PortServer TS 16 Setup Card

Connectware™

About This Card

This card provides the following information on your PortServer TS 16:
• A brief introduction
• A setup overview that identifies the major steps required for device setup
• Guidance on where to find more detailed information that may be required to complete setup and administrative tasks

Key Features

The following are some of the key features of PortServer TS 16:

Console Management

PortServer TS 16 provides the following console management features:
• Secure access to remote systems using SSHv2
• "Solaris Ready" certification from Sun Microsystems
• Inbound and outbound PPP connections for remote access to network equipment
• Port buffering of up to 64 KB per port to diagnose network problems

Terminal Server

PortServer TS 16 provides the following terminal server features:
• Serial ports capable of supporting asynchronous, high-speed connections to printers, modems, terminals, and other devices. Support extends to full modem control and hardware handshaking.
• Local TTY and COM port functionality using Digi RealPort software

General

PortServer TS 16 provides the following general features:
• Auto-sensing 10/100 TX Ethernet connection
• Industry standard surge suppression and ESD protection to 15 kilovolts on all signal pins
• LED indicators to display network information
• Local configuration using a terminal or PC and remote configuration using either a Telnet connection or a web browser
• Remote monitoring and IP address configuration using Digi Port Authority - Remote
• Upgradable firmware using TFTP or HTTP

Package Contents

The package contains the following items:
• One PortServer TS 16 with an integrated power supply
• One RJ-45-to-DB-25 crossover cable and one RJ45-to-DB9 crossover cable

  Note: These are intended for connecting a terminal or PC so that you can configure your PortServer TS 16 using the command line interface.

• One Sun Netra crossover cable to connect to SUN Netra servers and Cisco routers and switches (Rack Mount units only)

  Note: For additional cables, contact your dealer or distributor.

• Optional Rack Mount Kit (19" and 23")
• One loopback plug
• Access Resource CD
• This card, an Access Resource CD card, and associated paperwork

Setup Overview

This overview identifies the major steps required to set up your PortServer TS 16. It provides simple methods for accomplishing common setup tasks. For information on alternative methods, see the online documentation.

Step A: Set Up the Hardware

1. Connect the PortServer TS 16 to a proper power source and the PortServer TS 16 to the network. See the Specifications table on the backside of this document for details.
2. Connect peripherals to serial ports. See the *Terminal Server Cable Guide* for information on cabling peripherals to serial ports.

Step B: Install and Set Up DPA-Remote

This step is not required if you do not intend to use DPA-Remote to configure the IP address or to monitor ports.

Notes: (1) DPA-Remote cannot be used to change the IP address of a PortServer TS 16 that has already been assigned one; it can only be used to configure the initial IP address. (2) DPA remote cannot assign an IP address on a network that has an active DHCP server.

For information on installing DPA-Remote, see the online *Digi Port Authority - Remote Device Monitor Setup Guide*.

Step C: Configure an IP Address

The following are 4 methods for configuring an IP address. Use the one that is most convenient for you.

Method 1: Using DPA-Remote
1. Run DPA-Remote.
2. If DPA-Remote is not set for ADDP, choose ADDP as the Discovery Protocol.
3. Choose Discover. A list of Digi devices with IP addresses of 0.0.0.0 appears.
4. Select a PortServer TS 16 from the list and then choose Configure.
5. Supply an IP address, subnet mask, and default gateway and then choose OK.
   DPA-Remote configures the IP address, subnet mask, and default gateway.

Method 2: Using Ping-ARP
Use this section to configure an IP address by manually updating a server's ARP table and then pinging the PortServer TS 16.
1. Record the MAC address of the PortServer TS 16. It is located on the back of the unit.
2. Access a server on the same subnet as the PortServer TS 16.
3. Manually update the server's ARP table using the PortServer TS 16's MAC address and the IP address you want assigned to the PortServer TS 16. The following is an example of how this is done on a Windows NT 4.0 system:

   ```
   arp -s 143.191.2.1 00-40-9d-22-23-60
   ```

4. Ping the PortServer TS 16 using the IP address just assigned. The following is an example:

   ```
   ping 143.191.2.1
   ```

   The ping will probably time out before there is a response.

5. Wait a few seconds and then ping again.

   The PortServer TS 16 replies to the ping, indicating that the IP address has been configured.

Method 3: Using DHCP or RARP
1. Record the MAC address of the PortServer TS 16, which is located on the back of the unit.
2. Set up an entry on a DHCP or RARP server. If you intend to use RealPort, do the following:
   • Reserve a permanent IP address.
   • Record the IP address. You will need it when you configure the RealPort driver.
3. Power on the PortServer TS 16.

