Digi One IAP Family

Digi One IAP and Digi One IAP Haz

User Guide

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Revision history—90000263

Revision	Date	Description
B	5/27/2003	Add pass-through port.
C	2/12/2004	Update Declaration of Conformity.
D	November 2016	Updated document to remove outdated references as well as formatting and editing changes.
E	January 2019	Added warning statement for explosive hazard.
F	January 2020	Added information about unique password printed on the device label.

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About the Digi One IAP

Key Features

The Digi One IAP is high-performance, flexible device server that meets the specific requirements of the industrial automation (IA) market. It delivers simple, reliable and cost effective network connectivity for serial devices common in industrial automation applications, such as Programmable Logic Controllers (PLC), CNC/DNC (Computerized Numerical Control/Direct Numerical Control) equipment, process and quality control equipment, bar-code readers, operator displays, scales and weighing stations, printers, vision systems, and many other types of manufacturing equipment.

Features include:

- An industrial-strength, ergonomic enclosure designed to mount on a standard DIN rail
- EIA-232/422/485 switch select ability for use with virtually any device with a serial port, and expanded supply voltage range of 9-30 VDC with screw terminal connections or the industry's first powered Ethernet option (802.3af) that eliminates the need for an external power supply.
- RealPort® COM Port redirection technology
- Easy web-based configuration
- Multi-master capability
- Easy management through SNMP

Flexible Industrial Automation support

The Digi One IAP support for IA protocols is exceedingly flexible, providing connectivity solutions in a wide variety of industrial automation environments. It supports the following:

- Multi-mastering, which means that a slave using any supported serial port protocol can be managed by multiple masters; the masters need not use the same network protocol to access the device server.
- A variety of serial-port protocols, including Modbus ASCII, Modbus RTU, DF1 Full-Duplex, Compoway/F, FINS, and Hostlink. Support extends to what Digi calls the "user-defined" protocol, which is any serial protocol that has fixed header and trailer strings that bound all message packets and where each protocol request is followed by a single response.
- Almost any other IA serial device, master or slave, as long as the device on the other side of the network can communicate using TCP sockets, UDP sockets, or COM Port redirection (using RealPort).

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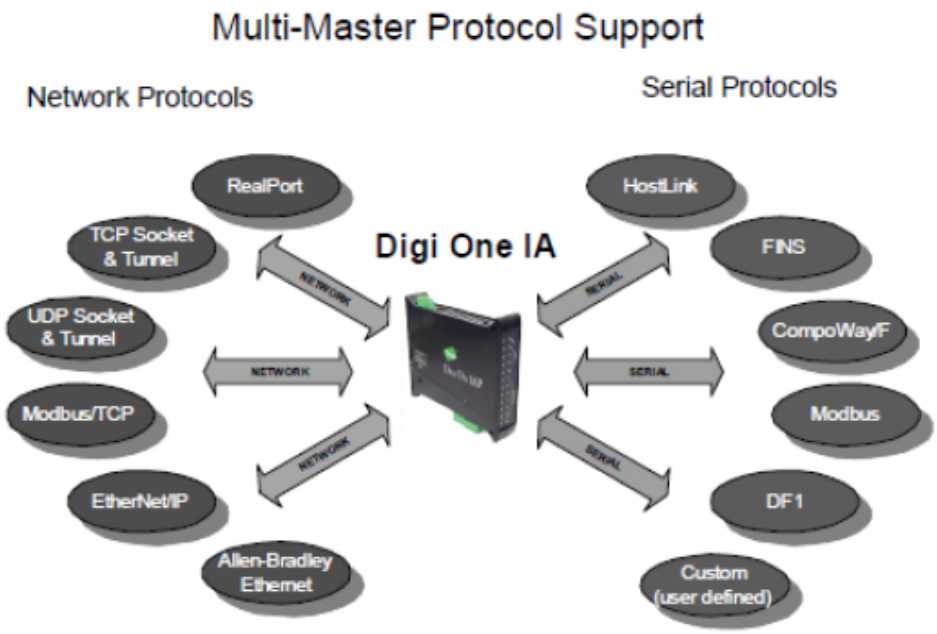
- Several methods to encapsulate serial data across a network, including Modbus/TCP, Ethernet/ IP, Allen-Bradley Ethernet, TCP sockets, UDP sockets, and COM Port redirection (using RealPort).

Serial port and network protocol support

The following figure depicts serial port and network protocol support.



The following table provides a list of serial-port protocols and compatible network protocols. The table also lists which protocols support multi-mastering, a feature that allows multiple masters, each of which may use a different network protocol, to manage a slave simultaneously.

