

LAN-520 LAN Port

Application Note

1.0 Purpose of this Document

This document discusses how to setup, configure, and use the LAN-520 Universal Device Server to provide LAN/WAN Ethernet connectivity between *Doors*[™] and one or more PXL networks¹. The following topics are covered:

- Overview
- System Requirements
- LAN-520 Setup
- *Doors*/Workstation Setup
- Using the LAN-520 with Multiple PXL Networks
- Basic Ethernet Troubleshooting

2.0 Overview

At Keri Systems, we are always looking for ways to improve our product and provide solutions to the various implementation requests we receive. One of the most asked for requests is “Can you provide low-cost network capabilities to *Doors* and a PXL Network?” Although *Doors* was developed as a stand-alone application, there are a few ways to use *Doors* in a network².

The main limitation when using *Doors* in a network has been that the communication to the PXL network could only come from the host workstation physically connected to the master controller of the PXL network¹. This prevents other workstations from using *Doors* to update or control the PXL network unless either some sort of third party, remote control software application is used or by sharing the *Doors* folders over a network which places limits on what can be done.

Keri Systems now has a low-cost solution to this problem. The LAN-520 allows the PXL network to be attached to a Local Area Network (LAN) instead of directly to a host workstation. This gives any workstation on a LAN (with the proper authority) the ability to communicate with the PXL network. To do this, two things must happen.

1. On the host workstation, the *Doors* folder must be shared.
2. A shortcut to the *Doors*.EXE program in this folder must be created on each client workstation that needs to be able to run the *Doors* program. Every client workstation with a shortcut to *Doors*.EXE can double-click on the shortcut and start the *Doors* program.

NOTE: Do NOT install the Doors software on each client workstation; this will create unique databases on each system. By creating a shortcut on each client workstation to the shared kerisys folder on the host workstation, each client workstation is able to use the Doors installation on the host workstation, sharing the original database set.

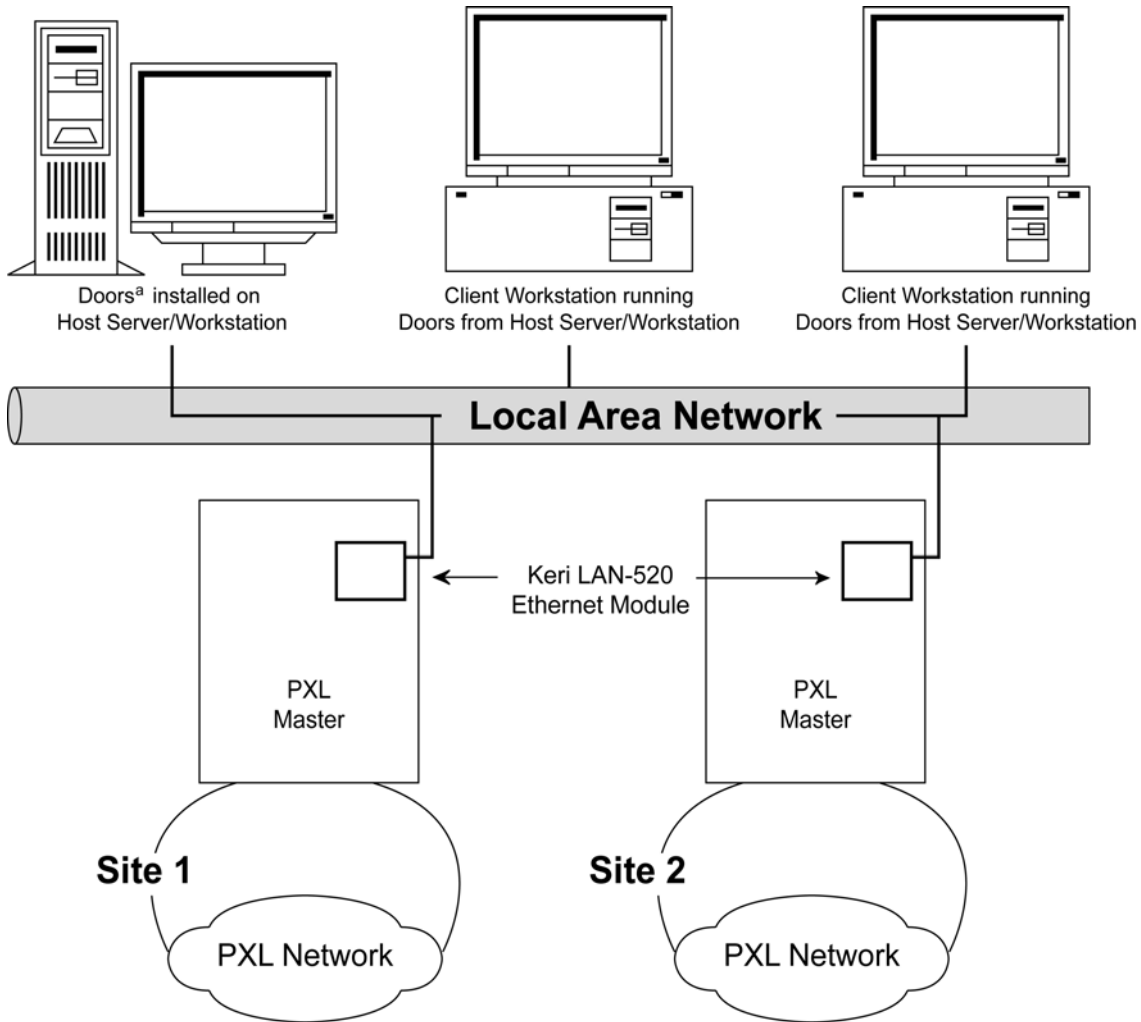
1. The LAN-520 may be used with a PXL-500/PXL-510 only.

2. See the [Doors in a Network Environment](#) Application Note for more information – P/N 01867-001.

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In a LAN-520 network, when a host workstation communicates with the access control network, *Doors* converts data sent to the designated serial port into an Ethernet packet, opens an IP socket, and then sends the packet to the designated LAN-520. The LAN-520 receives the packet and sends the data to the PXL network through the LAN-520's serial port (see Figure 1).



a. For use with a LAN-520 Doors v4.34 or greater must be used.

Figure 1: Using *Doors* on a LAN Using the LAN-520

The IP socket identifies which client workstation is communicating with the LAN-520 so that when the access control network communicates with the client workstation, the data is routed back correctly.

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When using the LAN-520, the transfer of data through the LAN is transparent to both the *Doors* program and the PXL network. This method of communication between host workstation and access control network is very robust; however there are some special considerations.

- *Doors* software beginning with version 4.10 supports direct communication to the LAN-520. Refer to the [Doors Users Guide](#) (P/N 01914-100) for *Doors* software configuration information
- Whenever a *Doors* database is opened (i.e. setup users, time zone, access group, controller, door), a copy of that database is saved on the user's client workstation. All changes made by the user are made to that local copy. The original database used by the *Doors* program on the file server or shared folder does not receive these changes until the user clicks on the **SAVE** button, physically overwriting the original database in the file server or shared folder with the newly edited information from the user's client workstation. This is done to protect the original database from being affected if a user decides to cancel any changes being made.
- Although multiple users can simultaneously work in the *Doors* program, only one workstation can communicate with the PXL access control network at a time (whether directly or via remote access software). There is no way to simultaneously control an access control network from more than one workstation. This means that only one user at a time may be downloading information to the network, receiving information from a network, monitoring a network, or manually operating a network. When that user has completed work, that user must use the Net Disconnect command (the Operate > Net Disconnect pull-down menu option) to manually disconnect from the access control network and that user must close the *Doors* program to allow another user to gain access to the access control network. **If more than one workstation is connected to the network at the same time, the first workstation to have changes saved will be the only one connected to the network. All other workstations will not have changes saved until the Net Disconnect has been used at the first workstation.**

NOTE: Using shortcuts to download information to the network, receive information from a network, monitor a network, or manually operate a network may corrupt the Doors database (Windows error code 70 or 120). If a shortcut will be used (from a computer that does not have Doors installed), a current backup of the Doors database should be kept.

- There is no encryption available to hide the data going across the LAN. Ethernet, by its nature, is not secure.
- Only one site (or network) may be monitored at any one time.

3.0 System Requirements

Both the server and the client workstations, and the LAN must meet the following system requirements for proper operation of *Doors* and the LAN-520.

- PC compatible computer using a Pentium™-90 or faster microprocessor
- minimum of 16 MB of system RAM
- SVGA color monitor with SVGA graphics card (800 x 600 minimum resolution for use with small fonts and 1024 x 768 minimum resolution for use with large fonts)
- CD-ROM, keyboard, and mouse or other pointing device
- 3.5 inch floppy disk drive or CD-ROM burner (optional for system backup)
- 100 MB of available hard disk space
- 10BaseT (or greater) network card
- twisted-pair network cabling (NOT coax)
- TCP/IP network protocol running in a *Windows* network
- one of the following operating systems
 - *Windows 95*™
 - *Windows 98*™
 - *Windows 2000*™
 - *Windows ME*™
 - *Windows XP*™
 - *Windows NT*™

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4.0 LAN-520 Setup

LAN-520 setup is done in three steps.

1. Connect the LAN-520 to the LAN.
2. Set the LAN-520's IP address.
3. Configure the LAN-520.

Once the LAN-520 is setup, the *Doors* program must be configured to communicate with this unit. Please refer to the *Doors Users Guide* (P/N 01914-100) for *Doors* configuration information.

