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# TROY Serial Servers

## Quick Install Manual

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## Warning

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against such interference when operating in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with this guide, 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, at his or her own expense, will be required to take whatever measures will be required to correct the interference.

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## Introduction

The TROY Serial Server is designed to connect any RS-232 serial device to an Ethernet network. It handles a wide range of different kinds of serial devices, including printers, security devices, electronic signs, and much more. This manual is specifically for quick installation of your Serial Server with TROY recommended procedures. For more detailed configuration instructions (including non-standard configurations), please refer to the *TROY Administrator's Guide* located on the CD-ROM supplied with your Serial Server or on the TROY web site (<http://www.troygroup.com/wireless>). Note that the Serial Server is software compatible with TROY print servers, which means that operating systems and programs that work with these serial servers will also work with the Serial Server.

<h3>External Serial Server Models</h3>
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The TROY Serial Server family includes the following models:

- Serial Server One-Port. These versions have a single RS-232 serial port plus a 10baseT Ethernet port. Models include:

SS-8S-1	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http, SNMP
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SS-8N-1	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, VINES, http, SNMP
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- Serial Server Two-Port. These versions have two RS-232 serial ports plus a 10baseT Ethernet port. Models include:

SS-8S-2	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, IP, http, SNMP
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*These devices comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) These devices may not cause harmful interference and (2) these device must accept any interference received, including interference that may cause undesired operation.*

# Installing the Hardware

## Before You Start

The TROY Serial Servers connect to the serial port of a printer or other RS-232 compatible device. Before attempting to install a TROY Serial Server, first make sure that you have completed installing your printer or other device as described in the appropriate documentation for the device.

## Unpacking and Handling

The TROY Serial Server shipping box contains the following items:

1. TROY Serial Server
2. TROY CD-ROM
3. TROY Serial Server Quick Installation Manual
4. Power supply

TROY Serial Servers are designed to withstand normal handling procedures, however reasonable precautions should be exercised during installation, particularly with regard to static discharge.

1. Make sure that you are adequately grounded by touching bare metal while installing the Serial Server.
2. Avoid moving around the work area in order to eliminate static charge buildup.
3. If possible, do not work on a carpeted area.

## Serial Server Pushbutton Switch

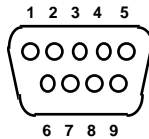
The Serial Server has a single pushbutton test switch. It is used as follows:

1. To print a self-test page, press the switch in for at least one-eighth second but less than five seconds.
2. To reset the unit back to factory default settings, press the switch and hold it in for at least 5 seconds.

- To enable console mode on port S1 for one-port models or on port S2 for two-port models, hold in the test switch while powering on the Serial Server (see next section for additional details).

### Connecting the Serial Server to an RS-232 Serial Device

The Serial Server has one or two standard PC-compatible 9-pin female D-connectors, depending on the model. These serial ports use PC-compatible 9-pin male D-connectors. Note that the standard off-the-shelf 9-pin female to 25-pin male PC cables will require a null modem in order to connect to most printers or terminals. The pin-outs are as follows:



<b>DE9 pin</b>	<b>Signal</b>	<b>Signal</b>	<b>DTE pin</b>	<b>DCE pin</b>
1	Not used	Not used	-	-
2	Receive Data	Transmit Data	2	3
3	Transmit Data	Receive Data	3	2
4	DTR out	DSR in	6	20
5	Signal Ground	Signal Ground	7	7
6	DSR in	DTR out	20	6
7	RTS out	CTS in	5	4
8	CTS in	RTS out	4	5
9	Not used	Not used	-	-

Basically, the cable must connect input signals (e.g., Receive Data) on the TROY Serial Server to the equivalent output signals (e.g., Transmit Data) on the device and vice-versa.

Port S1 on single-port Serial Server models or port S2 on two-port models can be set to operate in console mode to allow you to configure and diagnose the Serial Server via a serial terminal (or PC with a terminal emulation program). To enable the console mode manual, unplug the power supply from the serial server, hold down the Test switch and simultaneously plug in the power supply. If no characters are received on port S1 during this time, then console mode is enabled on the port (if characters are received, then the unit goes into a special diagnostic mode).

The port will remain in console mode until the unit is power off.

You may also remotely enable console mode by connecting remotely to the Serial Server via WebXAdmin, TELNET, NCP, or XConfig (refer to Chapter 3 for information on how to use these utilities). With WebXAdmin, select **Configure Port** from the main menu, click on serial port S1 (for single-port models) or port S2 (for two-port models), select **Console Mode**, and click **Submit**. With TELNET or XCONFIG, use the following command:

```
SET PORT serialport CONSOLE ENABLED
```

where *serialport* is S1 for single-port models or S2 for two-port models.

