhinweis: Entfernen sie keinesfalls das Schutzgehäuse der Stromversorgung.

Figure B-1 Mode Switch Location



1 Mode switch bank

2 Safety cover

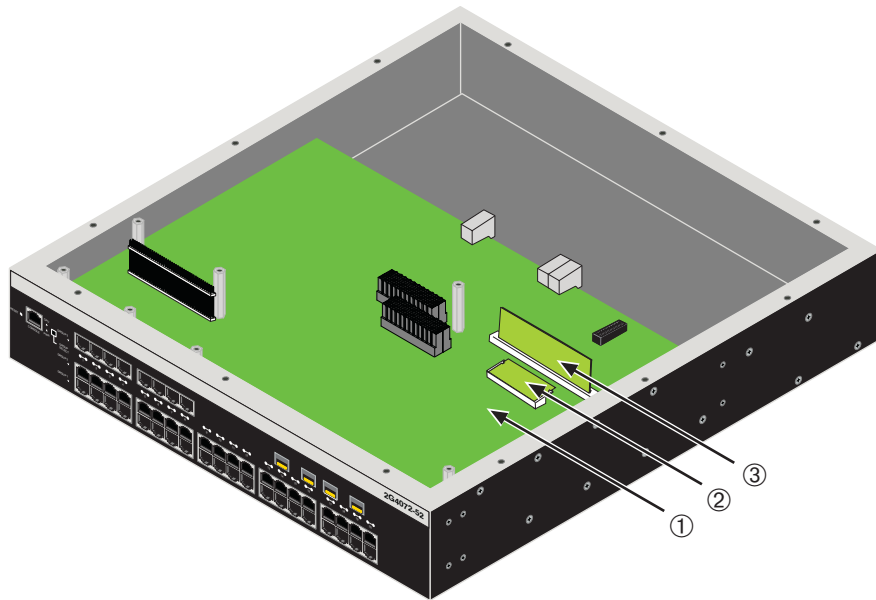
Memory Locations and Replacement Procedures

In the event that the Dual in Line Memory Module (DIMM) or DRAM Single In-line Memory Module (SIMM) (FLASH memory) needs to be replaced, the following sections describe how to access, locate and replace these memory modules. If you have questions concerning the replacement of either memory module, contact Enterasys Networks.

Location of DIMM and DRAM SIMM Memory Modules

Figure B-2 shows the locations of the DIMM and DRAM SIMM on the motherboard.

Figure B-2 DIMM and DRAM SIMM Locations



1 Motherboard

2 DIMM

3 DRAM SIMM

DIMM Replacement Procedure

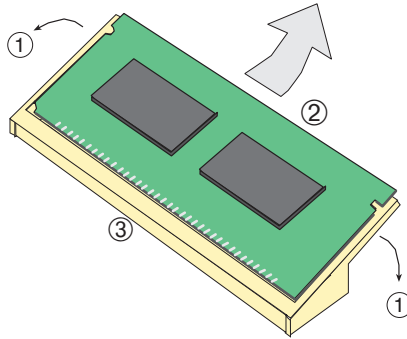
If the DIMM is defective and must be replaced, the following sections explain how to remove and install the DIMM. If you have questions concerning the replacement of the DIMM, contact Enterasys Networks.

Removing the DIMM

To remove the existing DIMM, proceed as follows:

1. Follow steps 1 through 3 as instructed on (page B-7).
2. Locate the DIMM connector on the motherboard as shown in [Figure B-2](#).
3. Push the connector arms away from the DIMM, as shown in [Figure B-3](#), and simultaneously lift the DIMM enough to release it from the connector fingers.

Figure B-3 Removing the Existing DIMM



1 Connector arms

2 DIMM

3 Connector fingers

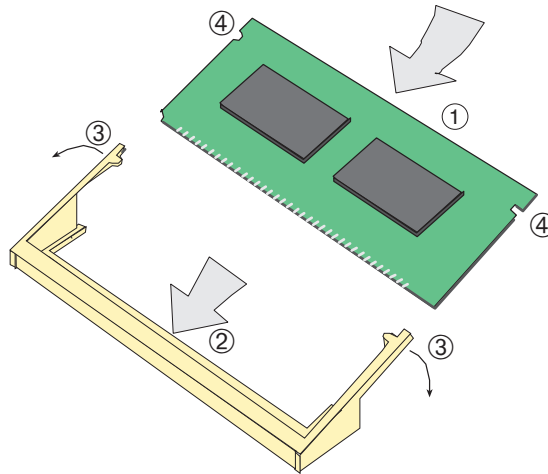
4. Rotate the DRAM SIMM upwards, then remove it from the connector fingers.

Installing the DIMM

To install a DIMM, refer to [Figure B-4](#) and proceed as follows:

1. Insert the DIMM down between the connector fingers.
2. Pivot the DIMM downward so the tabs on the connector arms align with the two DIMM alignment notches. With the two connector arms spread outward, push the DIMM down between the connector arms. Then release the two connector arms to lock the DIMM into place.