NOTE: To set up the LAN-520 you must have a technical knowledge of networks and networking in a PC environment. Please consult your System or Network Administrator to resolve any networking issues that might occur.

4.1 Connect the LAN-520 to the LAN

1. Power down the PXL-500/PXL-510 master controller.
2. On the master controller, remove the jumpers from JP6 and JP7 (see Figure 2).
3. Connect the LAN-520's 10/100 Ethernet/MAC port to the LAN port designated for use by the LAN-520.
4. Insert the LAN-520's U6 connector pins (located on the underside of the LAN-520) into the PXL-500's TB13 (see Figure 2 for location of connection).

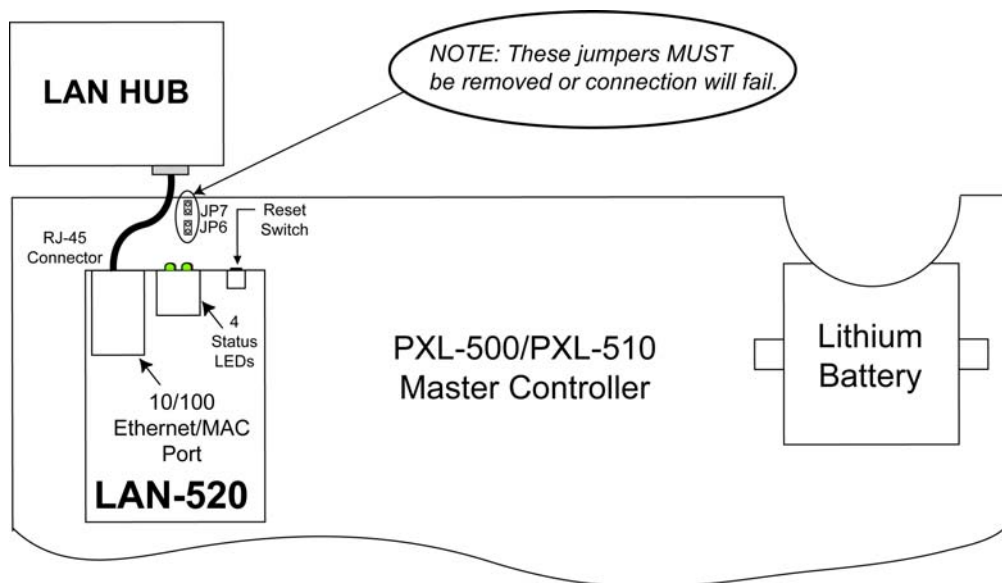


Figure 2: LAN-520 Connection Diagram

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4.2 Set the LAN-520's IP Address

Two things must be done before assigning an IP address to a LAN-520 to uniquely identify the LAN-520 on the LAN.

1. Get the Ethernet/MAC address of the LAN-520. On the LAN-520, the Ethernet/MAC address is found on the label placed on the underside of the unit (see Figure 3).
2. Obtain a unique IP address to assign to the LAN-520. The IP address is assigned by the LAN Administrator. Contact the LAN Administrator for this number.

NOTE: If the LAN-520 is installed on a static network or using cross-over cable, the unit will auto address to 169.254.x.x and a class b subnet 255.255.0.0.

Once you have this information you are ready to assign an IP address to the LAN-520 using the operating system's Telnet Program.

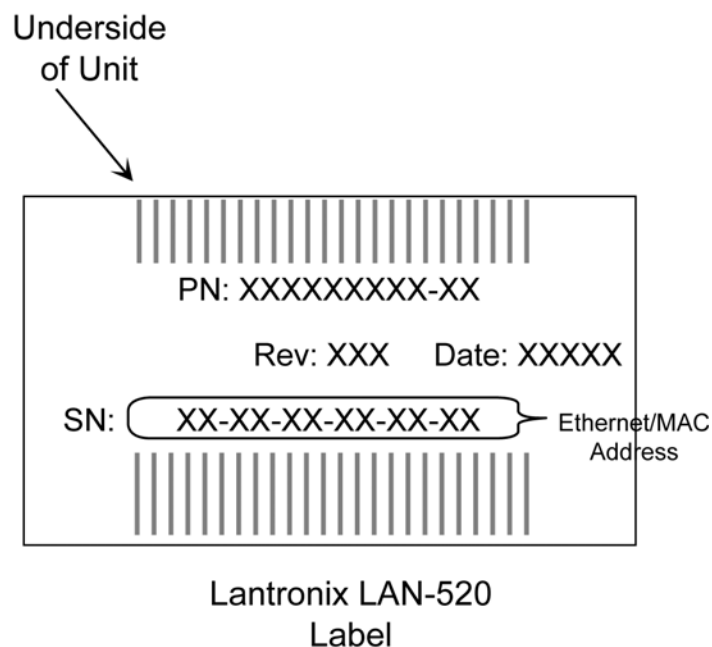


Figure 3: Locating the Ethernet/MAC Address

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4.2.1 IP Address Assignment Using the Lantronix DeviceInstaller

Setting the IP Address via the Lantronix DeviceInstaller is simple, however to use this method you must first download Microsoft® .NET and the Lantronix DeviceInstaller version 4.0.2.3. The Microsoft® .NET installation and Lantronix DeviceInstaller is located on the *Doors* v4.43 or greater CD-ROM.

NOTE: Using the Lantronix DeviceInstaller to assign the IP address is only possible when the installation takes place on the same LAN segment. If the LAN device is located outside the Local LAN segment, the IP address must be assigned manually (see “IP Address Assignment Using Telnet” on page 19).

4.2.1.1 Installation of Microsoft® .NET

The first step to using the Lantronix DeviceInstaller is to download and install Microsoft® .NET.

1. Load the installation CD into the CD-ROM of the host computer. The AutoRun Menu appears (see Figure 4).



Figure 4: Keri CD-ROM AutoRun Menu

2. Click on the **Explore the CD-ROM** link. Windows Explorer opens and displays the CD-ROM contents (see Figure 5 on page 8).

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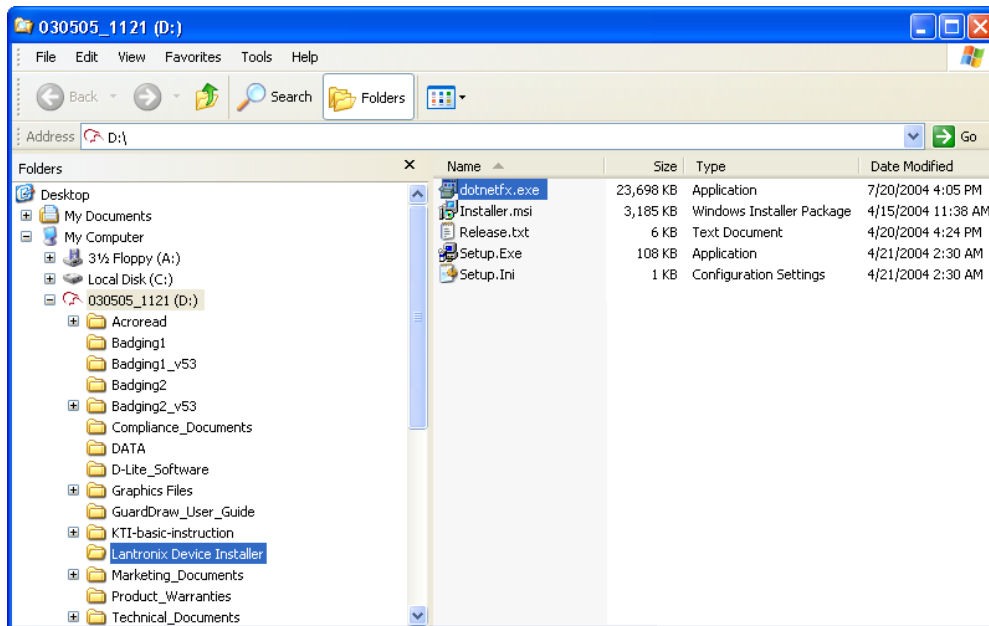



Figure 5: Windows Explorer

3. Double-click on the  link. A confirmation window appears asking if the Microsoft .NET Framework package should be installed (see Figure 6).

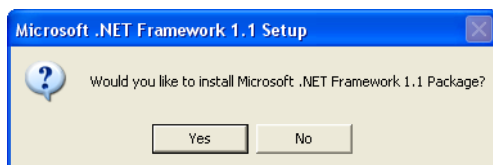


Figure 6: Microsoft .NET Installation Confirmation

4. Click on the button to begin setup of the installation. A window appears showing the progress of the setup (see Figure 7).

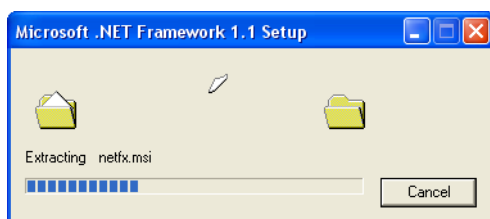


Figure 7: Microsoft .NET Setup In Progress

5. Once the setup is complete, a license agreement appears (see Figure 8 on page 9).

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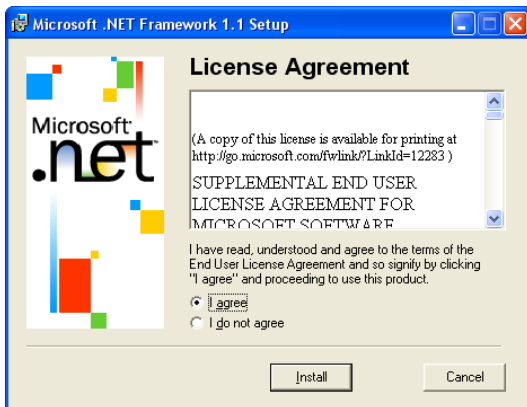



Figure 8: Microsoft .NET Installation License Agreement

6. Use the scroll bar on the right side of the window to review the .NET license agreement. After viewing the agreement, click on the “I agree” radio button and then click on the  button.
7. Microsoft .NET begins installation (see Figure 9).

