Digi One SP

Digi One IA

Configuration and Administration Guide

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Contents

Chapter 1 Introduction

In This Chapter

This chapter provides an overview of the tasks required to configure the Digi One SP or the Digi One IA. Detailed information regarding advanced settings is provided in subsequent chapters of this book.

Overview

- Set up the hardware
- Install application from CD-ROM
- Assign an IP address
- Configure the Digi One SP/IA Device Server

Set Up the Hardware

1. Connect the peripheral to the Digi device's serial port.
2. Connect the Digi device to the network.
3. Connect the power supply to an outlet and the Digi device to the power supply.

Note: For LED information see Chapter 5 "Upgrading and Troubleshooting."

Install Application from CD-ROM

1. Double-click My Computer > *CD ROM drive* > setup.exe if the CD does not start automatically.
2. Click Configure Device. A list of devices will appear on screen.

Assign an Initial IP Address

If DHCP is available on your local network, the IP address will automatically be assigned. Locate your device by matching the MAC address found on the back of Digi One device server to the MAC address listed on screen. Go to “Configure the Digi One SP/IA Device Server”.

To configure an IP address if DHCP is not available on your local network or to change an IP address, see Chapter 2 “Configuring the IP Address.”

If you cannot use the enclosed software and need to use ARP-Ping, see Chapter 2 “Configuring the IP Address.”

Configure the Digi One SP/IA Device Server

1. Double-click the IP address next to the MAC address of your Digi device server.

   Note: The device server must have an initial IP set.

2. Enter the username `root`
3. Enter the default password `dbps`.

   Note: To change the password click Admin > Change Password after you log on your device server.

4. Click Configure > Port
5. Select your Device type (printer, modem, modem in/out), Baud rate, Terminal type (vt-100, wy60, and wy60-e are the most common terminal types), Data bits, Flow control, Parity, and Stop bits from the drop down menus.
6. Click Submit to save the configuration.

   Note: For advanced configurations such as AutoConnect, TCP/UDP, UDP Multi-cast, or Tunneling see Chapter 3 “Configuring for all Socket Services.

Chapter 2 Configuring the IP Address

In This Chapter

Locate Devices on the Network and Assign an Initial IP Address

1. Start the Digi utility from the CD-ROM. Wait until the devices are displayed
2. Locate the MAC address of the Digi device you are configuring.
3. Double-click the IP address cell next to the MAC address.

DHCP Available	DHCP Not Available
4. The IP address is automatically set. Enter the username `root` and default password `dbps`.	(The IP address is 0.0.0.0.)
	4. You need the following information from your system administrator: • IP address • Subnet mask • Default gateway Enter these settings and choose OK
	5. Double-click on your new IP address.
	6. Enter the username `root` and default password `dbps`.

Your device is configured to your network.

Configure the IP Address Using ARP-Ping

1. Access a server on the same subnet as the Digi device.
2. Manually update the server's ARP table using the Digi device's MAC address (on the bottom of the unit) and the IP address you want assigned to the Digi device. The following is an example of how this is done on a Microsoft Windows system:

   ```
   arp -s 192.168.2.2 00-40-9D-00-00-00
   ```

3. Ping the Digi device using the IP address just assigned.

   ```
   ping 192.168.2.2
   ```

   Note: The ping will probably time out before there is a response from the Digi device. Wait a few seconds and then ping the Digi device again. The Digi device replies to the ping, indicating that the IP address has been configured.

Change the IP Address

1. Enter the current IP address in the URL of your browser.
2. Enter the username `root`.
3. Enter the default password `dbps`.
4. Click Configure > Network and enter the new IP address, Subnet mask, and Default gateway.
5. Click Submit to save the configuration.
6. Reboot the unit to utilize new IP address.

Chapter 3 Configuring Port for Socket Services

In This Chapter

Use Your Browser to Configure the Device Server

1. Enter the IP address of the Digi device server in your browser's URL address bar.
2. Log on with the username `root and` the default password `dbps`.