Method 4: Using the Command Line
1. Connect a terminal or PC to a serial port on the PortServer TS 16.
   • For a terminal, use the cable that came in your package.
   • For a Windows Hyperterminal connection, use the cable that came in the package, a straight-through DB25-to-DB9 modem cable, and gender changers as required.
2. Configure the parameters of the terminal or terminal emulation software to work with the serial port. The default port settings are below:

• VT 100 emulation	• 1 stop bit
• 9600 baud	• No parity
• 8-bit character	

3. Log in to the PortServer TS 16 as root by entering the following commands: (You may have to press the Enter key to get a Login prompt.)
   • At the login prompt, type `root`.
   • At the password prompt, type `dbps` (which is the default password. If the password has been changed, use the new password.)

   See the newpass command in the online *Digi One/PortServer TS Command Reference* for information on changing the root password.

4. Configure an IP address with the following command:

   ```
   set config dhcp=off ip=ip-addr submask=mask
   ```

   where *ip-addr* is the IP address to configure and *mask* is the subnet mask used by the network

   Example

   ```
   set config dhcp=off ip=192.10.7.3
   submask=255.255.255.0
   ```

5. Reboot at the reboot prompt.

Step D: Configuring Ports Using the Web Interface

1. Access the PortServer TS 16 from a web browser by specifying the unit's IP address in the URL window.
2. Log in to the PortServer TS 16 as root by entering the following:
   • At the login prompt, type `root`.
   • At the password prompt, type `dbps` (which is the default password. If the password has been changed, use the new password.)
3. Use the web interface to configure ports. See the online help for information on configuration fields.
4. If you intend to use RealPort, install RealPort software on a server. See the online RealPort library for more information.

Step E: Configure other Features as Required

See "Where to Find Information" on this card for ideas on additional features to configure and directions as to where to find setup information.

Step F: Troubleshoot Setup Problems

Ensure that your setup works as you intend. If you encounter setup problems, see the troubleshooting section in the online *Configuration and Administration Guide.*

PortServer TS 16 Library

Access Resource CD Card

This card provides information on the contents of the Access Resource CD. It includes the CD mounting instructions required to access the CD on many Unix systems.

Digi One/PortServer TS Command Reference

This online manual, available on the Access Resource CD, provides complete information on commands.

PortServer TS 8/16 Configuration and Administration Guide

This online manual, available on the Access Resource CD, provides procedural information for setup.

RealPort Setup Guides

These online manuals provide information on setting up servers for RealPort software.

Digi Port Authority - Remote Device Monitor Setup Guide

This online manual provides information on installing and using Digi Port Authority - Remote software.

Online Help for the Web UI

This online help provides information on configuration fields used with the web browser configuration interface.

Terminal Server Cable Guide

This online manual provides cabling information.

Where to Find Information

To set up...	See...
An IP address	• The web interface and associated help **Note**: The initial IP address cannot be set up with the web interface. • The set config command in the online *Command Reference* • The section on configuring the Ethernet interface in the online *Configuration and Administration Guide*
autoconnection	• The web interface and associated help • The set user and set ports commands in the online *Command Reference* • The section on configuring autoconnection in the online *Configuration and Administration Guide*
DPA - Remote	• The online *Digi Port Authority - Remote Device Monitor Setup Guide*
Menus	• The web interface and associated help • The set menu command in the online *Command Reference*
Ports	• The web interface and associated help • The set ports, set flow, and set line commands in the online *Command Reference* • The sections on configuring ports for RealPort, modems, terminals, and printers in the online *Configuration and Administration Guide*
Port Buffering	• The web interface and associated help • The set buffers commands in the online *Command Reference* • The section on Console Management in the online *Configuration and Administration Guide*
PPP	• The web interface and associated help • The set user command in the online *Command Reference* • The PPP section in the *Configuration and Administration Guide*
RealPort	• The web interface and associated help • The set ports command in the online *Command Reference* • The online RealPort library
SSH	• The web interface and associated help • The set user command in the online *Command Reference* • The sections on Security Features and Console Management in the online *Configuration and Administration Guide*
SNMP agent	• The set snmp command in the online *Command Reference* • The section on configuring the SNMP agent in the online *Configuration and Administration Guide*
Users	• The web interface and associated help • The set user and newpass commands in the online *Command Reference* • The section on configuring users in the *Configuration and Administration Guide*

Safety Considerations and Warnings

• **AC only-** Do not attempt to defeat the safety feature of the 3-wire, ground-connection plug that comes with PortServer TS 16. If you are unable to insert this plug into an outlet, have an electrician replace the obsolete outlet.

• **AC only-** Ensure that the ampere rating of all equipment plugged into wall outlets does not overload the outlet.