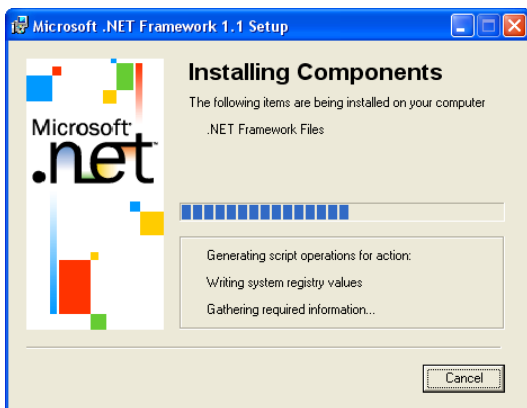


Figure 9: Microsoft .NET Installation Progress

8. When the installation is complete, a window appears (see Figure 10). Click on the  button.

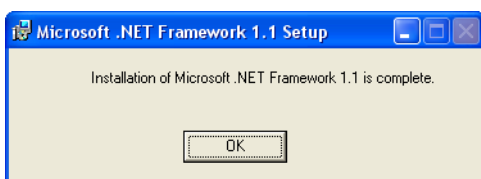


Figure 10: Installation Complete

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4.2.1.2 Installing the Lantronix Device Installer

Once Microsoft® .NET has been installed, the next step is to install the Lantronix DeviceInstaller.

1. Load the installation CD into the CD-ROM of the host computer. The AutoRun Menu appears (see Figure 4 on page 7).
2. Click on the **Explore the CD-ROM** link. Windows Explorer opens and displays the CD-ROM contents (see Figure 11).

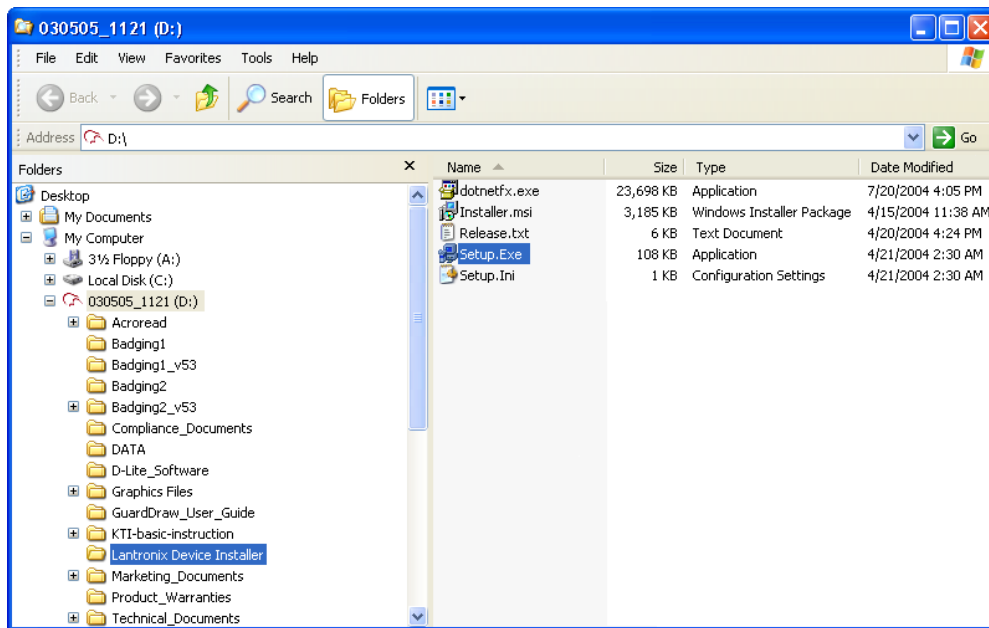



Figure 11: Windows Explorer - DeviceInstaller Setup.exe

3. Double-click on the  Setup.Exe link. (see Figure 6). The Welcome to the DeviceInstaller Setup Wizard window appears (see Figure 12 on page 11).

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Figure 12: DeviceInstaller Setup Wizard

4. If a DeviceInstaller is already installed on the system, a different window will appear allowing the repair or removal of the installed software (see Figure 13).



Figure 13: Alternate DeviceInstaller Setup Wizard Welcome Window

5. Continuing on from Figure 12 for a new installation, click on the button to begin the installation process. The Select Destination Location window appears (see Figure 14 on page 12).

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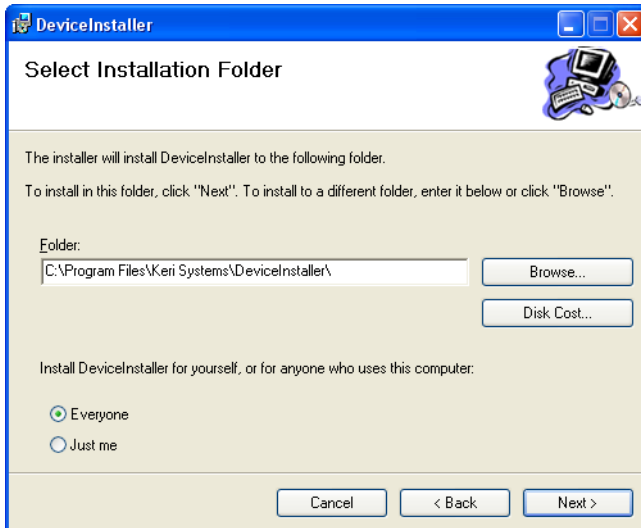


Figure 14: Select Destination Folder

6. In most instances, the default folder is the best place for installing the DeviceInstaller. If a different directory must be used, click on the button, navigate to the directory to which the DeviceInstaller should be installed, and then click on the button.
7. Decide whether everyone who uses the computer with DeviceInstaller on it should have access to the DeviceInstaller or only the person logged on during this first installation. Select the Everyone radio button if everyone should have access to the DeviceInstaller, or select the Just Me radio button for only the person currently logged on.
8. Click on the button. A confirm installation window appears (see Figure 15).

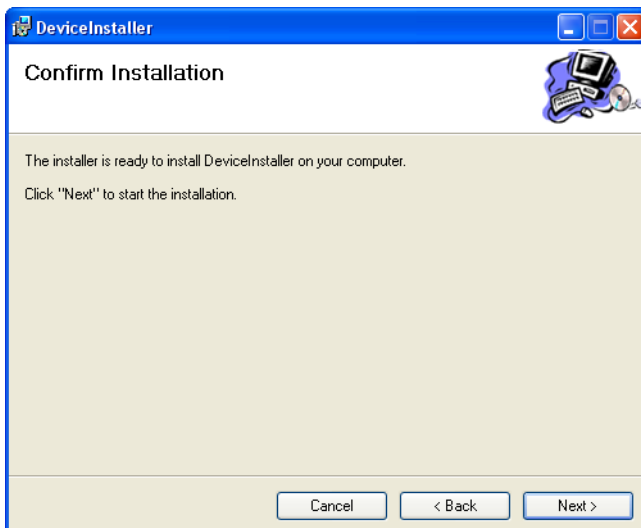


Figure 15: Confirm Installation of DeviceInstaller

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9. To begin the DeviceInstaller installation, click on the button. An installation progress window appears (see Figure 16).

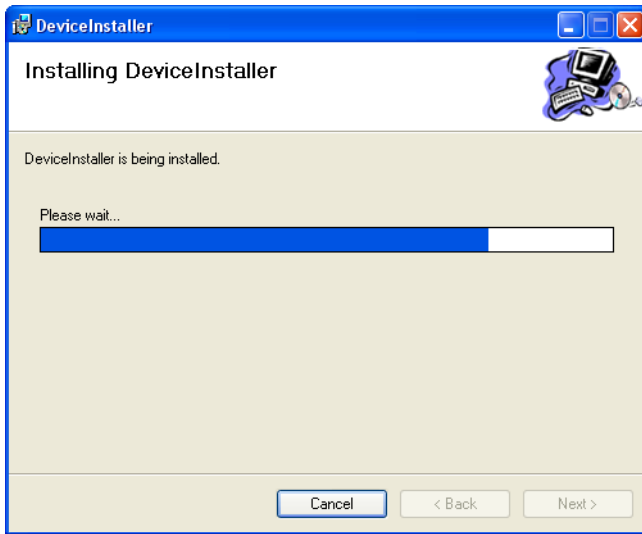


Figure 16: Installation Progress Window

10. An Installation Complete window will appear when the DeviceInstaller has been successfully installed (see Figure 17).