You can remotely restore the port to normal serial operation by unselecting **Console Mode** from WebXAdmin or by using the console command SET PORT *serialport* CONSOLE DISABLED.

The serial ports are factory set at 9600bps, 8-bit data, XON/XOFF flow control, and no parity. If your printer requires different settings, you must use WebXAdmin or a console terminal connected to port S1 as described in the previous paragraph. With WebXAdmin, select **Configure Port** from the main menu, click on the serial port (S1 for first serial port or S2 for the second serial port, if present), choose the desired settings, and click **Submit**. With the console terminal, use one or more of the following commands (use S2 instead of S1 if you are using the second serial port):

```
SET PORT S1 SPEED baudrate
SET PORT S1 PARITY parity_type
SET PORT S1 FLOW flowctrl
SET PORT S1 CHARACTER charsize
```

Note that the serial port always operates at 9600bps when in console mode.

Don't forget to set the serial port settings on your printer or other device to match the settings of the Serial Server.

## Ethernet Installation

The Serial Server connects to a 10baseT unshielded twisted pair (UTP) Ethernet network. To do this, you will need an Ethernet hub (with at least one unused port installed on your network) and an appropriate length of RJ45 modular cable is needed.

Connect one end of the RJ45 cable to the Serial Server connector labeled "10baseT" and the other end to a port on the twisted pair Ethernet hub



This completes the unshielded twisted pair Ethernet installation. Proceed to the *Verifying Successful Installation* section.

## Verifying Successful Installation

You are now ready to apply power to the Serial Server. Plug the power supply into the wall, connect it to the Serial Server, and then turn on the printer. The Serial Server will go through the following startup sequence:

1. It will run through a set of power-up diagnostics for a few seconds. If the Serial Server is operating properly, the yellow TEST LED will blink momentarily and then go out. If the TEST LED blinks continuously in a regular pattern, there is a problem. If this is the case, first verify that you have a good Ethernet connection and then try powering the unit off and then on again. If the problem persists, refer to the *Troubleshooting* chapter in the Administrator's Guide on the CD-ROM included with the Serial Server.
2. When the test LED goes out, the green LED on the Serial Server will come on solid if there is a good 10baseT Ethernet connection. If this LED does not come on, double check your cabling and make sure that you have a good Ethernet hub.

## Verifying the Connection to the Device

Before attempting to print, it is *very* important to verify the connection between the Serial Server and the device. *If this connection is not good you will not be able to communicate!*

To verify this connection with a serial printer or other device that can display ASCII characters, make sure that both the Serial Server and the printer are powered on and ready. Then print a test page as follows:

- Push the Test/Factory button in briefly (more than one-eighth second but less than five seconds). If the connection is good, a test page will be printed on the printer. If nothing prints out, make sure that the cable or I/O connection is good and that it is securely fastened.

If you are connecting the Serial Server to a non-printing device that cannot display ASCII characters, then it is a good idea to try temporarily connecting a printer to the serial port as described in the previous paragraph in order to verify the connection.

The two biggest causes of connection problems are cabling and mismatched serial port parameters. First, double check your cabling. The cable must connect the transmit signal on the Serial Server to the receive signal on the device, and connect the receive signal on the Serial server to the transmit signal on the device. Also verify that the ground leads are connected together, and if you are using modem controls, also verify that they are correctly connected. (RTS goes to CTS and DTR goes to DSR).

Next, verify that the settings of the Serial Server's port exactly matches the settings of the device's serial port. For example, if the Serial Server is set for 19200bps, XON/XOFF flow control, 8-bit characters, and odd parity, the device's serial port must also be set to these parameters.

If none of the above suggestions work, refer to the *TROY Administrator's Guide* on the CD supplied with the Serial Server for more information, or contact TROY Technical Support (949-399-0820; <http://www.troygroup.com/wireless/support>; e-mail: [WirelessSupport@troygroup.com](mailto:WirelessSupport@troygroup.com)) for additional assistance.