   Note: The configuration is displayed. From the Information screen you can configure port parameters, AutoConnect, TCP/UDP socket ports, UDP multi-cast, and serial tunnels.

Configure Port Parameters

1. Click Configure > Port.
2. Select your Device type, Baud rate, Terminal type, Data bits, Flow control, Parity, and Stop bits from the drop down menus.

   Note: You must select a terminal type that is compatible with your Operating System. Three typical terminal types are provided: VT-100 (default), wy60 and wy60-e.
3. Click Submit to save the configuration

Configure a Port for AutoConnect

The AutoConnect feature allows you to automatically connect a port to a host on the LAN.

1. Click Configure > Port > Advanced.
2. Select Enable AutoConnect and enter the IP address of the network server and the TCP Port number.
3. Select your Service (Telnet, RLogin, or Raw) from the drop-down menu.
4. Select the Flush Start Character (On allows the first character to initiate connection, Off sends the first character as data) from the drop-down menu.
5. Select Force DCD for 3-wire devices.
6. Select Binary Mode (On for Telnet binary connection, Off for ASCII connections.)
7. Choose Submit to save the configuration.

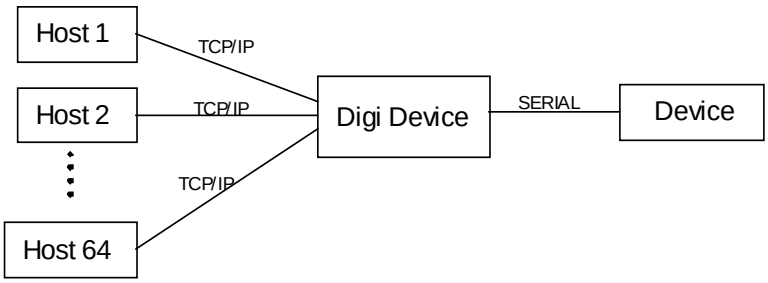
Configure TCP/UDP Socket Port

1. Click Configure > Network.
2. Enter the base socket range you want to use in the Base socket field.

   Note: Base socket range numbers are numbers 2000 - 9000 in 1000 increments.The default port setting is 2001 for Telnet and 2101 for raw. The raw port will always be 100 greater than the telnet port. Use the Help button for additional examples and information.
3. Choose Submit to save the configuration.

Configure the Port for UDP Multi-cast

The UDP multi-cast feature allows you to configure the Digi device to send UDP multi-casts automatically to a host or multiple hosts on the LAN.



1. Select Configure > Port > Device type - Printer

2. Click Advanced.
3. Click UDP serial (on the bottom of the page.)
4. Configure the port as needed from the options displayed.
5. Set Buffer settings.

   Note: Default buffer feature is 100 ms for Timer/idle delay and 1024 bytes for the buffer settings.

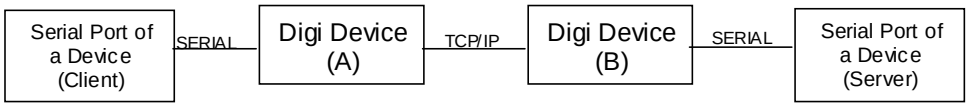
6. Choose the Add destination button on the bottom of the page.

   Note: The same page is displayed, but a UDP port has been added.

7. Click the new port from the Description column and add the IP address and UDP port number.
8. Choose Submit to save the configuration.

Create a Serial Tunnel Between Digi Devices

Tunneling is the transmission of private data over a public network such as the Internet. The serial devices talk to each other as if connected directly, but they are actually connected through a TCP network. One device is the Server which receives data and the other device is a Client which sends data. The serial port parameters for both devices must match. To avoid difficulty, set up the Server first.