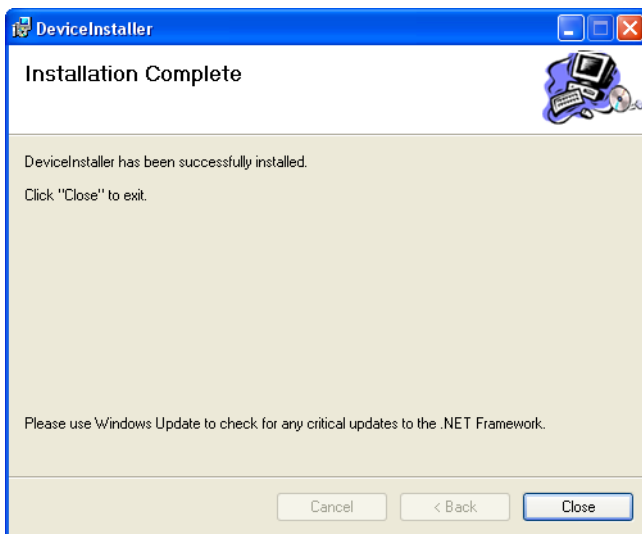


Figure 17: Installation Complete Window

11. Click on the button to exit the installation window.
12. You are now ready to assign the IP address.

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4.2.1.3 Assigning the IP Address using DeviceInstaller

If the Network has a DHCP server running, the IP address will be automatically assigned. If this is the case, the device installer software is used to identify the assigned IP address. If the Network does not have a DHCP server running See “IP Address Assignment Using Telnet” on page 19. Keri Systems recommends a fixed or static IP address be used.

1. From the Windows Taskbar, click on Start > All Programs > Keri Systems > DeviceInstaller > DeviceInstaller to start the configuration program. The DeviceInstaller program opens (see Figure 18).

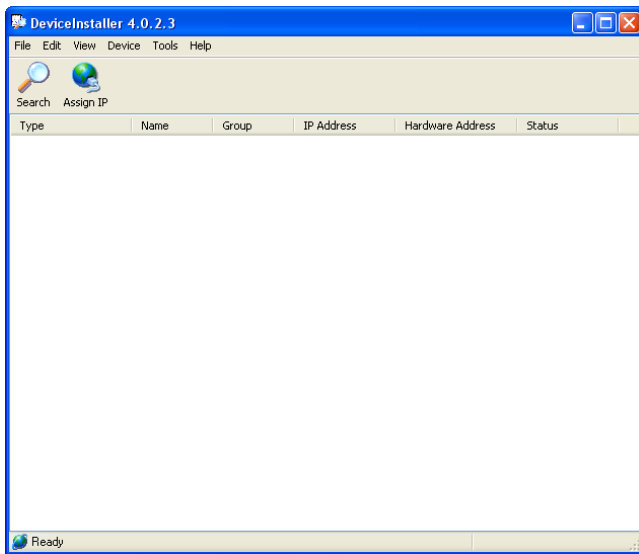



Figure 18: The DeviceInstaller Program Window

2. Click on  to locate the LAN-520. An “IP address needs to be set” information window may appear (see Figure 19).

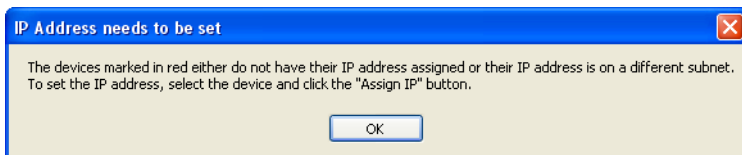



Figure 19: IP Address Needs to be Set

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- Click on the  button. A list of device categories is listed. Click on the LAN-520 directory. A list of LAN-520 devices is displayed showing IP address, hardware address and device status (see Figure 20).

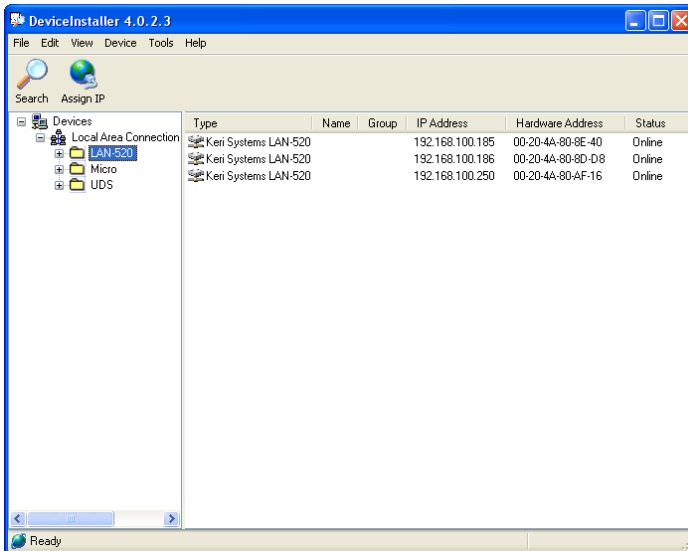



Figure 20: Device Listing Window

- Locate and select the Keri Systems LAN-520 to be assigned an address by selecting the device with a hardware address that matches the one assigned the LAN-520 (the hardware address is found on a sticker placed on the backside of the LAN-520).

NOTE: The LAN-520 will not appear if it is not properly connected to the LAN. If the LAN-520 is not listed here, check all connections and try the search button again.

- Click on  to assign an IP address to the LAN-520. The Assignment Method Window appears (see Figure 21 on page 16).

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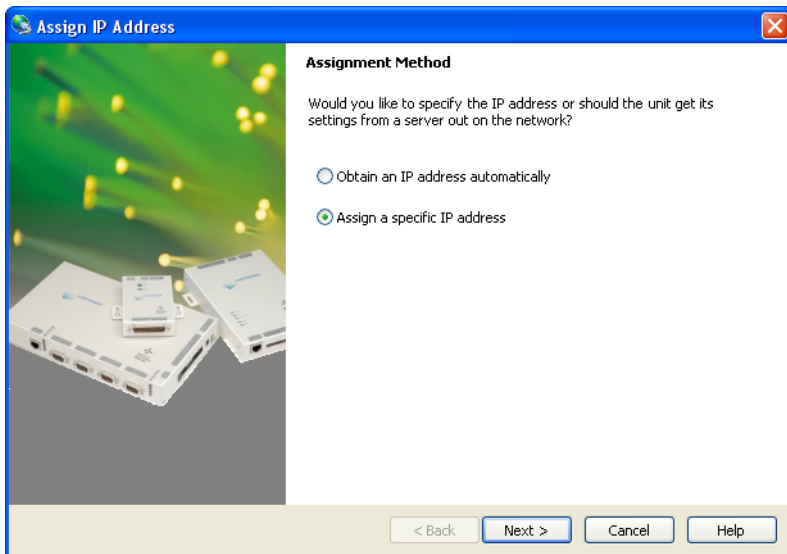



Figure 21: Assignment Method Window

- Click on the Assign a specific IP address radio button, then click on the  button. The IP Settings window appears (see Figure 22).

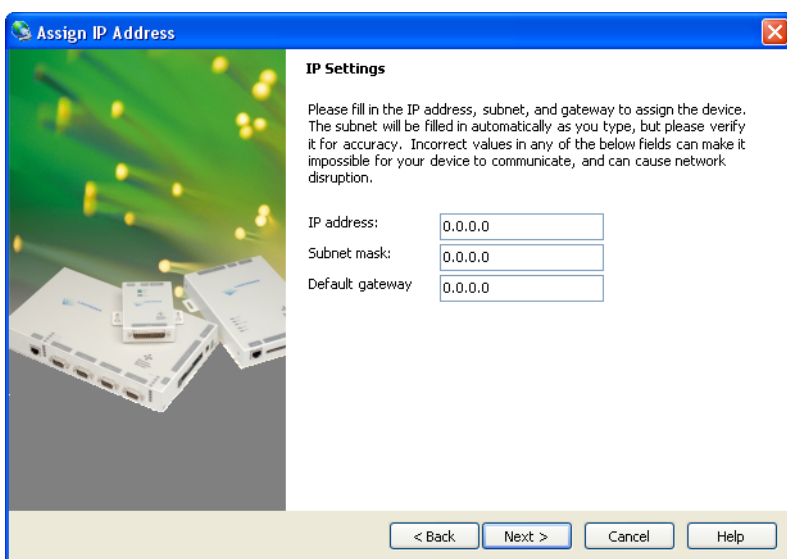


Figure 22: IP Settings Window

- Click in the “IP Address” field and enter the IP address to be used with the LAN-520.
- Click in the “Subnet mask” field. The Subnet mask is automatically updated to match the IP address entered (see Figure 23 on page 17).

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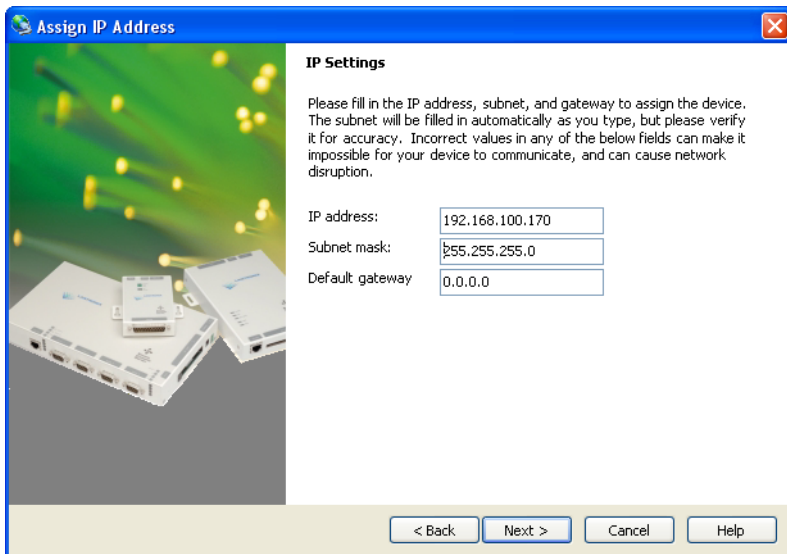


Figure 23: IP Settings Window - Completed

9. Click on the button. If the entered IP Address is in use by another device, an error window appears (see Figure 24). Click the button to clear the window, verify the IP Address is correct and there is no conflict with any existing devices/IP Addresses on the network, and start again from Step 2 on page 14.