# Management Methods

TROY offers a wide variety of ways to configure and monitor the Serial Server. These methods are:

❖ **TROY XAdmin32**

1. Compatible with 32-bit Windows operating systems running TCP/IP or IPX/SPX Protocols
2. Included on CD-ROM
3. Can be downloaded from our web site (<http://www.troygroup.com>)
4. Default password is ACCESS

❖ **TROY XAdmin:**

1. A 16-bit graphical utility
2. Compatible with Windows 3.1 and or later systems running IPX/SPX or Banyan VINES protocols
3. Included on CD-ROM
4. Can be downloaded from our web site (<http://www.troygroup.com>).

❖ **TROY WebXAdmin**

1. Allows the user to configure the Serial Server with a standard web browser like Netscape Navigator or Microsoft Internet Explorer.
2. Can be used on any operating system that supports web browser capabilities
3. Both Serial Server and PC must be configured with an IP address in order to use WebXAdmin

❖ **TROY Serial Server Console**

1. A command-line oriented console
2. Contains features not available through XAdmin or WebXAdmin
3. Default password is *ACCESS*
4. Can be accessed via:
  - TELNET
    - Serial port (console mode must be enabled)
    - WebXAdmin

SS-8S-1 and SS-8S-2 models can also access the console via:

- TROY XConfig NetWare Utility

SS-8N-1 and SS-8N-2 models have the same console access methods as the SS-8S-1 and SS-8S-2 models, plus:

- DEC NCP
- DEC NCL
- ULTRIX ccr

**Note:** *In all cases, when you are connected, hit RETURN or ENTER to get the “#” prompt, enter password ACCESS (it will not echo) and type anything in response to the “Enter Username>” prompt. When you get the “Local>” prompt, you are ready to enter commands.*

❖ **HP JetAdmin:**

1. HP Windows-based utility (TROY Serial Servers work transparently with JetAdmin).
2. Can be downloaded from the HP web site (<http://www.hp.com>).

**Notes:**

*The TROY Serial Server will not appear in the list of configured servers unless:*

- *TCP/IP or IPX is running on the computer*
- *The Serial Server has been configured with a valid IP address.*

❖ **HP Web JetAdmin:**

1. An HP utility for Windows NT Advanced Server and Windows 2000
2. Can be downloaded from the HP web site (<http://www.hp.com>).
3. Once it is installed, a web browser on any computer that has access to the Windows NT/2000 server may be used to access the TROY Serial Server.

Refer to the Administrator’s Guide on the CD-ROM included with Serial Server or on the TROY web site (<http://www.troymgroup.com>) for detailed steps on how to use the above utilities.

## Setting the IP Address

In order to use a TROY serial server with TCP/IP, NetBIOS IP, WebXAdmin, or PrintraNet, you must first configure an IP address into the serial server. TROY serial servers provide a variety of methods for setting this address.

**Important Note:** *Consult your system manager before assigning an IP address to your serial server in order to avoid duplicate addresses. If your network does not have an officially assigned block of IP addresses, you may use any unique address between 192.168.254.1 and 192.168.254.254 (this is a reserved range of Class C addresses for private networks that are not connected to the Internet per RFC 1918; note that you must also assign your computer an IP address in this range). You may use a subnet mask of 255.255.255.0 with no gateway address.*

The serial server IP address can be assigned in any one of the following ways:

### DHCP

Serial servers with firmware version above 3.40 will automatically pick up the next available IP address if there is an active DHCP server on the network.

### XAdmin32 Utility

The address can be set using the XAdmin32 Windows-based management program (see chapter 3 of the *Administrator's Guide* on the CD-ROM for more details):

- Start the XAdmin32 program (the default password is ACCESS)
- Select **Devices**
- Select **Set Up Unconfigured Devices**
- Click on the Ethernet Address of the serial server (this address is printed on the label that is affixed to the serial server).
- Click on **Configure**
- Enter the IP address, subnet mask and router/gateway address
- Click **OK**.

### Remote or Local Console

The serial server console can be accessed via the DEC NCP, NCL or ccr utilities, XCONFIG, or the serial port. WebXAdmin and TELNET can be

used to reset the IP address after it has been set. The default password for the console is *ACCESS*.

At the “Local” prompt, type the commands:

```
SET IP ADDRESS xxx.xxx.xxx.xxx
SET IP SUBNET xxx.xxx.xxx.xxx
SET IP ROUTER xxx.xxx.xxx.xxx
INIT
EXIT
```

### **ARP/PING**

To use arp and ping to set the IP address, enter the following commands at the Windows command prompt or UNIX system prompt:

```
arp -s ipaddress ethernetaddress
ping ipaddress
```

where:

“*ipaddress*” is the IP address you wish to assign

“*ethernetaddress*” is the ethernet address of the serial server.

