# Networking Alpha<sup>®</sup> signs on a TCP/IP network

#### Contents

This document explains how to use the

- Alpha<sup>®</sup> Ethernet Adapter
- Lantronix MSS100
- Lantronix MSS485

to network Alpha<sup>®</sup> signs over a TCP/IP network. Also, to send messages to Alpha<sup>®</sup> signs over the network, you can use AlphaNet plus<sup>™</sup> for Microsoft<sup>®</sup> Windows 1.3 (or later version) or Smart Alec<sup>®</sup> 3.0 software (or later version) or any other messaging software that is compatible with TCP/IP.

NOTE: AlphaNet plus<sup>™</sup> for Windows is compatible with Microsoft<sup>®</sup> Windows 95, 98, NT, ME, and 2000. Smart Alec<sup>®</sup> 3.0 is compatible with Microsoft<sup>®</sup> Windows 95, 98, and NT. Installation and setup for this product requires a network-literate Information Systems professional.



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Due to continuing product innovation, specifications in this manual are subject to change without notice.

## Introduction

## Why use serial servers?

A serial server is an electronic device that provides TCP/IP connections for signs and other serial devices by converting serial data to and from TCP/IP format.

A serial server is an economical way to add Alpha<sup>®</sup> signs to an existing network. Instead of running separate cabling to create a sign network, Alpha<sup>®</sup> signs can be attached to an existing TCP/IP network using serial servers. This allows you to communicate with Alpha<sup>®</sup> signs across the room or around the world.

#### **TCP/IP** compatibility

A serial server supports a variety of TCP/IP features, including the **Telnet** terminal protocol. **Telnet** is an easy-to-use interface that creates terminal connections to any network host supporting **Telnet**.

#### Connectivity

The serial server connects devices directly to the TCP/IP network, which conserves physical ports on the host, allows the terminal to access more than one host, and simplifies terminal cabling.

Standard cabling and connectors from Adaptive<sup>™</sup> Micro Systems can be used with the Alpha<sup>®</sup>Ethernet Adapter, the Lantronix MSS100, and the Lantronix MSS485.

#### **Remote Configuration**

A serial server can be logged into and remotely configured via network login, **Telnet** login to the remote console port, or **EZWebCon**.

#### **Reloadable operating software**

Alpha<sup>®</sup> Ethernet Adapters from Adaptive<sup>™</sup> Micro Systems and serial servers from Lantronix are Flash-ROM serial servers. Flash-ROM serial servers store their operating software permanently on-board, so they do not need to download code unless new versions become available. Serial servers can also be configured to request a downloaded configuration file at boot time.

#### Extensive technical support services

Technical information and telephone support, as well as the latest software, is readily available from your dealer, Adaptive<sup>™</sup> Micro Systems, and Lantronix. (See "Technical support" on page 47 for details.)

## Types of serial servers available

Several serial servers are available for varying circumstances.

## Alpha<sup>®</sup> Ethernet Adapter

- Allows you to connect an Alpha<sup>®</sup> sign to a 10BASE-T TCP/IP network.
- Needs no separate power supply. It gets its power directly from an Alpha<sup>®</sup> sign. Because of this, it is suitable for most, but not all, Alpha<sup>®</sup> signs. See "Valid Adaptive™ signs for an Alpha<sup>®</sup> Ethernet Adapter" below for a list.

#### Lantronix MSS100

- Allows you to connect an Alpha<sup>®</sup> sign to a 100BASE-T or 10BASE-T TCP/IP network.
- Has its own power supply, therefore is suitable for all Alpha<sup>®</sup> signs.

#### Lantronix MSS485

• Allows you to connect an RS485 network of up to 32 signs to a 10BASE-T TCP/IP network. (Using a repeater box can extend this limit. See the **Network Configurations** manual, (PN 9708-8046.)

## Valid Adaptive™ signs for an Alpha<sup>®</sup> Ethernet Adapter

For the latest information, see TechMemo 99-0002 on the Adaptive<sup>™</sup> web site.

The Alpha<sup>®</sup> Ethernet Adapter works with the following signs:

- 215C, 215R
- 220C (all shipped after February 1, 2000)
- 300C series
- 4000C, 4000R series (using RS232 jumper and jack)
- 7000C series (using RS232 jumper and jack)
- Alpha<sup>®</sup> Big Dot
- AlphaVision<sup>TM</sup> FS
- BetaBrite<sup>®</sup> one-line displays (P1026, P1036 and P1040), including 213C and BetaBrite<sup>®</sup> Window Display
- BetaBrite<sup>®</sup> Director (all shipped after July 1, 2000)
- Personal Priority Display<sup>TM</sup> (PPD<sup>TM</sup>)

The Alpha<sup>®</sup> Ethernet Adapter does <u>not</u> work with the following signs:

- 210C
- 220C (all shipped prior to February 1, 2000)
- 420
- 790i
- AlphaEclipse<sup>TM</sup>
- AlphaPremiere<sup>TM</sup>
- AlphaVision<sup>TM</sup> CM, FM, 1.4", 2.1"
- AlphaVision<sup>TM</sup> Video Screen (VS)
- AlphaVision<sup>TM</sup> InfoTracker (IT) works with MSS485 only
- AlphaTicker<sup>TM</sup> works with MSS485 only
- BetaBrite Director<sup>®</sup> (all shipped before July 1, 2000)
- Solar<sup>TM</sup>

## **Resources needed**

#### Software

Valid messaging software includes:

- Smart Alec<sup>®</sup>, version 3.0
- AlphaNet plus<sup>™</sup> for Windows, version 1.3
- Alpha<sup>®</sup> Messaging Software
- BetaBrite<sup>®</sup> Messaging Software
- Gateway Messaging Software
- Alpha<sup>®</sup> Marquee ActiveX<sup>®</sup> control

Additional software which may be needed includes:

- EZWebCon (Information on how to acquire and install EZWebCon is provided in "Method 1: EZWebCon" on page 8.)
- **Telnet** (Available with all Microsoft<sup>®</sup> Windows operating systems. See "Method 3: Telnet" on page 18)
- Redirector (for Alpha<sup>®</sup> Messaging Software or BetaBrite<sup>®</sup> Messaging Software. Available from Lantronix. See "Install Redirector" on page 35)

#### Hardware

Hardware needed includes:

- Alpha<sup>®</sup> Ethernet Adapter, and/or MSS100 with power supply, and/or MSS485 with power supply
- Functional sign with Alpha<sup>®</sup>, Smart Alec<sup>®</sup>, or Gateway firmware chip
- Power supply for each sign
- Active 10BASE-T TCP/IP port *and/or* Active 100BASE-T TCP/IP port
- TCP/IP network cabling
- DB25-to-RJ11 adapter
- RS232 cable
- PC connected to the network

#### References

You may find these other documents helpful:

- Network Configurations (PN 9708-8046)
- Networking Alpha<sup>®</sup> Signs
- AlphaNet plus<sup>™</sup> for Windows User Manual version 1.3 (PN 9708-8081)
- Smart Alec<sup>®</sup> User Manual version 3.0 (PN 9709-2030)
- Alpha<sup>®</sup> Marquee Control ActiveX<sup>®</sup> Developer's Reference (PN 9709-2054)
- TechMemo 99-0002

# General steps for networking $Alpha^{\mathbb{R}}$ signs on a TCP/IP network

Serial servers allow the flexibility of linking into a TCP/IP network to send messages to a sign.