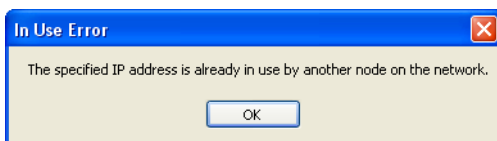


Figure 24: IP Address Already in Use Error

10. Another possible error is if the LAN-520 does not respond. This is indicative of some type of communication error. Verify the **E**thernet Address is correct, verify the network cabling is correct, and start again from Step 2 on page 14.

NOTE: If the LAN-520 continues to not respond, follow the directions beginning in Section 4.2.2 on page 19 to assign the IP address using Telnet.

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11. If the IP Address is not in use and the unit responds, the Assignment Window appears (see Figure 25).

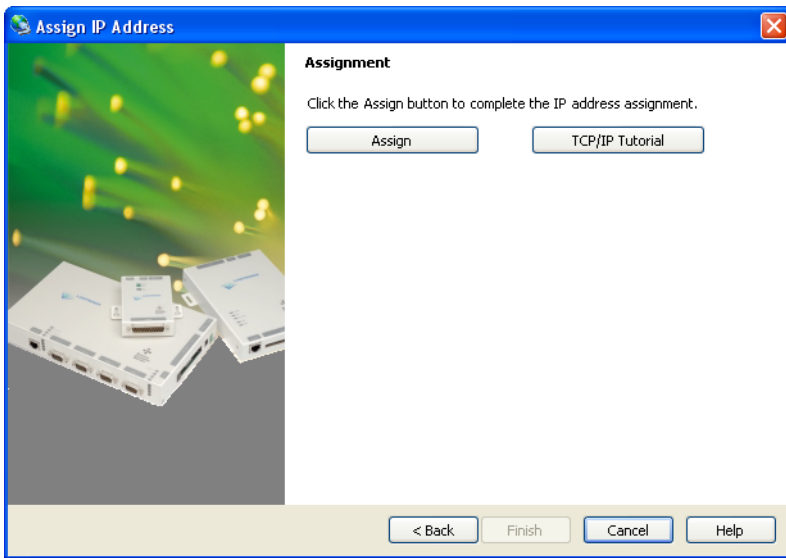


Figure 25: Assignment Window

12. Click on the button. The IP Address assignment begins. This process may take up to a minute. Once the process is completed, the window will display “Completely successfully” at the bottom of the window (see Figure 26).

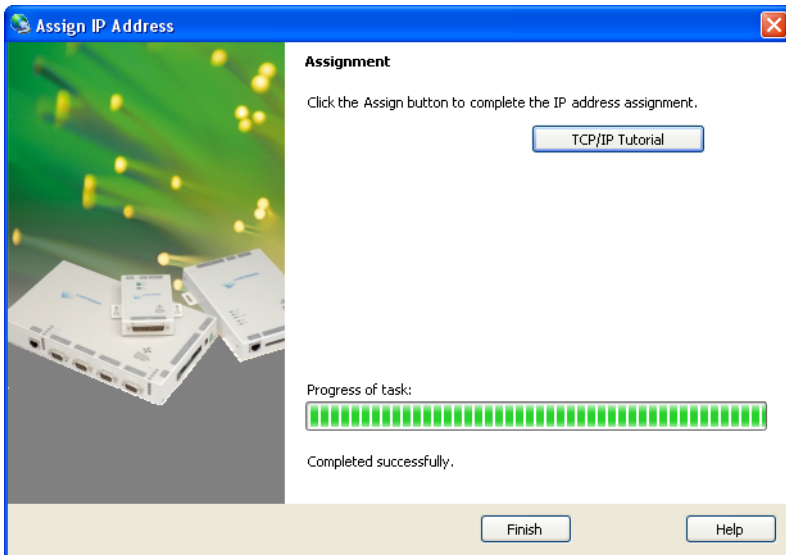


Figure 26: IP Address Assignment Successful

13. Click to close the DeviceInstaller window.

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4.2.2 IP Address Assignment Using Telnet

The LAN-520 takes its IP address from the first TCP/IP packet directed to that unit via the unit's Ethernet/MAC address. Once the first packet with the IP address has been sent, Telnet is used to permanently set this IP address in the unit.

There are two ways to open Telnet, through the Lantronix DeviceInstaller window or by opening a DOS box.

- From the DeviceInstaller page (see Figure 20 on page 15), locate and double-click on the IP address of the LAN-520. Select the Telnet tab and then click on the button.
- Open a DOS box and open a Telnet connection to Port 9999 on the LAN-520.

At the DOS prompt type the following to make the Port 9999 Telnet connection to the LAN-520:

```
- c:\>telnet <LAN-520 IP address> 9999 <Enter>
```

For example:

```
- c:\>telnet 192.168.100.250 9999 <Enter>
```

1. Check the contents of the ARP table; the table must have at least one IP address entry and that entry **cannot** be the host workstation's IP address.

At the DOS prompt type the following to verify the contents of the ARP table:

```
- c:\>arp -a <Enter>
```

If the table displays one or more non-host workstation IP addresses (see Figure 27), skip to Step 3.

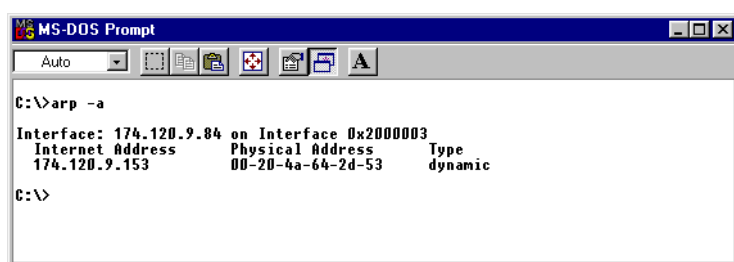


Figure 27: ARP Table Contents

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If the table is empty a “No ARP Entries Found” message is displayed. To create an entry in the ARP table, ping the IP address of another device or workstation on the LAN (this IP address **cannot** be the IP address of the host workstation).

- c:\>ping <other IP Address> <Enter>

For example:

- c:\>ping 192.168.100.250 <Enter>

After the device with this IP address replies, this IP address is entered into the ARP table.

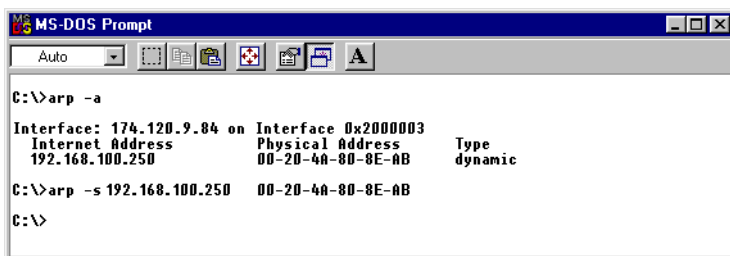
2. Send the LAN-520’s IP address to the LAN-520.

At the DOS prompt, type the following to send the LAN-520’s IP address to the LAN-520 (see Figure 28):

- c:\>arp -s <LAN-520 IP address> <LAN-520 Ethernet/MAC address> <Enter>

For example:

- c:\>arp -s 192.168.100.250 00-20-4A-80-8E-AB <Enter>



```
MS-DOS Prompt
Auto
C:\>arp -a
Interface: 174.120.9.84 on Interface 0x2000003
Internet Address      Physical Address      Type
192.168.100.250      00-20-4A-80-8E-AB    dynamic
C:\>arp -s 192.168.100.250 00-20-4A-80-8E-AB
C:\>
```

Figure 28: Send IP Address Via ARP Command

NOTE: The ARP command does not report whether or not this command is completed successfully.

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3. Open a Telnet connection to Port 1 on the LAN-520. A Telnet “Connection Failed” screen appears, but since this Telnet connection is the first TCP/IP packet sent to the LAN-520, the LAN-520 enters that IP address into its server configuration table.

At the DOS prompt type the following to make the Port 1 Telnet connection to the LAN-520:

- c:\>telnet <LAN-520 IP address> 1 <Enter> – a Telnet “Connection Failed” screen appears

For example:

- c:\>telnet 192.168.100.250 1 <Enter> – a Telnet “Connection Failed” screen appears

4. Close that Telnet window and open a new Telnet connection to Port 9999 on the LAN-520.

At the DOS prompt type the following to make the Port 9999 Telnet connection to the LAN-520:

- c:\>telnet <LAN-520 IP address> 9999 <Enter>

For example:

- c:\>telnet 192.168.100.250 9999 <Enter>

The following screen appears:

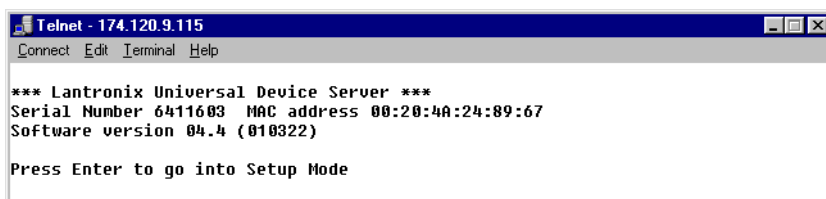


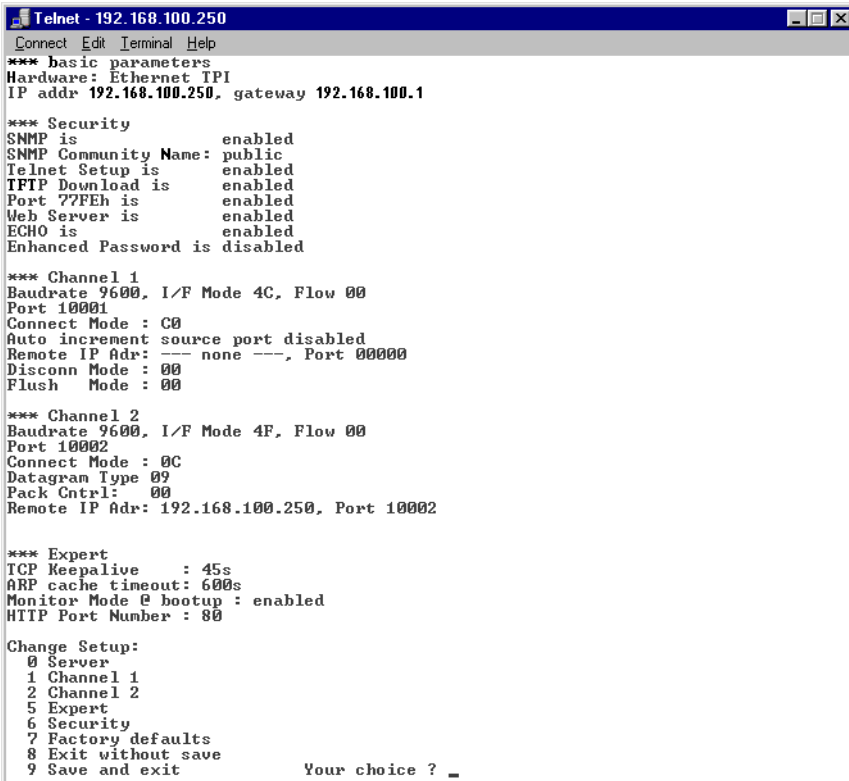
Figure 29: Telnet Sign-on Screen

5. Press <Enter> to go into the LAN-520 Setup mode as soon as the Telnet sign-on screen appears (see Figure 29). There is a two to three second delay in which you must press <Enter> before the Telnet session automatically closes. If the Telnet session closes before you enter Setup mode (if a “Connection to host lost” message appears), simply click the box to clear the connection lost message and repeat the Telnet connection command in Step 5.
6. Once Telnet connects with the LAN-520 all current configuration information is displayed and the cursor is placed at the “Your choice” field (see Figure 30 on page 22). Verify the IP address displayed at the top of the Telnet window and also listed under the unit’s basic parameters is the IP address you assigned to the unit.

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If the IP address is not correct, press 8 <Enter> to close the Telnet window and then repeat this procedure beginning with Step 3.



```
Telnet - 192.168.100.250
Connect Edit Terminal Help
*** basic parameters
Hardware: Ethernet IPI
IP addr 192.168.100.250, gateway 192.168.100.1

*** Security
SNMP is          enabled
SNMP Community Name: public
Telnet Setup is  enabled
TFTP Download is enabled
Port 77FEh is   enabled
Web Server is   enabled
ECHO is         enabled
Enhanced Password is disabled

*** Channel 1
Baudrate 9600, I/F Mode 4C, Flow 00
Port 10001
Connect Mode : C0
Auto increment source port disabled
Remote IP ADR: --- none ---, Port 00000
Disconn Mode : 00
Flush Mode : 00

*** Channel 2
Baudrate 9600, I/F Mode 4F, Flow 00
Port 10002
Connect Mode : 0C
Datagram Type 09
Pack Cntrl: 00
Remote IP ADR: 192.168.100.250, Port 10002

*** Expert
TCP Keepalive : 45s
ARP cache timeout: 600s
Monitor Mode @ bootup : enabled
HTTP Port Number : 80

Change Setup:
0 Server
1 Channel 1
2 Channel 2
5 Expert
6 Security
7 Factory defaults
8 Exit without save
9 Save and exit          Your choice ? _
```

Figure 30: Configuration Parameter Entry Screen

- Press 9 <Enter> to save the assigned LAN-520 IP address. A “Connection to host lost” message appears. Click the box to clear the connection lost message, then close the Telnet window and close the DOS box. The IP address is now entered into the LAN-520’s configuration table.

LAN-520 LAN Port

Application Note

4.3 Resetting or Rebooting a LAN-520

Resetting a LAN-520 restores all serial port parameters to the factory default values. Rebooting a LAN-520 restarts the unit should the unit be hung up.

NOTE: If you need to change an IP address on a LAN-520, this can only be done through the DeviceInstaller program. Simply follow the steps for assigning an IP address (see Section 4.2.1 on page 7). However, Telnet must be used if the IP address is outside of the subnet scheme for the LAN (see Section 4.2.2 on page 19).

4.3.1 Resetting the Unit

Resetting a LAN-520 **must** be done via Telnet.

1. Open a Telnet connection to Port 9999 on the LAN-520.

At the DOS prompt type the following to make the Port 9999 Telnet connection to the LAN-520:

- c:\>telnet <LAN-520 IP address> 9999 <Enter>

For example:

- c:\>telnet 192.168.100.250 9999 <Enter>

The following screen appears:

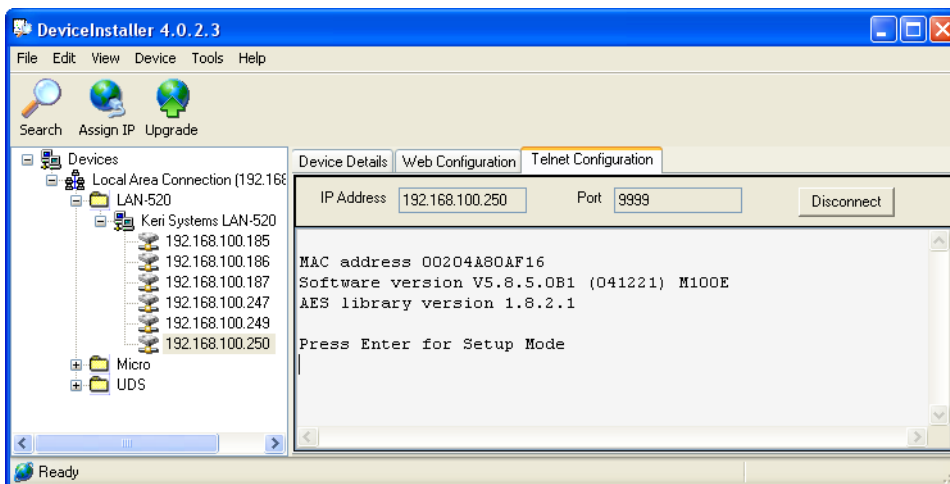


Figure 31: Enter Telnet

LAN-520 LAN Port

Application Note

2. Press <Enter> to go into the LAN-520 Setup mode as soon as the Telnet sign-on screen appears. There is a two to three second delay in which you must press <Enter> before the Telnet session automatically closes. If the Telnet session closes before you enter Setup mode (if a “Connection to host lost” message appears), simply click the box to clear the message and repeat the Telnet connection command in Step 1.
3. Once Telnet connects with the LAN-520 all current configuration information is displayed and the cursor is placed at the “Your choice” field (see Figure 16 on page 15). The IP address is displayed at the top of the Telnet window and also listed under the unit’s basic parameters.

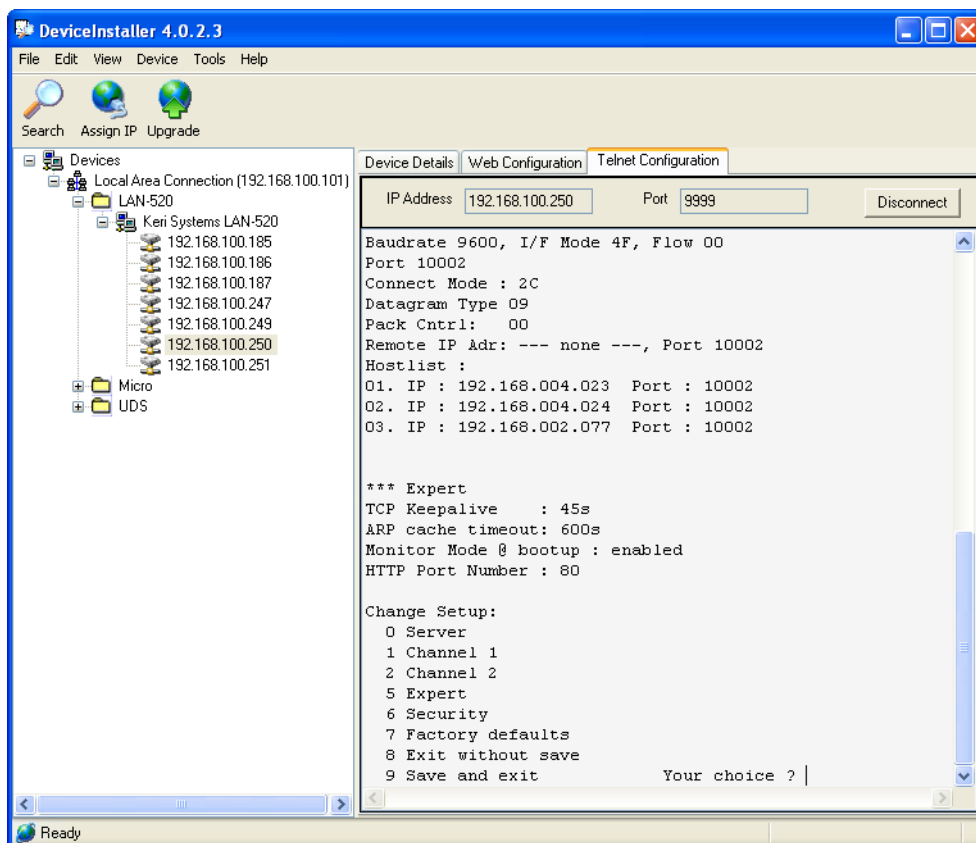


Figure 32: Current LAN-520 Configuration

4. Press 7 <Enter> to reset the LAN-520 to all of its factory default parameters, including an IP Address of – 0 . 0 . 0 . 0.
5. Press 9 <Enter> to save this change and exit the Telnet program. A “Parameters stored...” message appears and the connection is closed. You may now close the Telnet window.