Figure B-4 Installing the DIMM



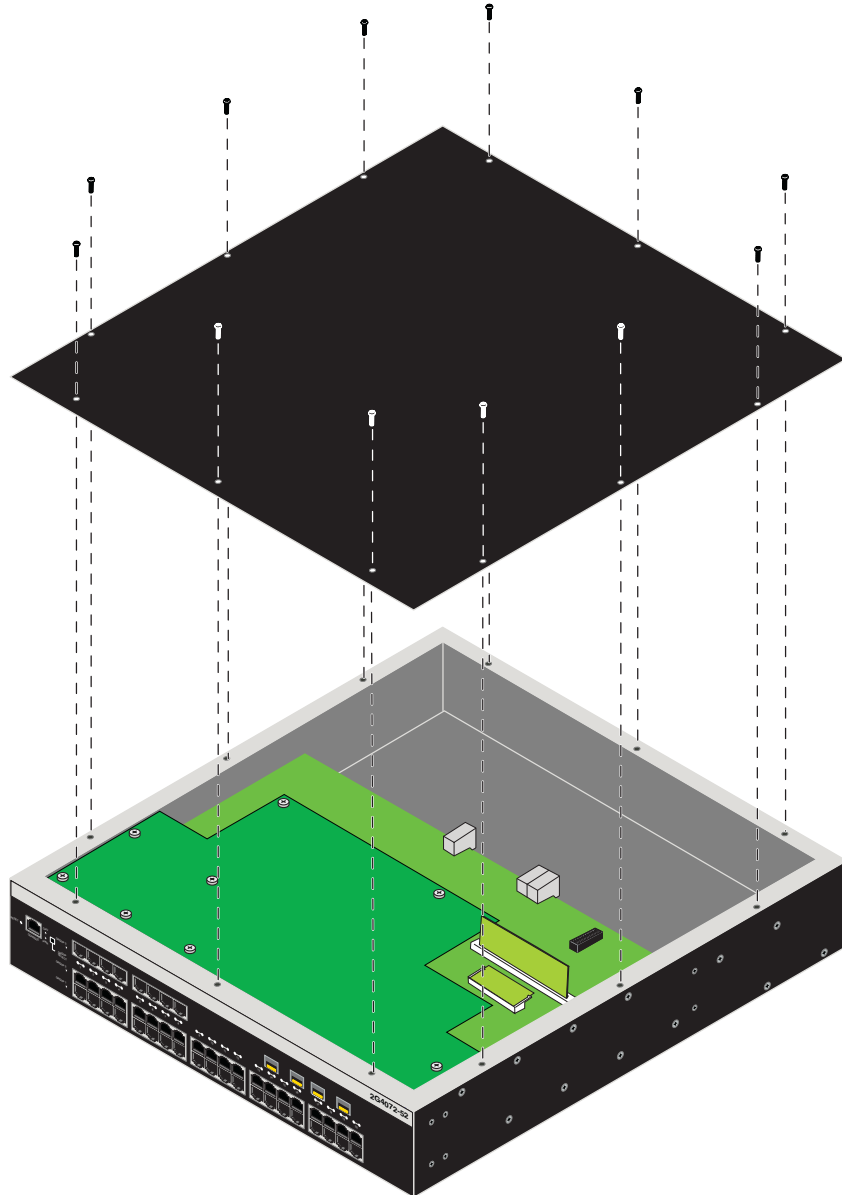
- | | |
|---------------------|------------------------------|
| 1 DIMM | 3 Connector arms |
| 2 Connector fingers | 4 SIMM alignment notches (2) |
-

3. Replace the chassis cover by re-attaching the provided screws.

Removing the DRAM SIMM

1. Place the 2G4072-52 on a clean, static-free surface.
2. Remove the 12 screws securing the chassis cover, as shown in [Figure B-5](#).

Figure B-5 Removing Chassis Cover

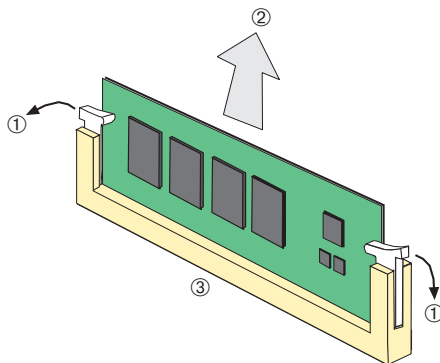


3. Push the connector arms away from the memory module to release the DRAM SIMM from the connector, as shown in [Figure B-6](#).



Note: The ejector arms on this connector are not spring loaded, so they will remain in the open position until manually closed.

Figure B-6 DRAM SIMM Connector Location

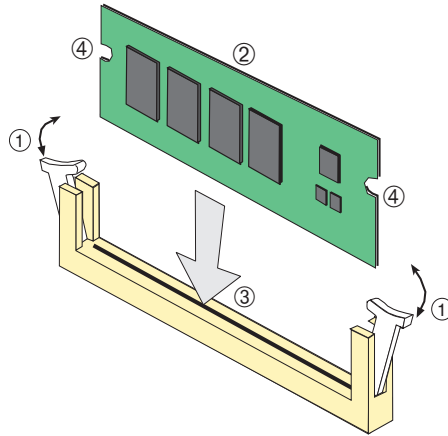


-
- | | | | | | |
|---|----------------|---|-----------|---|--------------------|
| 1 | Connector arms | 2 | DRAM SIMM | 3 | Connector contacts |
|---|----------------|---|-----------|---|--------------------|
-

Installing the DRAM SIMM

To install the memory module, refer to [Figure B-7](#) and proceed as follows:

1. Push the connector arms away from the DRAM SIMM far enough to insert the DRAM SIMM into the connector contacts.
2. Insert the DRAM SIMM straight down between the connector contacts far enough for the tabs on the connector arms to align with the two DRAM SIMM alignment notches.
3. Push the DRAM SIMM down into the connector contacts. Then rotate the two connector arms toward the DRAM SIMM to lock it into place.

Figure B-7 Installing the DRAM SIMM

- | | |
|-------------------------|--|
| 1 Connector arms | 3 Connector contacts |
| 2 DRAM SIMM | 4 DRAM SIMM alignment notches (2) |
-
4. Replace the chassis cover by re-attaching the provided screws.

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