- **1.** First, assign each a unique IP address to each serial server.
- **2.** Next, set up networking hardware, including the serial server.
- **3.** Finally, perform tasks necessary to specific messaging software:
  - Set up the messaging software to direct messages through the serial servers to a sign. This is needed for Smart Alec<sup>®</sup> version 3.0 and AlphaNet plus<sup>™</sup> for Windows version 1.3.
  - Install and select settings for **Redirector software**. This is needed for **Alpha<sup>®</sup> Messaging Software** and **BetaBrite<sup>®</sup> Messaging Software**.
  - Set an MSS485 as a "local/host" serial server to send messages to one or more serial servers, each set as a "remote". This is needed for Gateway Messaging Software.

For messages to be sent to a specific sign on the network, each serial server must have a unique IP address associated with it. There are several methods for assigning an IP address that can be used depending on various circumstances. For some of these methods, installation of the serial server hardware must be done while assigning the IP address. For other methods, the IP address can be assigned after the serial server hardware is installed.

To assign an IP address, you will need to know two numbers:

- 1. The IP address to be assigned to each serial server, either Alpha<sup>®</sup> Ethernet Adapter, MSS100, or MSS485. The specific address is usually designated by an IS network administrator.
- 2. The hardware address of the serial server. This is found on a label on the back of the server.

The following methods for assigning an IP address are listed in order from the most simple and most often used to the least often used.

## Method 1: EZWebCon

EZWebCon is one of the easiest ways to assign a specific IP address.

#### Install EZWebCon software

- **1.** Obtain the latest version of **EZWebCon** from either the Alpha<sup>®</sup> Ethernet Adapter CD or the Lantronix CD or from the Lantronix Internet site (www.lantronix.com) for your network platform. Download this into an empty directory on the PC to be used.
- **2.** After downloading, double-click on ezwebcon.exe in that folder on the PC.
- **3.** The **EZWebCon** application will be unpacked and installed on your PC.

#### Connect the serial server to sign and network



- **4.** Connect a TCP/IP cable to an active port and to the serial server according to the information for your specific serial server in "Connections for serial servers" starting on page 30.
- 5. Connect an appropriate power supply to the serial server. For an Alpha<sup>®</sup> Ethernet Adapter, this will be the sign with its power cable plugged into an outlet. For a Lantronix serial server, this will be its own power cable.
- **6.** Check the LED lights on the serial server:

The power LED should be solid green, indicating it is properly powered.

The link LED should be solid green, indicating a valid network connection.

The activity LED should be blinking green, indicating normal operation.

## Use EZWebCon software to assign the IP address

7. Run EZWebCon software.



**8.** Right-click on the Lantronix logo button on the main screen for **EZWebCon**. This will display a pop-up menu.

👹 EZWebCon (B1.1/703)	
Click on the type of server you wish to ma	nage:
Remote Access Servers	Print Servers
Terminal Servers	Micro-Serial Servers
	OPTIONS CLOSE

**9.** Choose *Assign IP address to server*.



- **10.** Enter the Ethernet (hardware) address of the serial server. This will always begin with "00-80-a3".
  - HINT: This is case-sensitive and must be entered with lower-case letters. You do not need to type the dashes.



- **11.** Enter the new IP address.
  - HINT: To correctly position the nodes of the address, type both the numbers and the decimal points.
- **12.** Leave *Subnet address* as "None". Leave *TFTP loadhost* as zeroes or set as needed for your system. Leave *Automatically connect and permanently assign the IP address* checked.
- **13.** Click *OK*.
- **14.** EZWebCon will check to see if the serial server already has an assigned IP address.



**15.** You may be prompted to reboot the serial server:

Assign IP Address Status
EZWebCon is now ready to assign the ip address. Please tur the server on now, or if it is already on, turn the power off, then on.
15%
ABORT

- **16.** When **EZWebCon** has finished checking for an IP address, one or more of three things may happen:
  - If it finds an IP address for this serial server and it is the same as the one you are trying to assign, **EZWebCon** will simply tell you so. Click *OK*. You do not need to do anything else to set this IP address.

選 Assign IP Address Status	×
The IP Address 192.67.12.189 is already assigned to ethernet address 00-80-a3-2a-9c-56.	
100%	
ОК	

• If it finds an IP address and it is *not* the same as the one you are trying to assign, **EZWebCon** will ask if you really want to assign the new address. Choose *Yes* if you do.



• If you chose *Yes* to assign a new address over an old address or if no address was found, it will assign the new IP address.



# Use EZWebCon software to detect serial servers and IP addresses on the network (optional)

**17.** Run **EZWebCon** software if it's not already running.



**18.** Click on the *Micro-Serial Servers* icon.



**19.** Click on *Browse* in the *MSS Management* dialog box to search for existing serial servers on the network.

👹 MSS Management 🛛 🗙	1
Enter the name or IP address of the MSS you want to manage:  192.67.12.183  Enter the base URL for the on-line MSS Reference manual.  http://www.lantronix.com/htmfiles/prodinfo/prodman/manuals/ms	Select an MSS from the list of servers below:
	Searching for servers Refresh

**20.** When browsing is complete, the *Browse Network* dialog box shows IP addresses of existing serial servers on the network, including the IP address just assigned to this serial server. (The only way to print this is to press the **Print Screen** button and then paste into a drawing, paint, or word processing application.)

👹 Browse Network
Select an MSS from the list of servers below:
192.67.12.243 (192.67.12.243)
192.67.12.242 (192.67.12.242)
192.67.12.241 (192.67.12.241)
192.67.12.250 (192.67.12.250)
192.07.12.31 (192.07.12.31)
192.07.12.244 (192.07.12.244)
6 servers found. Refresh

- **NOTE:** If the IP addresses you just set is not returned, you can ping the serial server as described in the section for "Method 2: DOS/ARP command". If the IP address still is not detected, you must either assign an IP address to the serial server using a different method, or contact IS personnel with the hardware address on the back of the serial server. IS can then use network management software to locate the IP address.
- **NOTE:** It may be a good idea to write the IP address directly on the serial server.
- **21.** Close EZWebCon.

## Method 2: DOS/ARP command

In a DOS window in Microsoft<sup>®</sup> Windows 95 and Windows NT, the **arp** command is a simple way to assign an IP address when none has been previously assigned. The **arp** command is used here in conjunction with the **ping** command. The **ping** command is used to test the connection with the serial server and to determine whether the new IP address has taken effect.

**NOTE:** The **arp** command will *not* work if any IP address has ever been assigned to the given hardware address. The **arp** command will not replace an existing IP address with another IP address. You can use **Telnet** to change or delete an existing IP address. Refer to "Method 3: Telnet" on page 18.

### **Obtain new IP address(es)**

**1.** Obtain a valid IP address for each serial server. This is usually assigned by an IS network administrator.

### Connect the serial server to sign and network



**2.** Connect the serial server according to the information for your specific adapter in "Connections for serial servers" starting on page 30.

NOTE: Do not connect the power cable to the sign at this time!

### Set up DOS commands for assigning an IP address

**3.** Open up a DOS window on the PC: click on *Start* > *Programs* > *MS-DOS Prompt.* 

🏀 MS-DOS Pron	npt	
7 x 12 💌		<b>\</b>
C:\WINDOWS>_		<b>A</b>
•		

- **4.** Type "ping –t *n.n.n.n*" (where *n.n.n.n* is the IP address to be assigned to the serial server) and press **Enter**.
  - NOTE: This will continuously **ping** this IP address, allowing you to monitor exactly when communication to the device is established. You can stop the execution of this **ping** command by pressing **Ctrl+c**.