Set up Server

1. Open your browser.
2. Enter the IP address of the device server that you will designate as the Server.
3. Log on with Username `root` and default Password `dbps`.
4. Click Configure > Port
5. Set Device type to Printer, Terminal type to vt100, Baud rate to 9600, Data bits to 8, Parity to None, and Stop bits to 1.
6. Click Submit to save this configuration.
7. Click Advance.
8. Enable Binary Mode if this is a Telnet connection and binary data will be transferred through the connection.
9. Choose Submit to save the configuration.

Set up Client

1. Open your browser.
2. Enter the IP address of the device server that you will designate as the Client.
3. Log on with Username `root` and default Password `dbps`.
4. Click Configure > Port

5. Set Device type to Terminal if a connection is made when DTR (data terminal ready) goes high. Set Device type to Modem in if a connection is made when DCD (data carrier detect) goes high
6. Set Baud rate to 9600, Data bits to 8, Parity to None, and Stop bits to 1.

   Note: These are the default settings. Terminal type does not matter
7. Click Submit to save this configuration.
8. Click the Advance button and Enable Autoconnect.
9. Select the Flush Start Character (On allows the first character to initiate connection, Off sends the first character as data) from the drop-down menu.
10. Enter the IP address of the device server designated as Server.
11. Enter the server TCP port socket number.
12. Enable Binary Mode (for a Telnet connection and binary data will be transferred through the connection - leave blank for ASCII connection.)
13. Enable Forced DCD if necessary (Forced DCD will autoconnect Client to Server with 3-wire connections.)
14. Click Submit to save configuration.

Chapter 4 Configuring Ports for Printers

In This Chapter

Configure Ports for Printers

1. Enter the Digi One SP/IA IP address in your browser's URL.
2. Enter the username `root` and the default password is `dbps`.
3. Click Configure > Port.
4. Select Printer from the drop down Device type menu.

   Note: Terminal type is not necessary.
5. Select Flow control (Hardware or Software) from the drop down menu.
6. Enter the Baud rate.
7. Select the Data bits, Parity, and Stop bits from the drop down menus.

   Note: Printer settings must have the same settings as the serial port it is connected to.
8. Choose Submit.

   Note: To return to the main Port menu, choose Port from the menu.

Configure LPD/LPR Printers in Windows 2000 for the PortServer II

1. From the Start button go to Settings and select Printers
2. Double-click the **Add New Printer** Wizard and click Next.
3. Select the Local Printer option and click Next.

4. Select the Create a New Port option, select LPR Port from the drop down box and click Next.
5. Enter the IP Address of the Digi One SP/IA.
6. Select the Manufacturer and Model of the Printer you are installing and click Next.
7. Enter a name for the Printer, specify if this is the default printer, and click Next.
8. You will now have the option to share the printer. Click Next.
9. The printer will not be available until the server is rebooted. Select No when asked to print a test page.
10. To print a test page, reboot the Windows 2000 Server and then select the option to Print Test Page from the properties of the newly added printer.

Chapter 5 Upgrading and Troubleshooting

In This Chapter

Upgrading the OS (Firmware)

Use this section to upgrade the firmware using the web interface.

1. Access the web interface by entering the Digi One SP/IA IP address in a browser's URL window.
2. Log on to the Digi One SP/IA with Username `root` and default password `dbps`.
3. From the main menu, choose Admin and then either HTTP upgrade or TFTP upgrade.
4. Follow the prompts to complete the upgrade.
5. Reboot after upgrade is complete.

Troubleshooting

Use this section to identify and resolve problems with your Digi One SP/IA.

Digi One Does Not Complete the Boot Cycle or POST

Verify the Network Cabling

1. Check the Ethernet cable. Verify the following:
   - The Ethernet cable is connected securely at both ends.
   - The Ethernet cable is pinned correctly.
   - The quality of the cable is sufficient for the cable length and the cable environment. Common Category 5 Unshielded Twisted Pair cabling can generally be run 300 meters at a speed of 10 Mbps and 150 meters at higher speeds. Consult an Ethernet cable manufacturer for a recommended cable for your configuration.
2. Verify your Ethernet hub. See your Ethernet hub manual.