### **Other Methods:**

The IP address can also be set via BOOTP, rarp, and JetAdmin. These methods are described in the Administrator’s Guide, which can be found on the CD-ROM included with the serial server, or on the TROY XCD web site (<http://www.troygroup.com>)

### **Verify the connection:**

Before proceeding to the host communication setup, verify the connection between the host and the serial server using the “ping” command from the UNIX or DOS system prompt. For example:

```
ping 192.189.207.3
```

## Connecting the Serial Server to Devices other than Printers

The TROY Serial Server provides a general-purpose method for connecting RS-232 serial devices to Ethernet networks. It provides a transparent bidirectional communications path from the RS-232 device to the computer. In other words, it makes the device look like as though it is directly connected to the serial port of the computer, even though it is actually communicating over the Ethernet.

Before using the serial server in this type of application, you must first make sure that your computer system is running the TCP/IP protocol and has a valid IP address (refer to your computer's documentation if you do not know how to do this). You must also enter an IP address, gateway, and subnet mask into the Serial Server as described in Chapter 4 of this manual.

To establish the communications path to the Serial Server (and therefore to the RS-232 device), a program on the computer must open a TCP connection to the IP address of the Serial Server. If you are using Windows, this can be done by calls to the WINSOCK API. If you are using UNIX or other operating systems, this can be done by using the appropriate TCP/IP API supplied by the operating system.

As an alternative, you can use third party Serial Port Emulation software. This software allows you to use almost any Windows application that communicates with a standard PC serial port (for example, COM3). Basically, it looks to the application program like a COM port, but actually redirects the input/output TCP/IP and Ethernet instead of a hardwired RS-232 connection.

## Obtaining Technical Assistance

TROY technical support is available to assist you with any questions concerning the setup, operation, or maintenance of your TROY print server.

### ***Worldwide Web Support***

Located at <<http://www.troypgroup.com/wireless>>, the TROY web site provides answers to many common technical questions and also includes copies of product manuals and literature, as well as utilities and firmware load images.

### ***Technical Support***

#### North and South America

If you need to talk to one of our Technical Support Specialists, our support line is open Monday through Friday, 8 AM to 8 PM, Eastern Standard Time.

U.S. 48 contiguous States: (800) 332-6427

Canada, Alaska, Hawaii, and South America: +1-304-232-0899

E-Mail: <[technicalsupport@troypgroup.com](mailto:technicalsupport@troypgroup.com)>

#### Europe

Technical support is available in either German or English from Monday through Thursday, 9 AM to 12 PM and 1 PM to 5 PM, and on Friday from 9 AM to 12 PM and 1 PM to 4 PM.

Phone: +49-7032-9454-21

E-Mail: <[support@troypgroup.de](mailto:support@troypgroup.de)>

Web: <<http://www.troypgroup.de>>



## ***Returning Products***

If you need to return a TROY product for any reason (failures, incorrect shipments, etc.), follow the steps below:

1. Contact the TROY Technical Support group at (304) 232-0899 to request a Return Goods Authorization (RGA) number (for North and South American customers), or call +49-7032-9454-21 (for European customers) and request a Return Material Authorization (RMA) number.
2. Be prepared with the serial number of the unit you are returning. You will be asked for the serial number to verify warranty coverage.

Please record these serial numbers in the space provided below for future reference.

**Model #:** \_\_\_\_\_

**S/N:** \_\_\_\_\_

Make sure that you write the RMA or RGA number on the outside of the shipping container you use to return the product. Please ship the defective product(s) to the appropriate address below:

North and South America:

TROY Group, Inc.  
RGA# \_\_\_\_\_  
3 Bryan Drive  
Wheeling, WV 26003

Europe:

TROY GmbH  
RMA# \_\_\_\_\_  
Schwarzwaldstr. 99  
D-71083 Herrenberg,  
Germany

## **Contacts**

### Corporate Headquarters

TROY Group, Inc.  
2331 South Pullman Street  
Santa Ana, CA 92705 USA  
(949) 250-3280

### Technical Support

#### North and South America

U.S. 48 contiguous States: (800) 332-6427  
Canada, Alaska, Hawaii, and South America: +1-304-232-0899  
E-Mail: <[technicalsupport@troygroup.com](mailto:technicalsupport@troygroup.com)>

#### Europe

Phone: +49-7032-9454-21  
E-Mail: <[support@troygroup.de](mailto:support@troygroup.de)>  
Web: <<http://www.troygroup.de>>