**5.** Open up another DOS window on the PC: click on *Start* > *Programs* > *MS-DOS Prompt* a second time.

🏀 MS-DOS Pron	npt			_ 🗆 ×
7 x 12 💌	[]] 🖻 🛍	88	Α	
C:\WINDOWS>				<u>^</u>
•				▼ ▶ //

- Type "arp -s n.n.n.n 00-80-a3-x-x-x" (where n.n.n.n is the IP address of the serial server and 00-80-a3-x-x-x is the hardware address of serial server.) Do not press Enter at this time though!
  - **NOTE:** You must first complete the next step to power up the unit before entering this command. The arp command typed here will be executed in Step 9 below.



#### Apply power to the serial server and to the sign

- 7. Connect an appropriate power supply to the serial server. For an Alpha<sup>®</sup> Ethernet Adapter, this will be the sign with its power cable plugged into an outlet. For a Lantronix serial server, this will be its own power cable.
- **8.** Wait 30 seconds or until the activity light turns off and on only every two seconds. Both the sign and the serial server are now powered up and connected to the network.

### Assign the IP address

- **9.** Press **Enter** at the DOS window with the "arp –s *n.n.n.n* 00-80-a3-x-x-x" command, which you set up in Step 6 above, to actually assign the IP address.
  - **NOTE:** Once the serial server is initially powered up, you have only **two minutes** to assign it an IP address by pressing **Enter** at the DOS window with the "arp –s *n.n.n.n 00-80-a3-x-x-x"* command which you set up in Step 6. After two minutes, either an alternate method must be used or the serial server must be rebooted by removing and reapplying power to it.



**10.** You can watch the DOS window which has the **ping** command to determine when communication has been established. A "Reply from..." response will be displayed in the window with the **ping** command when successful IP assignment is achieved.



**11.** Go to the DOS window which has the **ping** command. Stop the execution of this command by pressing **Ctrl+c**.

🚜 MS-DOS Prompt	
7 x 12 🗸 🛄 🖻 🔂 🖻 💾 🔺	.]
Reply from 192.67.12.241: bytes=32 time= Reply from 192.67.12.241: bytes=32 time=	=5ms TTL=60 =5ms TTL=60
Ping statistics for 192.67.12.241: Packets: Sent = 90, Received = 83, I Annrovimate round trip times in milli-se	ost = 7 (7% loss)
Minimum = 5ms, Maximum = 7ms, Avera Control-C	age = 4ms
C:\WINDOWS>	<b>•</b>
<b>۱</b>	► //.

#### NOTE: The serial server will not save the learned IP address

**permanently**. The time it is saved may vary depending on how your network is set up. This **arp** and **ping** procedure is intended as a temporary measure to enable EZWebCon to communicate with the serial server, or allow an administrator to **Telnet** into the serial server. Once logged in, the administrator can enter the "Change IPaddress" command to make the address permanent. See also "Reserving an IP address" on page 22 for instructions on determining and reserving an IP address.

## Method 3: Telnet

**Telnet** is used to program a hardware device for parameters such as baud rate, stop bits, parity, and particularly an IP address. **Telnet** can be used to reassign an IP address directly when it has already been assigned an address by any means.

#### Connect the serial server to sign and network



- **1.** Connect the serial server according to the information for your specific adapter in "Connections for serial servers" starting on page 30.
- **2.** Connect an appropriate power supply to the serial server. For an Alpha<sup>®</sup> Ethernet Adapter, this will be the sign. For a Lantronix serial server, this will be its own power cable.
- **3.** Check the LED lights on the serial server:

The power light should be solid green, indicating it is properly powered.

The link light should be solid green, indicating a valid network connection.

The activity light should be blinking green, indicating normal operation.

#### Start Telnet

**Telnet** is fully functional on all PCs. To use **Telnet**, from **Start > Run**, type "Telnet". It will open a generic window for **Telnet**. You can also open a **Telnet** window for a specific serial server by typing "Telnet *n.n.n.n*" (where *n.n.n.n* is the currently-assigned IP address of the serial server) from **Start > Run**.

#### Change an IP address 4. (Note: Ski

(Note: Skip this step if you opened a **Telnet** window for a specific serial server as above in "Start Telnet".) From the **Connect** menu, choose **Remote System...** and then select or type the IP address of the serial server. Use "telnet" for the *Port* and "vt100" for the *TermType*.

Connect		×
<u>H</u> ost Name:	192.67.12.252	-
Port:	telnet	•
<u>T</u> ermType:	vt100	-
<u>C</u> onnect	Cancel	

**5.** Type a username and press **Enter**. It doesn't matter what you type here, except that it must be different from that used by any other **Telnet** user on the network.

🚅 Telnet - 192.67.12.252	_ 🗆 ×		
<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp			
	<b>_</b>	🗾 Telnet - 192.67.12.252	_ 🗆 ×
Lantronix MSSLITE Version V3.5/8(990118)		<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
Tupe UFLD at the lines] () i suggest fou assists			4
Type HELP at the Local_2> prompt for assistan	ice.	Lantronix MSSLITE Version V3.5/8(990118)	
		Type HELP at the 'Local 2> ' prompt for assistanc	e.
Username>			
		Username> any	
	-	Local_2>	
	► <i>//</i>		
			-

**6.** The "show server" command can provide confirmation that you've accessed the correct serial server and also provide statistics about that serial server.