Running the POST Using the LEDs

1. Plug in the power cable to the Digi One SP/IA.
2. Use the following table to interpret the output from the LEDs.

If ...	Then...
The power LED blinks immediately after POST	A DHCP error has occurred and the Digi One SP/IA was not assigned an IP address.
Any of the other LEDs blink immediately after POST,	A hardware component failed.

Viewing the POST from a Terminal

1. Connect a terminal to the open serial port on the Digi One SP/IA.
2. If the port configuration was changed, configure the terminal to match the default port settings.

   Note: Default settings are VT-100 emulation, 9600 baud, 8-bit characters, 1 stop bit, and No parity
3. Reboot the Digi One SP/IA by recycling the power and press the letter v when the LEDs begin to blink.

   POST output appears on the terminal screen.

Trouble Accessing the Port

Use this procedure if you are having trouble accessing a Digi One SP/IA port. The specific problem may be a printer or modem is not working properly or the IP address is not configured correctly.

Assumptions

- The Digi One SP/IA completes the boot cycle. If it is not, see Troubleshooting

on page 15.

- The network is working. The discussion in Digi One Does Not Complete the Boot Cycle or POST on page 15 goes through the steps of validating the network connection.

Ping an IP Address

Connect your Digi device to the Ethernet network and ping the IP address.

`ping` *ip-address*

If there is no response go back and reconfigure your IP address.

Telnet for Port

1. Plug in the loopback that came with your device server.
2. Telnet to the port.

`telnet ip 192.168.2.2. 2001`

this is IP address 192.168.2.2 for telnet base socket 2000 port number 1

If your characters display (echo), your port is not the problem.

Check for Duplicate IP Addresses

1. From another system on the network, use the ping command to determine if the IP address is in use. The following is the command syntax:

   `ping` *ip-address*

2. Do one of the following:
   - If there is no response to the ping, exit this procedure and return to the symptoms section of this chapter. Two devices using the same IP address is not the problem.
   - If there is a response, continue with this procedure.
3. Unplug the power to the Digi One SP/IA and then ping again.
4. Do one of the following:
   - If there is a response to the ping, there is another device using that IP address. Assign one of the devices a new IP address.
   - If there is no response, plug the power cable into the Digi One SP/IA. Another device is not using the IP address assigned Digi One SP/IA.

Trouble Accessing Device Server on the Network

If your Digi One SP/IA has been assigned a static IP address for a different network, it will not be available on your network. If this is the case, you will need to reset the unit to it's factory default state by following the procedure in the section, Hardware Reset Button on page 17.

Check Device Type

Under the Configure > Port link from the web interface, verify the device type is set correctly for your application. See the help button for a more detailed description of device types.

Running Digi One SP/IA Hardware Diagnostics

Use this topic to run hardware diagnostic procedures to validate the Digi One SP/IA.

1. Connect a terminal to a Digi One SP/IA port.
2. Configure the terminal to the following default settings:
   VT-100 emulation
   9600 baud
   8-bit characters
   1 stop bit
   No parity

   Note: In Diags mode, the port settings revert to the default settings. After the Diags mode, the port settings will revert to the saved settings before the going into Diags mode.
3. Reboot the Digi One SP/IA.
4. When the LED begins blinking continuously, press the letter **V** key.
5. When the Hardware Diagnostics Menu appears, select a test to perform.

Unable to Configure Device Server for Tunneling

1. Set up the Client device server first.
2. If you have already set up the Server device server, disable the client device server to make configuration changes

Hardware Reset Button

Use this topic to reset the Digi One SP or Digi One IA to factory defaults.

1. Use a pen, the point of a paper clip, or some device to depress the recessed reset button on the Digi device.
2. While depressing the button, power on the Digi device by plugging in the power cable.
3. When the LED pattern stabilizes, release the button.
   The device boots up.