Serial port protocol	Network protocols	Multi-master support
Modbus ASCII and Modbus RTU	▪ Modbus/TCP ▪ TCP Sockets ▪ UDP Sockets ▪ RealPort COM Port redirection	Yes

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Serial port protocol	Network protocols	Multi-master support
DF1 Full-Duplex	■ Allen-Bradley Ethernet ■ Ethernet/IP ■ TCP Sockets ■ UDP Sockets ■ RealPort COM Port redirection	Yes
FINS, CompoWay/F, and Hostlink	■ TCP Sockets ■ UDP Sockets ■ RealPort COM Port redirection	Yes
User-defined	■ TCP Sockets ■ UDP Sockets ■ RealPort COM Port redirection	Yes
Other serial-port protocols	■ TCP Sockets ■ UDP Sockets ■ RealPort COM Port redirection	No

Package contents

In addition to this manual, the package includes the following items:

- A Digi One IAP
- A single loopback plug, used to test the port in EIA-232 and EIA-422/485 4-wire full-duplex mode testing only. The loopback does not work for EIA-422/485 half-duplex connections except when running diagnostics. If you have trouble running your application in EIA-422/485 2-wire halfduplex mode, contact Digi Technical Support for additional testing or diagnostic procedures.
- A DB9-to-DB9 cable to connect a PC or laptop to the serial port, enabling you to access the Digi
- One IAP command line to configure the device.

About the Digi One IAP documentation

This guide provides all the information most users need to set up the device server for industrial automation applications.

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Other guides and references

In addition to this guide, the device server library consists of the following documents:

- Digi One IAP Quick Start Guide, included in the Digi One IAP package.
- Context-sensitive online help, accessible from the Digi One IAP web interface.
- Digi One/PortServer TS Command Reference, available from the Digi One IAP product page on the Digi website, provides complete descriptions of all commands.

Additional software, utilities, and other resources on Digi website

In addition to the user documentation, the following utilities and software for working with your Digi One IAP are available on the Digi website (www.digi.com):

- Digi Device Discovery Utility, a utility that enables you to discover all Digi devices on our network and configure an IP address.
- DPA-Remote software, a utility that enables you to configure the device server with an IP address and monitor the serial port.
- RealPort software, which installs on your PC and enables you to use the device server's serial port as though it were a local serial port on your server.
- Simple Network Management Protocol (SNMP) and Management Information Management Information Bases (MIBs).
- Firmware release notes

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Configure the Digi One IAP using IA profiles

This section describes the IA configuration profiles available for the Digi One IAP, and describes how to configure the Digi One IAP for use in an IA environment.

About IA configuration profiles

Port profiles simplify serial port configuration by displaying only those items that are relevant to the currently selected profile.

There are several port profile choices for the Digi One IAP, on the Serial Port Configuration page of the web interface. If a port profile has already been selected, it appears at the top of the Serial Port Configuration page in the web interface. Everything displayed on the Serial Port Configuration page between **Port Profile Settings** and the links to the **Basic Serial Settings** and **Advanced Serial Settings** depends on the port profile selected.

You can change the selected profile or modify individual settings of a selected profile.

Key terms in IA configuration profiles

IA configuration profiles involve the following key terms and concepts.

Term	Description
Com port redirection	A method of redirecting the serial data generated by a PC-based master to a slave connected to a port on a network-based device server. In this scheme, the master “thinks” it is communicating with a device connected to a serial port on the PC system when, in fact, the data is encapsulated in network packets and transported across the network to a device connected to a serial port on the Digi One IAP. Many applications, written to support serial communication only, require this service in order to communicate over the Ethernet.
IA	Abbreviation for industrial automation.
master (or protocol master)	The host or IA device that initiates all communication with a protocol slave.

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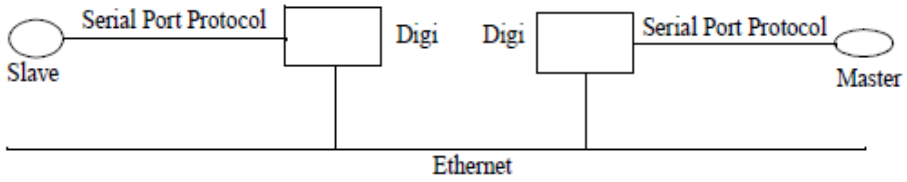
Term	Description
multi-master	Any configuration in which more than one master simultaneously communicates with a slave.
protocol request	A message generated by the master and sent to the slave that requests information or issues a command protocol response a message generated by the slave in response to a protocol request from the master.
slave (or protocol slave)	The device that responds to requests from the master.
TCP socket (or TCP socket service)	A type of network service that uses TCP to ensure reliability. When this guide discusses TCP sockets, it means that IA protocol messages are encapsulated in network packets and transported across the network using a standard network service. Many applications support connections to devices using TCP socket.
TCP tunnel	A TCP socket connection in which a master is connected to the serial port of one device and a slave to the serial port of another device.
RealPort	UDP sockets (or UDP socket service) similar to TCP socket service (discussed above) except that the UDP protocol is used instead of TCP, which means that the reliability service TCP performs is not provided. Advantages of UDP socket service are slightly less protocol overhead and support for multicasting. Some applications support connections to devices using TCP socket.
UDP tunnel	A UDP socket configuration in which a master is connected to the serial port of one device and a slave to the serial port of another device.