Connect Edit Terminal Help         Local_2> show server         MSSLITE Version V3.5/8(990118) Hardware Addr: 00-80-a3-2a-9c-56 Ident String: Micro Serial Server       Uptime: 1:41:23 Name/Nodenum: MSS_2A9C56/0         Inactive Timer (min): 30 Password Limit: 3 Queue Limit: 32 Node/Host Limits: 50/20         TCP/IP Address: 192.67.12.252 Nameserver: 192.67.12.252 Domain Name: ams-i.com       Subnet Mask: 255.255.255.0 Daytime Queries: Disabled TCP Keepalives: Enabled TCP Keepalives: Enabled
Local_2> show server  MSSLITE Version V3.5/8(990118) Hardware Addr: 00-80-a3-2a-9c-56 Ident String: Micro Serial Server  Inactive Timer (min): 30 Password Limit: 3 Queue Limit: 32 Node/Host Limits: 50/20  TCP/IP Address: 192.67.12.252 Subnet Mask: 255.255.25.0 Nameserver: 192.67.12.4 Backup Sameserver: (undefined) TCP/IP Gateway: 192.67.12.4 Backup Gateway: (undefined) Domain Name: ams-i.com Daytime Queries: Disabled TCP Keepalives: Enabled DHCP Server: None
Local_2> show server MSSLITE Version V3.5/8(990118) Hardware Addr: 00-80-a3-2a-9c-56 Ident String: Micro Serial Server Inactive Timer (min): 30 Serial Delay (msec): 30 Password Limit: 3 Session Limit: 4 Queue Limit: 32 Node/Host Limits: 50/20 TCP/IP Address: 192.67.12.252 Subnet Mask: 255.255.255.0 Nameserver: 192.67.12.4 Backup Mameserver: (undefined) TCP/IP Gateway: 192.67.12.4 Backup Gateway: (undefined) TCP/IP Gateway: 192.67.12.2 Backup Gateway: (undefined) Domain Name: ams-i.com Daytime Queries: Disabled TCP Keepallues: Enabled DHCP Server: None Lease Time: 8:00
MSSLITE Version V3.5/8(990118) Hardware Addr: 00-80-a3-2a-9c-56 Ident String: Micro Serial ServerUptime:1:41:23 Name/Nodenum:Inactive Timer (min):30 Password Limit:Serial Delay (msec):30 Password Limit:Queue Limit:32 Node/Host Limits:50/20TCP/IP Address:192.67.12.252 Paserver:Subnet Mask:255.255.65.0 Pasckup Cateway:Comparison192.67.12.4 Domain Name:Backup Sateway:(undefined) TCP/IP Gateway:Domain Name:ams-i.com PassingDaytime Queries:Disabled TCP Keepallues:DHCP Server:NoneFine:6:00
Hardware Addr: 00-80-a3-2a-9c-56 Ident String: Micro Serial ServerName/Nodenum:MSS_2A9C56/ 0Inactive Timer (min):30Serial Delay (msec):30Password Limit:3Session Limit:4Queue Limit:32Node/Host Limits:50/20TCP/IP Address:192.67.12.252Subnet Mask:255.255.255.0Nameserver:192.67.12.2Backup Nameserver:(undefined)TCP/IP Gateway:192.67.12.2Backup Gateway:(undefined)Domain Name:ams-i.comDaytime Queries:DisabledDHCP Server:NoneLease Time:6:00
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Password Limit:3Session Limit:4Queue Limit:32Node/Host Limits:50/20TCP/IP Address:192.67.12.252Subnet Mask:255.255.05Nameserver:192.67.12.4Backup Nameserver:(undefined)TCP/IP Gateway:192.67.12.2Backup Gateway:(undefined)Domain Name:ams-i.comDaytime Queries:DisabledTCP Server:NoneLease Time:61.00
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TCP/IP Address:       192.67.12.252       Subnet Mask:       255.255.0         Nameserver:       192.67.12.4       Backup Nameserver:       (undefined)         TCP/IP Gateway:       192.67.12.2       Backup Gateway:       (undefined)         Domain Name:       ams-i.com       Daytime Queries:       Disabled         TCP Keepalives:       Enabled         DHCP Server:       None       Lease Time:       0:00
TCP/IP Address:     192.67.12.252     Subnet Mask:     255.255.25.0       Nameserver:     192.67.12.4     Backup Nameserver:     (undefined)       TCP/IP Gateway:     192.67.12.2     Backup Gateway:     (undefined)       Domain Name:     ams-i.com     Daytime Queries:     Disabled       TCP Keepalives:     Enabled       DHCP Server:     None     Ease
Nameserver: 192.67.12.4 Backup Nameserver: (undefined) TCP/IP Gateway: 192.67.12.2 Backup Gateway: (undefined) Domain Name: ams-i.com Daytime Queries: Disabled TCP Keepalives: Enabled DHCP Server: None Lease Time: A:AA
TCP/IP Gateway: 192.67.12.2 Backup Gateway: (undefined) Domain Name: ams-i.com Daytime Queries: Disabled TCP Keepalives: Enabled DHCP Server: None Lease Time: A:AA
Domain Name: ams-i.com Daytime Queries: Disabled TCP Keepalives: Enabled DHCP Server: None Lease Time: A:AA
TCP Keepalives: Enabled DHCP Server: None Lease Time: A:AA
DHCP Server: None Lease Time: 0:00
Load Address: 00-00-00-00-00 Prompt: Local_%n%P>
Unaracteristics:
Incoming Logins: Teinet (No rasswords Required)
LOCA1_Z>

**7.** Type "set priv". Press **Enter**. Then type the password. Press **Enter** again. The default password is "system".



**8.** You now have access to the "super user" level of authority. This is required to set the IP address.



**9.** To assign a new IP address, type "change ipaddr *n.n.n.n*" (where *n.n.n.n* is the new IP address.)

📑 Telnet - 192.67.12.252	_ 🗆 X
<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
Local_2>> change ipaddr 192.67.12.189 %Info: TCP users exist - reboot to take effect. Local_2>> ∎	<u> </u>
x	▼ //

**10.** You should now reboot the serial server. To do this, type "i d 0" with spaces between the characters. (The last character is a zero.)



**11.** Because the serial server will no longer be at the same address as when you connected to it using **Telnet**, **Telnet** officially logs you out of that connection.



**12.** You then get this notification.

Telnet 🔋	ς.
Connection to host lost.	
OK	

**13.** After clicking *OK*, and after the serial server completes rebooting, you can connect to the server using the new IP address if you wish to confirm the change with the **show server** command. Alternatively, you can exit **Telnet** and send messages.

## Method 4: DHCP

Dynamic Host Configuration Protocol (DHCP) allows a device to use a dynamic IP address assigned at boot time from an available pool of addresses. With this method, you do not need to set the IP address in the hardware itself.

The serial server is shipped with DHCP disabled. However, if DHCP ever becomes enabled (such as after resetting the server, as described below) and if your network uses Dynamic Host Configuration Protocol (DHCP), then when the serial server is re-connected to the network and powered up, DHCP will automatically assign a dynamic IP address to the serial server. If you want to accept this assigned IP address and don't need to reassign another chosen address, you will still need see "Reserving an IP address" below for instructions on determining and reserving an IP address.

#### **Reserving an IP address**

#### **Determine the IP address**

So that you can send messages to the correct IP address, a system/network administrator must use the **DHCP Manager** (or similar) application to locate the serial server by its hardware address. The dynamic IP address is associated with the hardware address. This identification process can be involved on large networks.

#### **Reserving the IP address**

A system/network administrator can use the system/networking **DHCP Manager** application to set the dynamically-assigned address to a permanent lease. This will reserve the IP address as a static address for the particular hardware address. If you do not reserve the IP address, periodically DHCP will automatically reassign a new dynamic – and typically different – IP address to the serial server. The result is that messages will not be delivered to the serial server.

#### **Resetting DHCP to "disabled"**

To set the serial server so that DHCP is disabled:

- **1.** Follow the information in "Method 3: Telnet" to "Start Telnet", on page 18.
- **2.** Follow the steps in "Change an IP address" (starting on page 19) to type the username and "set priv". These are Step 4 through Step 8.
- **3.** Next, to disable DHCP, type "change dhcp disabled".
- **4.** To exit **Telnet**, choose **Exit** from the **Connect** menu.

## Method 5: HyperTerminal

HyperTerminal may be used when, for some reason, you cannot access the serial server from the network. In this case, you will need to program the device directly using HyperTerminal and a null DB25F- or DB9F-to-DB25F serial cable (not supplied) from the PC to the server. (For an Alpha<sup>®</sup> Ethernet Adapter, however, you will need to split out two wires to connect the MSS device to an external power supply.) You will also need to use communication settings of 9600 baud, 8N1, and flow control set to either XON/XOFF or HARDWARE. For assistance, please call Technical Support at Adaptive<sup>TM</sup> Micro Systems.

**NOTE:** HyperTerminal is fully functional on all PCs, but you may need to install it with the Add/Remove Programs icon in the Control Panel.