4.3.2 Rebooting the Unit

To reboot the unit, use a thin rod (such as an opened paper clip) and press the reboot switch. The reboot switch is inside the unit and is accessed through a small hole in the case (see Figure 2 on page 5). Once pressed, wait 15 to 20 seconds for the unit to complete its reboot cycle.

LAN-520 LAN Port

Application Note

4.4 Configure the LAN-520

LAN-520 configuration must be done via a Telnet connection. This section identifies the configuration parameter values that must be set for proper operation of the LAN-520 with *Doors*.

4.4.1 Required LAN-520 Configuration Parameters

When entering configuration parameters using Telnet, if an individual parameter is not called out in the instructions below, the factory default value should be left in place.

NOTE: Configuration via the web browser is not to be used with the LAN-520. Configuration MUST be done using Telnet.

4.4.2 Configuration via Telnet

There are only a few critical parameters to set via Telnet; all other parameters should be left at their default values.

There are two ways to open Telnet, through the Lantronix DeviceInstaller window or by opening a DOS box.

- From the DeviceInstaller page, locate and double-click on the IP address of the LAN-520. Select the Telnet tab and then click on the button.
- Open a DOS box and open a Telnet connection to Port 9999 on the LAN-520.

At the DOS prompt type the following to make the Port 9999 Telnet connection to the LAN-520:

```
- c:\>telnet <LAN-520 IP address> 9999 <Enter>
```

For example:

```
- c:\>telnet 192.168.100.250 9999 <Enter>
```

1. Press <Enter> to go into the LAN-520 Setup mode as soon as the Telnet sign-on screen appears. There is a two to three second delay in which you must press <Enter> before the Telnet session automatically closes. If the Telnet session closes before you enter Setup mode (if a “Connection to host lost” message appears), simply click the box to clear the connection lost message and repeat the Telnet connection command in Step 1.
2. Once Telnet connects with the LAN-520 all current configuration information is displayed and the cursor is placed at the “Your choice” field (see Figure 32 on page 24).

LAN-520 LAN Port Application Note

- Press 1 <Enter> to enter the Channel 1 Configuration values. The first configuration parameter is displayed (see Figure 33).

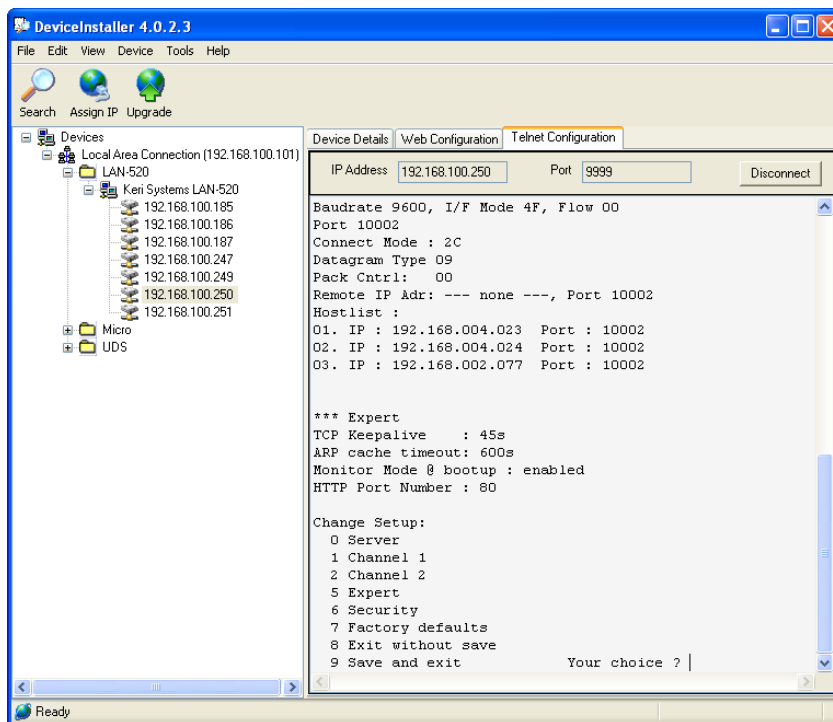


Figure 33: Telnet Configuration Main Window

- If a configuration value needs to be changed, type the new value and the original value is overwritten. Every time <Enter> is pressed, the displayed configuration value is accepted and the next parameter is displayed.
- Press <Enter> until the I/F Mode parameter is displayed. This value must be **4C** for proper communication between *Doors* and the LAN-520. If this value is not **4C**, type **4C** to overwrite the original value.
- Press <Enter> until the Connect Mode parameter is displayed. This value must be **C3** for proper communication between *Doors* and the LAN-520. If this value is not **C3**, type **C3** to overwrite the original value.
- Press <Enter> until the Remote IP Address parameter is displayed. This value must be set to the IP address of the LAN-520.
- Press <Enter> until the Remote Port parameter is displayed. This value must be **10021** for proper communication between *Doors* and the LAN-520. If this value is not **10021**, type **10021** to overwrite the original value.
- Press <Enter> until the Flush Mode parameter is displayed. This value must be **77** for proper communication between *Doors* and the LAN-520. If this value is not **77**, type **77** to overwrite the original value.
- Press <Enter> until the DisConn Time parameter is displayed. This value must be **00:30** (type 00 <Enter> 30) for proper communication between *Doors* and the LAN-520. If this value is not **00:30**, type **00:30** to overwrite the original value.

LAN-520 LAN Port

Application Note

Once all parameters have been entered, verify the parameters have been set to the correct values (see Figure 34).

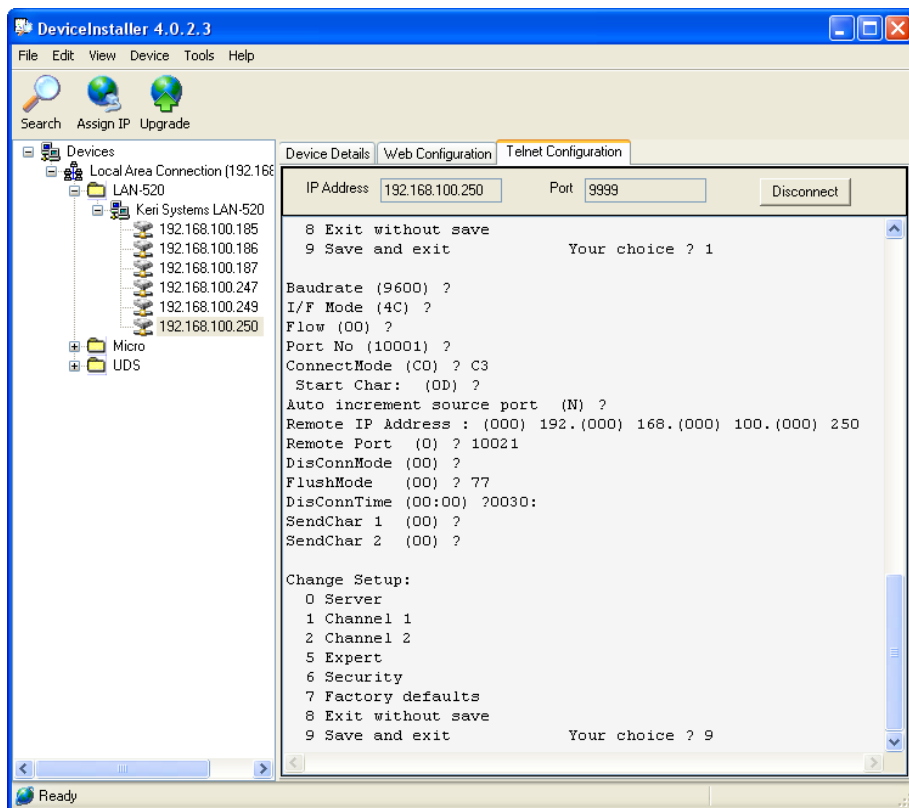



Figure 34: Correct Channel 1 Configuration Parameters

11. Press 9 <Enter> to save the assigned Channel 1 configuration parameters. A “Connection to host lost” message appears. Click the box to clear the connection lost message, then close the Telnet window and close the DOS box. The Channel 1 configuration parameters are now entered into the LAN-520’s configuration table.

NOTE: The Remote Site Port Number and the Remote Site TCP/IP Address settings in the Doors program must be set to match the values of the LAN-520. These settings are found under the Setup System > Network Config tab in Doors. The default remote site port number for all LAN-520 units is 10001; the corresponding Remote Site Port Number in the Doors program must be set to 10001 to match the local port address of the LAN-520. The IP address for each LAN-520 is assigned by the LAN Administrator and is programmed into the unit using the instructions provided in Section 4.2 on page 6; the corresponding Remote Site TCP/IP Address in the Doors program must be set to match the IP address of the LAN-520.