Configuration Considerations for Printers

Be aware of the following considerations when configuring the Digi One SP/IA to handle printers.

Determine Your Printer's Flow Control Requirements

Setting the Digi One SP/IA flow control parameters incorrectly may cause the printer not to print all data sent to it. Check the printer's documentation to determine if it uses hardware flow control, software flow control, or no flow control at all. Here are some tips to ensure that the printer performs as expected:

- If flow control is necessary, ensure that the printer and Digi One SP/IA use the same flow control scheme.
- Most printers that use hardware flow control issue the DTR (data terminal ready) signal when they are ready for data. If this is the case, the DTR pin on the cable from the printer must be wired to an input on the Digi One SP/IA port (usually CTS or DCD) that can be used for flow control.

Information Tables

The following tables provide LED information, MEI Settings, Pinout information, Power supply requirements, FCC statement, and Contact information.

Table 1: LED Information for Digi One SP

LED	Color	Indicates
Power	green (labeled PWR)	On – power detected Off – no power detected
Link	yellow	On – no physical network detected Off – physical network detected
ACT	green	On – bad initialization Blinking – waiting for an IP address Off - ready

Table 2: LED Information for Digi One IA

LED	Color	State	Indicates
Power	Green	On	Power detected
		off	No power detected.
Link	Red	On	No network detected
		Off	Network detected
TX/RX	Green	On	Network traffic
		Off	No network traffic
Diag	Red	Blinking 1-1-1	Starting the EOS
		Blinking 1-3-1	Starting the TFTP process.
		Blinking 1-5-1	Configuration has been returned to factory defaults.
		Steady blinking	Device seeking an IP address from a DHCP server
Tx/Rx	Green	On	Serial port activity
		Off	No serial port activity.
RTS	Green	On	RTS is on
		Off	RTS is off
CTS	Green	On	CTS is on
		Off	CTS is off
DTR	Green	On	DTR is on
		Off	DTR is off
DSR	Green	On	CSR is on
		Off	CSR is off
DCD	Green	On	DCD is on
		Off	DCD is off

Table 3: MEI Switch Settings

Function	Switch Settings			
	1	2	3	4
EIA-232	Up	Down	Down	Down
EIA-422/485 Full-duplex	Down	Up	Down	If up, termination. If down, no termination
EIA-485 half-duplex	Down	Down	Up	

Table 4: DB-9 Pinout Information

DB-9 Pin	EIA-232	EIA-422/485 Full-Duplex	EIA-485 Half-Duplex
2	RxD	RxD+	RxD+
3	TxD	TxD+	TxD+
7	RTS	RTS+	Not used
8	CTS	CTS+	Not used
5	GND	GND	GND
6	DSR	RxD-	RxD-
1	DCD	CTS-	Not used
4	DTR	RTS-	Not used
9	NA	TxD-	TxD-

Table 5: Specifications

Requirements and Specifications		
Power Source	**Digi One IA**	**Digi One SP**
Main Power Connector	9-30 VDC, screw connector	9-30 VDC, barrel connector
	Environmental	
Ambient Temperature	0 to 60 Degrees C	10 to 45 Degrees C
Relative humidity	5 to 90% non-condensing	5 to 90% non-condensing
	Mechanical	
Width	101 mm	97.5 mm
Height	22.5 mm	42.7 mm
Depth	120 mm	3048 mm

FCC Class A Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause harmful operation.

	Digi One IA	**Digi One SP**
Emissions	FCC Part 15 Subpart B, Class A EN 55022, Class A: 1998 ICES-003, Class A VCCI, V-3/99.05 AS/NZS5 3548	
Immunity	EN 55024:1998, EN61000-6-2:1999	EN 55024:1998
Safety	UL 60950 3rd Ed. EN 60950 (European Union) CSA C22.2, No. 60950 3rd Ed. (Canada)	

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