## **Resetting a serial server**

There may be times when you need to reset the serial server to its default factory settings. These default settings include setting DHCP to "enabled".

To reset the serial server:

- **1.** Remove power from the adapter, either the cable to the sign (Alpha<sup>®</sup> Ethernet Adapter) or its power cable (MSS100 or MSS485).
- **2.** Using the point of a pen or a similar object, press and hold the reset button on the serial server and then reapply power to the sign. Continue to hold the reset button for 20 seconds after reapplying power.

## Network configuration examples

## Alpha<sup>®</sup> or BetaBrite<sup>®</sup> Messaging software with one sign

Use this setup when 1 sign needs to be connected to a network. This setup also requires the use of the **Redirector** software.



10/100BASE-T using MSS100)

ltem	Part No.	Description	Notes
۸	1092-9102	Alpha <sup>®</sup> Messaging software	Redirector software must also be used. This is available from the Lantronix Web
~	1102-9102	BetaBrite <sup>®</sup> Messaging software	site. See "Installing and selecting Redirector settings" on page 35 for information.
В	-	The computer must be connected to the TCP/IP network with a network card.	
	1088-9120	Alpha <sup>®</sup> Ethernet Adapter kit	The Alpha <sup>®</sup> Ethernet Adapter is mounted on the back of the sign and draws its power from the sign itself (no separate power supply is needed.) The Alpha <sup>®</sup> Ethernet Adapter will need its own unique IP address. 10BASE-T only.
C	1088-4113	MSS100 Micro Serial Server	The MSS100 has its own power supply. The MSS100 needs its own unique IP address. 10BASE-T or 100BASE-T.
	1088-4112	MSS485 Micro Serial Server	The MSS485 has its own power supply. The MSS485 needs its own unique IP address. 10BASE-T only. Applicable for the BetaBrite Director <sup>®</sup> (all shipped after July 1, 2000). Not applicable for the one-line BetaBrite <sup>®</sup> signs (P1026, P1036 and P1040).
D		For proper cabling, see "Connections for serial servers" on page 30.	

## Alpha<sup>®</sup> Messaging software with one or more signs

Use this setup when Alpha<sup>®</sup> Messaging Software is used to send messages to multiple signs need to be connected to a TCP/IP network and an RS485 network. Using the Redirector software, available from Lantronix, one MSS485 Micro Serial Server can be used, and up to 32 signs can be connected to each serial server. The total length of the RS485 network is limited to 4,000 feet at 9600 baud or 10,000 feet at 2400 baud except if a repeater box is used. Alpha<sup>®</sup> Messaging Software will send the same message to every sign in this network.



ltem	Part No.	Description	Notes
Α	1092-9102	Alpha <sup>®</sup> Messaging software	Redirector software must also be used. This is available from the Lantronix Web site. See "Installing and selecting Redirector settings" on page 35 for information.
В	-	The computer must be connected to the TCF	P/IP network with a network card.
C	1088-4112	MSS485 Micro Serial Server	Used to connect a TCP/IP network and RS485 cabling. The MSS485 must be assigned an IP address which the Alpha <sup>®</sup> Messaging software uses to address this device. Only one MSS485 can be used, however, that MSS485 can address up to 32 signs.
D	1088-8000	RS485 cable (1000 foot spool)	Used to interconnect signs.
E	4331-0602	Modular Network Adapter	Used to interconnect signs.
F	1088-8624	8-foot RS485 cable	Plugs into the sign's RS485 jack. (The network of signs must <i>not</i> be terminated.)
Ľ	1088-8636	1-foot RS485 cable (recommended)	

# AlphaNet plus<sup>™</sup>, Smart Alec<sup>®</sup>, or ActiveX software with one or more signs with a TCP/IP network only

Use this setup when AlphaNet plus<sup>™</sup> (version 1.3 or later), Smart Alec<sup>®</sup> (version 3.0 or later), or ActiveX (version 1.0 or later) software is used to send messages to multiple signs connected only to a TCP/IP network. The number of signs in this network is only limited by the number of available IP addresses. The potential length of the network is unlimited. These software applications have the ability to display a unique message on each of the signs in this network.



ltem	Part No.	Description	Notes
	1092-7827	AlphaNet plus™ for Microsoft <sup>®</sup> Windows	
Α	Contact Adaptive™ Customer Service	Smart Alec <sup>®</sup> software	
	1092-7825	Alpha <sup>®</sup> Marquee ActiveX Control	
В	-	The computer must be connected to the TCP/IP network with a network card.	
C	1088-9120	Alpha <sup>®</sup> Ethernet AdapterEach Alpha <sup>®</sup> Ethernet Adapter is mounted on the back of the sign and draws its power from the sign itself (no separate power supply is needed.) Each Alpha <sup>®</sup> Ethernet Adapter needs its own unique IP address. (10BASE-T only)	
	1088-4113	MSS100 Micro Serial Server	Each MSS100 has its own power supply. Each MSS100 needs its own unique IP address. (10BASE-T or 100BASE-T)
D		For proper cabling, see "Connections for serial servers" on page 30.	

# AlphaNet plus<sup>™</sup>, Smart Alec<sup>®</sup>, or ActiveX software with one or more signs with both TCP/IP and RS485 networks

Use this setup when AlphaNet plus<sup>™</sup> (version 1.3 or later), Smart Alec<sup>®</sup> (version 3.0 or later), or ActiveX (version 1.0 or later) software is used to send messages to multiple signs on an RS485 network connected to a TCP/IP network. The number of signs in this network is only limited by the number of available IP addresses. The total length of the RS485 network is limited to 4,000 feet at 9600 baud or 10,000 feet at 2400 baud except if a repeater box is used. These software applications have the ability to display a unique message on each of the signs in this network.



ltem	Part No.	Description	Notes
	1092-7827	AlphaNet plus <sup>™</sup> for Windows v1.3 software	
A	-	Smart Alec <sup>®</sup> v3.0 software	Call Adaptive™ Customer Service for available demo, upgrade, or full version
	1092-7825	Alpha <sup>®</sup> Marquee ActiveX Control	
В	-	The computer must be connected to the TCP/IP network with a network card.	
C	1088-4112	MSS485 Micro Serial Server	Used to connect a TCP/IP network and RS485 cabling. Each MSS485 must be assigned an IP address which the software uses to address each device.
D	1088-8000	RS485 cable (1000 foot spool)	Used to interconnect signs.
E	4331-0602	Modular Network Adapter	Used to interconnect signs.
F	1088-8624	8-foot RS485 cable	Plugs into the sign's RS485 jack. (The network of signs must <i>not</i> be terminated.)
· ·	1088-8636	1-foot RS485 cable (recommended)	

## Electronic Sign Electronic Sign D Electronic Sign Electronic Sign B A G Н В TCP/IP network (10BASE-T only) Е D Gateway II interface