• **AC only-** If you require an extension cord, ensure that the ampere rating of all equipment plugged into the extension cord does not exceed the ampere rating of the cord.

CAUTION! This product contains a lithium-ion battery that is embedded in one of the components on the printed circuit board. The battery is not field-replaceable, and improperly installing the component could result in an explosion.

CAUTION! Do not cover or obstruct ventilation slots.These devices generate heat and require adequate circulation to maintain proper operating temperatures.

CAUTION! Do not switch or disconnect devices in the grounding circuit conductor between the DC source and the point of connection of the grounding electrode conductor.

CAUTION! Do not allow the PortServer TS 16 to get wet. Do not install near high-powered radio transmitters or electrical equipment. Any of these conditions can cause safety hazards and equipment failure or damage.

Rack Mounting Installation

• Distribute weight evenly in the rack to avoid overloading.
• Ensure proper ventilation with at least 12 inches (30 centimeters) of clearance on all sides.
• Check equipment nameplate ratings before connecting to the supply circuit to avoid overloads which may damage overcurrent protection devices and supply wiring.
• Maintain reliable earthing for rack-mounting equipment, especially for supply connections.
• Install equipment in Restricted Access Areas only (dedicated equipment rooms/closets) in accordance with Articles 110-16, 110-17, and 110-18 of the National Electrical Code, ANSI/NFPA 70.
• Connect equipment to a DC supply source (reliably earthed) that is electrically isolated from the AC source.
• Directly connect the equipment chassis to the DC supply system-grounding electrode conductor or a bonding jumper from a grounding terminal bar (or bus) that is connected to the DC supply system grounding electrode conductor.
• Contain equipment that has a connection between the grounded conductor of the same DC supply circuit, the grounding conductor, and also the point of grounding of the DC system in the same immediate area. Do not ground the equipment elsewhere.
• Locate the DC supply source within the same premises as the equipment.
• Route away and secure all DC input wiring from sharp edges to prevent chaffing as well as provide strain relief.
• Provide a readily accessible disconnect device and protective device a fixed wiring for a DC power supply suitable for the specified rated voltage and current. Disconnect and protective devices to be rated 2A Amps maximum.

Specifications

Power Requirements	
• 16-Port Desktop • 16-Port Rack (AC)	115-230 VAC,50-60 Hz, .8A max internal power supply
• 16-Port Rack (DC)	36-72 VDC, .45 A at 48 VDC max Terminations: • + = Source • - = Reference • ⏚ = Earth ground The terminal lug must be attached to a suitable earth ground for safe operation.

Environmental	
Ambient temperature	60°F (15.6°C) to 90°F (32.2°C)
Relative humidity	20% to 80% non-condensing
Altitude	0 to 7,000 feet (0 to 2,134 meters)

Mechanical	
16-Port Rack	Width: 16.8 inches (42.672 cm) Height: 1.6 inches (4.064 cm) Depth: 6.5 inches (16.510 cm) Weight: 3.75 pounds (1.701 kg)
16-Port Desktop	Width: 13.5 inches (34.290 cm) Height: 1.375 inches (3.493 cm) Depth: 6.5 inches (16.510 cm) Weight: 3 pounds (1.360 kg)

Regulatory Notices

This product complies with the following standards:

Electromagnetic Emissions
• FCC Part 15 Class B -- See Also: Declaration of Conformity
• EN55022 Class B
• EN61000-3-2 and EN61000-3-3
• VCCI Class II
• ICES 003 Class B
• AS3548

Electromagnetic Immunity

EN55024

Product Safety

• UL 60950
• CSA 22.2 No.60950
• EN60950
• NOMS
• AS3260

Declaration of Conformity

In accordance with FCC Dockets 96-208 and 95-19

Manufacturer's Name:	Digi International Inc.
Corporate Headquarters:	11001 Bren Road East
	Minnetonka MN 55343
Manufacturing Headquarters:	10000 West 76th Street
	Eden Prairie MN 55344

Digi International declares that the products:

Product Name	Model #
PortServer TS 16 Desktop	70001733
PortServer TS 16 Rack AC	70001742
PortServer TS 16 Rack DC	70001747

to which this declaration relates, meet the requirements specified by the Federal Communications Commission as detailed in the following specifications:
• Part 15, Subpart B, for Class B Equipment
• FCC Docket 96-208 as it applies to Computers and Peripherals

The products listed have been tested at an External Test Laboratory certified per FCC rules and have been found to meet the FCC, Part 15, Class B, Emission Limits. Documentation is on file and available from the Digi International Homologation Department.

Digi Connectware™	See list of product names and model numbers.
FC	Tested to Comply with FCC Standards
FOR HOME OR OFFICE USE	

ICES 003 Class B

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la class B prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.