5.0 Using *Doors* Databases over a Network

Whenever a *Doors* database is opened (i.e. cardholder, time zone, access group, controller, door), a copy of that database is saved on the user's workstation. All changes made by the user are made to that local copy. The original database used by the *Doors* program on the file server or shared folder

does not receive these changes until the user clicks on the  button, physically overwriting the original database in the file server or shared folder with the newly edited information from the user's workstation. This is done to protect the original database from being affected if a user decides to cancel any changes being made.

What this means is that there can be database change conflicts if multiple users edit the same database simultaneously. There are two situations in which this can occur.

1. There are no notifications to indicate a database has been changed since the last time a user opened that database. If User-A and User-B both have the same database open and User-B saves changes to that database, User-A must close the database and then reopen it to see the changes made by User-B.
2. Suppose User-A and User-B have the same database open and both are making changes to that database. If User-A saves one set of changes and then User-B saves a different set of changes, the changes made by User-B (the last set of changes saved) will overwrite the changes made by User-A.

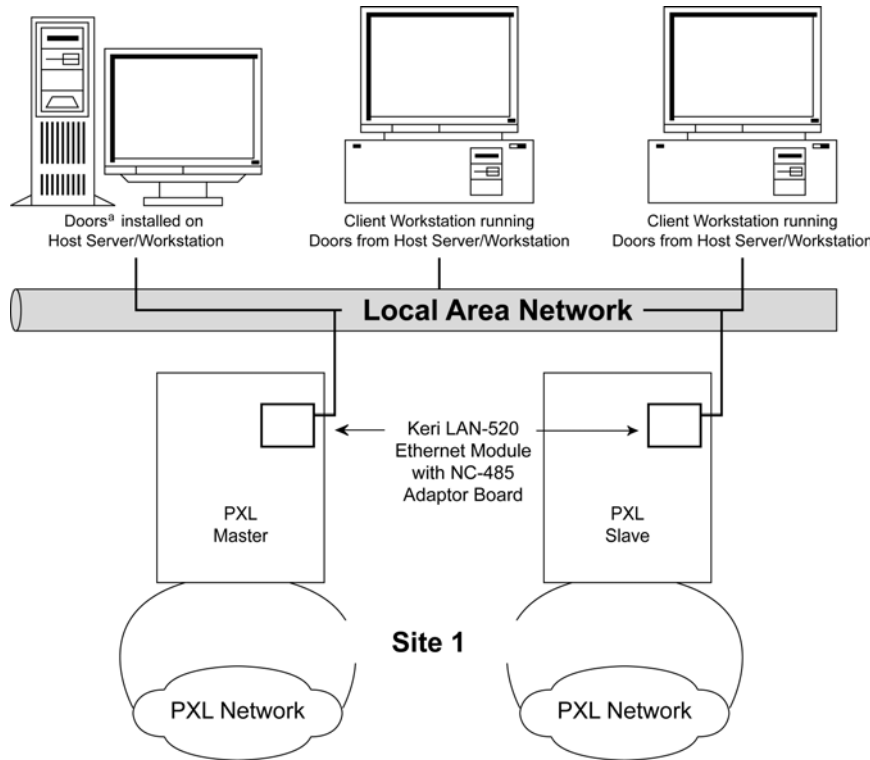
For these reasons, Keri Systems strongly recommends that only one user/workstation be allowed to view or modify a database at a time. Although multiple users can simultaneously work in the *Doors* program, only one workstation can communicate with the access control network at a time (using a direct connection or via remote control software). There is no way to simultaneously control an access control network from more than one workstation. This means that only one user at a time may be downloading information to the network, receiving information from a network, monitoring a network, or manually operating a network. When that user has completed work, that user must use the Net Disconnect command (the Operate > Net Disconnect pull-down menu option) to manually disconnect from the access control network and that user must close the *Doors* program to allow another user to gain access to the access control network.

LAN-520 LAN Port

Application Note

6.0 Using the NC-485 Network Converter with the LAN-520

Using the NC-485 Network Converter with a LAN-520 allows the user to manage multiple PXL-500/PXL-510 network segments as one “Site” from one installation of *Doors*. The master PXL-500/PXL-510 must have a LAN-520 in use with a NC-485 Network Converter. Each network segment must have a LAN-520 in use with a NC-485 Network Converter on one of the PXL-500/PXL-510 slave units. Each network must have its own IP address. For more information on using a NC-485 Network Converter with a LAN-520 see the NC-485 Network Converter Application Note (P/N 01967-001).



a. For use with a LAN-520 Doors v4.34 or greater must be used.

Figure 35: Use of the LAN-520 with a NC-485 Network Converter

NOTE: *If all network segments are not located within the same time zone, the time zone where the Doors software is located will be used. For example, a site has network segments located in both the Mountain and Pacific time zones with the Doors software on a computer in the Pacific time zone. If an Auto Unlock/Lock is set on a controller in the Mountain time zone for 9 am, the controller will not auto unlock/lock until 9 am Pacific time (the location of the Doors software), which would then be 10 am Mountain.*

7.0 Using the LAN-520 with Multiple PXL Networks

Doors can be used in “Sites” mode. Sites mode allows the user to manage multiple PXL-500/PXL-510 networks from one installation of *Doors*. The connection to a site is usually made via modem and each site has its own phone number. However, Sites mode can be done using LAN-520s in place of the modems. In this case, each site has its own IP address.

*NOTE: If you decide to use LAN-520s to communicate with multiple sites, **all** sites must be able to support 10/100 mps transfers. You cannot have some sites communicate via LAN and other sites communicate via modem, and you cannot configure the system for switching between the two communication methods.*

The complete process for configuring *Doors* for operation in TCP/IP Sites mode is described in the *Doors Users Guide – Multiple Site Control Section* (P/N 01821-002). Please refer to this document for multiple site TCP/IP configuration information.

8.0 Ethernet Troubleshooting Guide

This section provides some basic troubleshooting information should you have trouble connecting to a LAN-520.

NOTE: This section assumes you have a working knowledge of computer networks. For the troubleshooting process, you should consult with the system or network administrator.

8.1 Verify the TCP/IP Settings in the *Doors* Program

1. Check the IP address and port number (see Figure 36).
 - The IP address in the Doors program should match the IP address programmed into the LAN-520 unit.
 - By default, the Server's Ethernet Port Number is set to 10021 and should not be changed unless it conflicts with another device on the host workstation. Please consult your system or network administrator.
 - By default, the Remote Site Port Number is set to 3001. This value **must be changed** to 10001. It should not be changed unless instructed to do so by the system or network administrator.

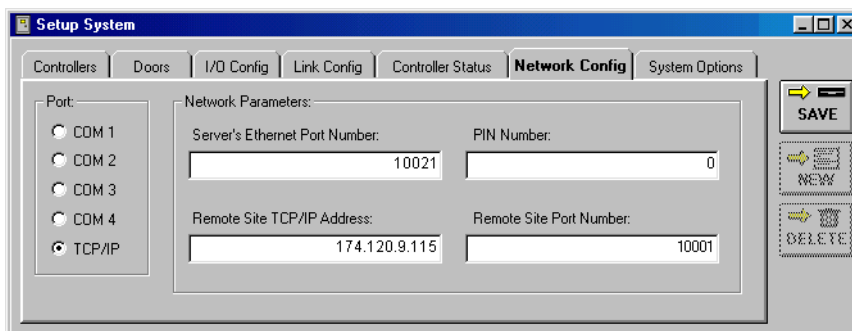



Figure 36: *Doors* TCP/IP Settings

2. Once all the information has been verified as being correct, click on the  button.
3. You may must need to close and then re-open the *Doors* program for the changes to take place.

8.2 Verify the LAN-520 Settings

Review the displayed configuration for the LAN-520. Verify the LAN-520 settings per the instructions in Section 4.4 on page 25. Refer to the Lantronix Reference Manual for detailed instructions on using Telnet - channel 1 configuration commands.

LAN-520 LAN Port

Application Note

8.3 Verify the LAN-520 is Online

1. Ping the IP address of the LAN-520. If the ping fails, that means a communication connection cannot be made. Possible reasons are:
 - There is no power to the LAN-520 unit.
 - The IP address was not programmed properly.
 - Another device on the network has that same IP address.
 - The workstation has not been granted access to that segment of the network.

Contact the system or network administrator to resolve these issues.

8.4 Contact Lantronix Technical Support

If the LAN device is set properly and the device pings successfully, but communication is still not happening, check the PXL unit to make sure the pins are removed from JP6 and JP7 (see Figure 2 on page 5 for location of the pins).

1. If you continue to have problems connecting, detailed information is provided by Lantronix. Please refer to the Lantronix Support web site at the following URL.

<http://www.lantronix.com/support/>

Table 1: Lantronix Part Description

Keri Systems, Inc.	Lantronix Equivalent
LAN-520	Micro 100

LAN-520 LAN Port

Application Note

9.0 Contact Keri Systems

Keri USA	Keri UK, Ireland, Europe
2305 Bering Drive San Jose, CA 95131	Unit 17 Park Farm Industrial Estate Ermine Street Buntingford Herts SG9 9AZ UK
Telephone: (800) 260-5265 (408) 435-8400	Telephone: + 44 (0) 1763 273 243
Fax: (408) 577-1792	Fax:+ 44 (0) 1763 274 106
Web: www.kerisys.com	Web: www.kerisystems.co.uk
E-mail: sales@kerisys.com techsupport@kerisys.com	E-mail: sales@kerisystems.co.uk tech-support@kerisystems.co.uk

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