## Gateway Messaging software with one or more signs on a network

ltem	Part #	Description	Notes
A	1188-9207	Gateway Messaging software	
В	1088-8625	25' RS232 cable	Also requires 1088-9108 or 4370-0001C adapter to PC.
C	See Notes.	Alpha <sup>®</sup> Gateway II interface	This varies according to the specific industrial network. Input: 9600 baud, 8 bits, No parity, 1 stop bit, Flow Control = None Output: 9600 baud, 7 bits, Even parity, 2 stop bits, Flow Control = None
D	1088-8000	RS485 cable (1000 foot spool)	
E	1088-4112	MSS485 Micro Serial Server	Used to connect a TCP/IP network and RS485 cabling. Each MSS485 must be assigned an IP address. Must be set as "local/host" server. (See page 38.)
F	1088-4113	MSS100 Micro Serial Server	Each MSS100 has its own power supply. Each MSS100 needs its own unique IP address. Must be set as "remote" server. (See page 38.)
G	1088-4112	MSS485 Micro Serial Server	Used to connect a TCP/IP network and RS485 cabling. Each MSS485 must be assigned an IP address. Must be set as "remote" server. (See page 38.)
Н	1088-9120	Alpha <sup>®</sup> Ethernet Adapter Kit (Includes cabling.)	Each Alpha <sup>®</sup> Ethernet Adapter is mounted on the back of the sign and draws its power from the sign itself (no separate power supply is needed.) Each Alpha <sup>®</sup> Ethernet Adapter needs its own unique IP address. Must be set as "remote" server. (See page 38.)
I	4331-0602	Modular Network Adapter	Used to interconnect signs.
	1088-8636	1-foot RS485 cable (recommended)	Diversists the size's DC40C issle (The actuary of sizes must act to terminated.)
J	1088-8624	8-foot RS485 cable	- riugs must not be terminated.)
For more information on RS232 and RS485 networking, see the document <b>Network Configurations</b> (9708-8046).			

## **Connections for serial servers**

# Alpha<sup>®</sup> Ethernet Adapter



## Table 1: Alpha<sup>®</sup> Ethernet Adapter components

Part	Description	Notes
Α	DB25 serial port	
В	RJ45 TCP/IP port	
C	Reset button	
D	LED diagnostic lights	1. ACT (activity) 2. LNK (network link/connection) 3. PWR (power)



## Table 2: Alpha<sup>®</sup> Ethernet Adapter connections

Part	Adaptive™ part number	Description	Notes
A	1088-9317	Ethernet cable 8-inch, RJ11-DB25 female	Connect to the sign.
В	1088-9120	Alpha <sup>®</sup> Ethernet Adapter Kit	
C	—	TCP/IP cable	Connect to 10BASE-T TCP/IP.

## Lantronix MSS100



Table 3: MSS100 components

Part	Description	Notes
A	Power connection	5 volt only
В	Reset button	
C	RJ45 TCP/IP port	
D	LED diagnostic lights	1. power 2. link (network link/connection) 3. 100 4. ok 5. serial
E	DB25 serial port	For RS232 connection



Table 4: MSS100 connections

Part	Adaptive™ part number	Description	Notes
۸	1088-8625	25-foot, 6-conductor RS232 serial cable	Connect to the sign's BS232 port
^	1088-8627	50-foot, 6-conductor RS232 serial cable	
В	4370-0001C	DB25-to-RJ11 adapter	
C	1088-4113	MSS100 Micro Serial Server	
D	—	Power cable	Connect to power (5 volt only)
E	—	TCP/IP cable	Connect to 10BASE-T or 100BASE-T TCP/IP

#### Lantronix MSS485



#### Table 5: MSS485 components

Part	Description	Notes
A	Wiring terminal block	See below
В	Power connection	6 volt only
C	Reset button	
D	RJ45 TCP/IP port	
LED diagnostic lights		1. power 2. link (network link/connection) 3. ok 5. serial





Part	Adaptive™ part number	Description	Notes
۸	1088-8624	8-foot, 4-conductor RS485 serial cable	Connect to the Modular Network Adapter
	1088-8636	1-foot, 4-conductor RS485 serial cable	
В	4331-0602	Modular Network Adapter	MSS485-to-MNA wiring: Shield to Shield TXA to RS485- TXB to RS485+ Refer to "RS485 Network Drop Using Modular Network Adapters" (PN9708-8021) for specific MNA connections.
C	1088-4112	MSS485 Micro Serial Server	
D		Power cable	Connect to power (6 volt only)
E		TCP/IP cable	Connect to TCP/IP 10BASE-T only

#### Lantronix MSS485 DIP switch settings

DIP switches are found on the back of the MSS485. Settings must be as follows and the sign network must *not* be terminated. Refer to **Network Configurations** (PN 9708-8046) for information about sign networking and termination.

	······
12345678	Switch Group Functions
	2-Wire 485
	4-Wire 485
	.4-Wire 485 Termination
	2-Wire 485 Termination
	No Termination
0000000000	2- or 4-Wire 485 RX Biasing
	No RX Biasing
0000000	Ground Shield
	Float Shield
Concention to authority	to the following two conditions:
(1) this device may no (2) this device must accept interference that m	t cause harmful interference, and t any interference received, including ay cause undeeled operation. EN60950 CEEEPLR89493
(2) this device may no (2) this device must accept interference that m (2) this device must accept interference that m (2) this device must accept interference that m	t cause harmful Interference, and any interference received, including ay cause undesired operation.
(2) this device may no (2) this device must accept interference that m (2) this device must accept interference that m (2) this device must accept (2) this device must ac	t cause hermitul interference, and t any interference received, including ay cause undesired operation. EN60950 CEEELn89493 TT - C-+

Revision C13/B or later is needed. Earlier versions may not work correctly. If you are experiencing difficulty, contact your customer account specialist.



#### Table 7: Meanings of DIP switch settings for sign networks

Switch(es)	Setting	Meaning
<b>1, 2, 3</b> On / On / On 2-wire RS485		2-wire RS485
4, 5 Off / Off Sign network is <i>not</i> terminated.		Sign network is <i>not</i> terminated.
6, 7	On / On	RX Biasing
8	Off	Float Shield

## Setting up messaging software

A serial server receives a message from one PC over a network and sends it on to a sign. This method is used in conjunction with any software that can use the TCP/IP protocol. **AlphaNet plus<sup>™</sup> for Windows** (version 1.3 or later) and **Smart Alec**<sup>®</sup> (version 3.0 or later) are both TCP/IP-compatible.

## Create the device in the software

In your software, you must create a device which is to use a serial server and TCP/IP. Set the port number to 3001.

Ethernet Adapter General Settings Wireless Settings 🗖 Modem Pager Header: COM Port: COM1 🔽 ☐ Wireless This must be checked on. Data Format: 7E2 Pager Trailer ☑ ТСР/IР **Baud Rate:** 9600 IP Port: 3001 This must be "3001". . Modem Settings **Dialing Prefix** Packet Size: Modem Init String Packet Delau **NK** Cancel Help

The AlphaNet plus<sup>™</sup> for Windows screen for TCP/IP looks like this:

NOTE: For more information about using AlphaNet plus<sup>™</sup> for Windows, refer to the AlphaNet plus<sup>™</sup> for Windows User Manual, available with the purchased software and also on the Web at http://www.adaptivedisplays.com/alphanetplus/.

For **Smart Alec<sup>®</sup> 3.0**, the screen looks like this:



**NOTE:** For more information about using **Smart Alec**<sup>®</sup> **3.0**, refer to the **Smart Alec**<sup>®</sup> **User Manual**, available with the purchased software and also at http://www.adaptivedisplays.com/smartalec/.

After setting up a TCP/IP device and a sign using that device, you can send messages to this sign as you normally would.

Lantronix **Redirector** software is needed for sending messages with **Alpha<sup>®</sup> Messaging Software** or **BetaBrite<sup>®</sup> Messaging Software** over a TCP/IP network to one or more signs.

Lantronix **Redirector** software is used to redirect messages normally sent through a PC COM port to a sign. **Redirector** associates the PC COM port with a network IP address for a serial server. The serial server, in turn, is connected to the sign and sends the message on to the sign. In other words, **Redirector** intercepts messages going to the COM port and sends them over the network to the serial server's serial port and to the sign.

**NOTE:** The COM port you choose can not be in use by any other device, for example, an internal modem. To determine which ports are in use, from *Start* > *Settings* > *Control Panel*, choose *System* and go to the *Device Manager* tab. In the *Ports* directory, determine the COM ports currently in use. The **Redirector** application allows up to 40 logical COM ports to be redirected. You can redirect any except those currently in use. However, **Alpha<sup>®</sup> Messaging Software and BetaBrite<sup>®</sup> Messaging software** only recognize COM ports 1 through 4.

## **Install Redirector**

- **1.** Obtain the latest version of **Redirector** from either the Alpha<sup>®</sup> Ethernet Adapter CD or the Lantronix CD or from the Lantronix Internet site (www.lantronix.com) for your network platform. Download this into an empty folder on the PC to be used.
- **2.** After downloaded, double-click on redirector.exe in that folder on the PC.
- **3.** The **Redirector** application will be unpacked and installed on your PC.

## Direct a COM port to a serial server with Redirector software

**1.** Run the Lantronix **Redirector** software. In the RDCfg Dialog box, click the *Port Setup* icon.

💤 RDCfg
Services Redirect To:
Eemove         Add IP         Move Up         Move Down           Status:         Not Loaded
Disconnect Help Dave Close

**2.** Choose an available COM port that you wish to redirect to the serial server IP address. Click *OK*.

📌 F	Port Setup		
	Redirected Por	ts	
	┌─ Com1	Com11	
	Com2	Com12	
	Com3	) 🗆 Com13	
	Com4	Com14	OK
	┌─ Com5	Com15	
	┌─ Com6	Com16	Cancel
	Com7	Com17	
	Com8	Com18	
	Com9	Com19	
	Com10	Com20	
	•		

- **NOTE:** If you need to use the same COM port for other purposes, you will need to *de*-select the COM port in the same way as the above two steps. Then quit all applications and reboot the computer.
- **3.** Click the *ADD IP* button. In the *IP Service Setup* dialog box, enter the IP address of the serial server that **EZWebCon** detected in the *Host* prompt. In the *TCPPort* prompt, enter "3001", the valid number for any serial server. Click *OK*.

📲 RDCfg 📃 🔍	
Services	IP Service Setup 🔀
Redirect       To:       Silent       Port Setup       Bemove       Add IPX       Move Up       Move Down	Host: 192.67.12.189 TCPPort: 3001
Disconnect Help Deve Liose	OK Cancel <u>H</u> elp

**4.** Click *Save* in the RDCfg dialog box.

RDCfg
Services
Redirect         [IP] 192.67.12.189:3001           CDM3         To:
☐ <u>S</u> ilent
Port Setup         Bernove         Add IP         Add IPX         Move Up         Move Down
Status: Not Loaded
Disconnect Help

**5.** Click *OK* in the Config Info box.

Config Ir	nfo 🛛 🔀
•	Saved service information
	OK

**6.** Click *Close* in RDCfg dialog box.

RDCfg
Services
Redirect COM3 To:
Port Setup     Bemove     Add IP     Add IPX     Move Up     Move Down
Status: Not Loaded
Disconnect Help Dave Close

7. You may need to reboot the computer. You should now be able to access the sign using Alpha<sup>®</sup> Messaging Software or BetaBrite<sup>®</sup> Messaging Software via the network.

## Setting serial servers for Gateway Messaging Software

To use **Gateway Messaging Software** to send messages over a TCP/IP network, you must use an MSS485 as a "local/host" serial server to send messages all at once to one or more signs, each with a "remote" serial server attached.

In this mode, you set one MSS485 as the local/host device. When setting up the MSS485, you assign it a fixed list of up to 12 IP addresses of serial servers. You set up each receiving serial server as a remote device. Then you can use the local/host device to send messages at one time to <u>all</u> the remote devices in the fixed list.

#### Set up the MSS485 to act as a local device

- **NOTE 1:** You must program the MSS485 devices with IP addresses before setting them up.
- **NOTE 2:** The version of the firmware of the MSS485 must be version B3.5/905 (dated 990518) or higher.
- **1.** Choose *Start* > *Run*. Type "Telnet *n.n.n.n*" where *n.n.n.n* is the assigned IP address for the MSS485. Click *OK*.



2. Type a user name and press Enter. It doesn't matter what you type here, except that it must be different from that used by any other Telnet user on the network.

📑 Telnet - 192.67.12.125	_ 🗆 ×
<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
	<b></b>
user namez any	
	-1

**3.** Type "set priv". Press **Enter**. Then type the password. Press **Enter** again. The default password is "system".



**4.** Type "change flow control none". Press **Enter**.

🚅 Telnet - 192.67.12.125	_ 🗆 ×
<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
Username> any	<b></b>
Local_2> set priv Password>	
Local_2>> change flow control none	-

**5.** Type "change charsize 7". Press **Enter**.



**6.** Type "change stopbits 2". Press **Enter**.

<b>J</b> Telnet - 192.67.12.125	_ 🗆 🗡
<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
Local_3> set priv Password> Local_3>> change flow control none Local_3>> change charsize 7 Local_3>> change stopbits 2	▲ ↓ ↓

**7.** Type "change parity even". Press Enter.

<b>"</b> Telnet - 192.67.12.125	_ 🗆 ×
<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
Local_3> set priv	
Password>	
Local_3>> change flow control none	
Local_3>> change charsize 7	
Local_3>> change stopbits 2	
Local_3>> change parity even	
•	▶ //.

**8.** Type "change access local". Press Enter.

률 Telnet - 192.67.12.125	_ 🗆 ×
<u>Connect</u> <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
Local_3>> change flow control none Local_3>> change charsize 7 Local_3>> change stopbits 2 Local_3>> change parity even Local_2>> change access local	

**9.** Type "change dedicated hostlist". Press **Enter**.

🚚 Telnet - 192.67.12.125	_ 🗆 🗙
<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
Local_3>> change flow control none	
Local_3>> change charsize /	
Local 3>> change parity even	
Local_2>> change access local	
Local_2>> change dedicated hostlist	-
<b>▲</b>	<u> </u>

**10.** Type "host add tcp *n.n.n.n*:3001T" where *n.n.n.n* is the IP address of a serial server to be used in <u>remote</u> mode. Press **Enter**. *Do this step for each <u>remote</u> serial server which is to receive messages from the local MSS485*.



NOTE

There is a maximum of twelve (12) IP addresses that can receive messages from a local MSS485. However, if a remote serial server is an MSS485, there can be multiple signs receiving messages through that serial server.

**11.** Type "change autostart enable". Press Enter.

률 Telnet - 192.67.12.125	_ 🗆 ×
<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
Local_3>> change parity even	<b></b>
Local_2>> change access local	
Local_2>> change dedicated hostlist	
Local_2>> host add tcp 192.67.12.402:3001T	
Local_2>> host add tcp 192.67.12.403:3001T	_
Local_2>> change autostart enable	
	<u> </u>
4	

**12.** Type "show hostlist". Press **Enter**. This will show the list of the remote serial server IP addresses you entered.



Setting serial servers for Gateway Messaging Software

**13.** Type "show port". Press Enter. This will show the current settings of the port.

Connect <u>Edit</u> Terminal <u>Help</u> Local_2>> change autostart enable Local_2>> show hostlist				
1: TELNET: <192.67.12.402:3001T> 2: TELNET: <192.67.12.403:3001T>	<u>Connect</u> <u>E</u> dit <u>T</u> erminal <u>H</u> elp			
Local_2>> show port	Local_2>> show port			
	Port 1: Username: Port_1 Char Size/Stop Bits: Flow Ctrl: Parity: Access: Local Switch: Forward: Port name: Dedicated Service: (Hos Characteristics: Telnet F	7/2 None Even Local None None Port_1 stlist) Pad Autos	Physical Port 1 (Idle) Baud Rate: Session Limit: Modem Control: Break Ctrl: Start Character: Backward: Terminal Type:	9600 4 None Local None None None
	Sessions: Input/Output Flow Ctrl: Seconds Since Zeroed: Accesses Local/Rem: Flow Control Violations: Bytes Input: Input Flow On/Off: Ø,	0 N/N 976 9/0 0 0 7 0	Current Session: DSR/DTR/CTS/RTS/CD: Framing Errors: Parity Errors: Overrun Errors: Bytes Output: Output Flow On/Off:	None N/N/N/Y/N 0 0 0 101 0/ 0

## Set up serial servers to act as remote devices

- **NOTE 1:** You must have programmed *all* the serial servers with IP addresses before setting them up in remote mode.
- **NOTE 2:** The version of the firmware of any serial servers must be version B3.5/905 (dated 990518) or higher.
- **1.** Choose *Start* > *Run*. Type "Telnet *n.n.n.n*" where *n.n.n.n* is the assigned IP address for a remote serial server. Click *OK*.

Run	? 🗙
2	Type the name of a program, folder, or document, and Windows will open it for you.
<u>O</u> pen:	telnet 192.67.12.236
	OK Cancel <u>B</u> rowse

2. Type a username and press Enter. It doesn't matter what you type here, except that it must be different from that used by any other Telnet user on the network.

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<u>Connect</u> <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
	<b>_</b>
Username≻ any	
_	
Local_2>	
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	• //.

**3.** Type "set priv". Press **Enter.** Then type the password. Press **Enter** again. The default password is "system".

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	📑 Telnet - 192.67.12.236
	<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp
Username> any	
Local_2> set priv	Username> any
	Local_2> set priv
	Password>
	LUCA1_2//
	<b>_</b>

**4.** Type "change flow control none". Press **Enter**.



**5.** Type "change charsize 7". Press Enter.

<b>"</b> Telnet - 192.67.12.125	
<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
Username> any	<b>_</b>
Local_3> set priv Password>	
Local_3>> change flow control none Local_3>> change charsize 7	_
<b>1</b>	▼ ▶ //:

**6.** Type "change stopbits 2". Press **Enter**.

<b>J</b> Telnet - 192.67.12.125	_ 🗆 ×
<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
Local_3> set priv Password> Local_3>> change flow control none	
Local_3>> change charsize 7 Local_3>> change stopbits 2	▼ 

**7.** Type "change parity even". Press Enter.



**8.** Type "change access remote". Press Enter.



**9.** Type "show port". Press **Enter**. show the current settings of the port.

Telnet - 192 67 12 236	📑 Telnet - 192.67.12.236				_ 🗆 X
Connect Edit Torminal Help	<u>Connect</u> <u>E</u> dit <u>T</u> erminal <u>H</u> elp				
	Local_2>> show port				
Local_2>> change access remote					
Loca1_2>> show port	Port 1: Username: Port_1		Physical Port 1 (Local	Mode)	
	Char Size/Stop Bits:	7/2	Baud Rate:	9600	
	Flow Ctrl:	None	Session Limit:	4	
	Parity:	Even	Modem Control:	None	
	Access:	Remote	Break Ctrl:	Local	
	Local Switch:	None	Start Character:	None	
	Forward:	None	Backward:	None	
	Port name:	Port_1	Terminal Type:	None	
	Characteristics: Telnet	Pad			
$\mathbf{X}$					
	Sessions:	0	Current Session:	None	
	Input/Output Flow Ctrl:	N/N	DSR/DTR/CTS/RTS/CD:	N/N/N/Y/N	
	Seconds Since Zeroed:	364	Framing Errors:	0	
	Accesses Local/Rem:	1/0	Parity Errors:	0	
	Flow Control Violations:	0	Overrun Errors:	0	
	Bytes Input:	0	Bytes Output:	101	
	Input Flow On/Off: 0	/ 0	Output Flow On/Off:	0/ 0	
					_
	Local 2>>				

**10.** Repeat Step 1 through Step 9 above for all of the serial servers to be used in remote mode.

## **Reset and check all devices**

- **1.** Remove power from all the remote serial servers and re-apply power.
- **2.** Next, remove power from all the local MSS485 devices and re-apply power.
- **3.** Choose *Start* > *Run*. Type "Telnet *n.n.n.n*" where *n.n.n.n* is the assigned IP address for the local MSS485 devices. Click *OK*.
- **4.** Enter a username and password.
- **5.** Type "show port". Press **Enter**. This will show the current settings of the port. In the settings, there is a *Sessions* entry. This number indicates how many remote serial servers you set up for the local MSS485 to send messages to.

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<u>Connect</u> <u>E</u> dit <u>T</u> erminal <u>H</u> elp	<u>C</u> onnect <u>E</u> dit <u>T</u> erminal <u>H</u> elp				
Username> any	Local_2> show port				
Local_2> set priv	Port 1: Username: Port_1		Physical Port 1 (Local	Mode)	
Password>	Char Size/Stop Bits:	7/2	Baud Rate:	9600	
Local_2>> show port	Flow Ctrl:	None	Session Limit:	4	
l 1	Parity:	Even	Modem Control:	None	
- I	Access:	Local	Break Ctrl:	Local	
<u> </u>	Local Switch:	None	Start Character:	None	
$\mathbf{X}$	Forward:	None	Backward:	None	
	Dedicated Service: (Hos Characteristics: Telnet H	stlist) Pad Autos	start	none	
¢	Sessions: Input/Output Flow Ctrl:	2 N/N	Durrent Session: DSR/DTR/CTS/RTS/CD:	None N/N/N/Y/N	
	Seconds Since Zeroed:	17	Framino Errors:	0	
	Accesses Local/Rem:	1/0	Parity Errors:	0	
	Flow Control Violations:	0	Overrun Errors:	0	
	Bytes Input:	0	Bytes Output:	101	
	Input Flow On/Off: 0,	/ 0	Output Flow On/Off:	0/ 0	
	Local_2>				

## **Support services**

#### **Technical information**

Software is available at the Adaptive<sup>TM</sup> Internet World Wide Web site

http://www.adaptivedisplays.com.

Technical information, as well as the latest networking software, is available from the Lantronix Internet site:

http://www.lantronix.com

#### **Technical support**

For additional support, please contact your local dealer, or call the Technical Support department at Adaptive<sup>TM</sup> Micro Systems, Inc. at 1-800-558-7022 between the hours of 8:00 AM and 5:00 PM Central Standard Time.