Serial bridge profile: master and slave connected to Digi ports

Use the Serial Bridge profile to connect a protocol master to the serial port of one device server and the protocol slave (or slaves) to the serial port of another device server. This profile, which is often called a serial bridge, is applicable to environments that use most IA serial port protocols and to multi-master environments as well. The network is completely transparent to the serial devices, which means they do not have to be reconfigured.



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Configuration requirements

The serial port connections must be configured to meet the requirements of the attached device, which can be one of the following:

- Modbus ASCII
- Modbus RTU
- DF1 Full-Duplex
- Omron Hostlink
- Omron FINS
- Omron CompoWay/F
- A serial port protocol that meets Digi's definition of a "user defined" protocol, that is, one that has fixed header and trailer strings that bound all message packets and where each protocol request is followed by a single response.

For the network connection, Digi recommends TCP sockets, which works regardless of the serial port protocol specified and provides an efficient and reliable network service. Another option is UDP sockets, which also works with all the serial port protocols, although it lacks TCP socket reliability. For Modbus devices, Modbus/TCP is an option, and for DF1 Full-Duplex devices, Allen Bradley Ethernet and Ethernet/IP are options.

Setup information for slave side

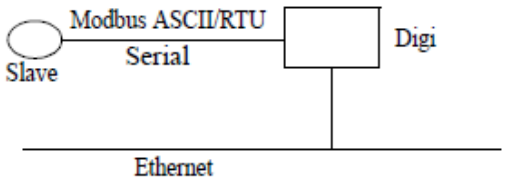
See Configure a serial-connected slave: generic procedure.

Locate setup information for master side

- To configure TCP socket or UDP socket communication, see Configure a serial-connected master: TCP/UDP sockets.
- To configure any of the other network communication protocols, see Configure a serial-connected master: generic procedure.

Modbus profile: serial-connected slave

Use the Modbus profile to connect a slave device (or devices) using Modbus RTU or Modbus ASCII. This profile is applicable to environments in which multiple masters control the slave or slaves.



Configuration requirements

The serial port connection must be configured for the protocol required by the slave, in this case Modbus RTU or Modbus ASCII.

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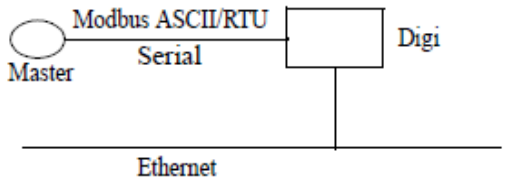
The network connection usually does not require configuration. The only exception is if the master requires COM port redirection. In that case, the master is an application that resides on a PC, such as a Microsoft Windows system, and communicates only with devices on COM ports.

Setup information

- To configure the serial port for Modbus ASCII or Modbus RTU, see Configure a serial-connected slave: generic procedure.
- To set up a PC and the device server for COM port redirection using RealPort, see Set up COM port redirection.

Modbus profile: serial-connected master

Use the Serial Connected Master profile to connect a master device using Modbus RTU or Modbus ASCII to the serial port of the device server.



Configuration requirements

The serial port connection must be configured for the protocol required by the master, in this case Modbus RTU or Modbus ASCII. If the remote slave supports TCP socket communication, which is the case if the remote slave is connected to another device server, Digi recommends this option.

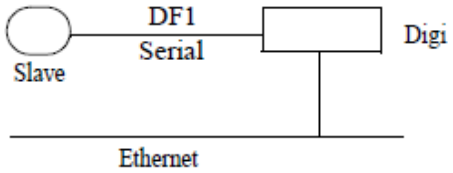
Modbus/TCP is the other supported network option. This master can be configured to control up to 8 slaves.

Setup information

- To configure the port for Modbus ASCII or Modbus RTU and the network for TCP socket communication, see Configure a serial-connected master: TCP/UDP sockets.
- To configure the port for Modbus ASCII or Modbus RTU and the network for Modbus/TCP, see Configure a serial-connected master: generic procedure.

DF1 profile: serial-connected slave

Use DF1 Serial-Connected Slave Profile to connect a slave device (or devices if multiple slaves are connected) using the DF1 Full-Duplex protocol.



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Configuration requirements

The serial port connection must be configured for the protocol required by the slave, in this case, DF1 Full-Duplex.

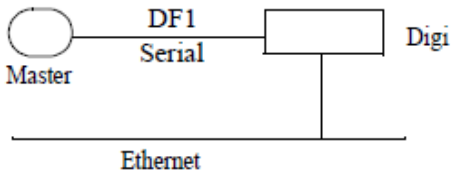
The network connection usually does not require configuration. The only exception is if the master requires COM port redirection. In that case, the master is an application that resides on a PC, such as a Microsoft Windows system, and communicates only with devices on COM ports.

Setup information

- To configure the serial port of the device server for DF1 Full-Duplex, see Configure a serial-connected master: TCP/UDP sockets.
- To set up a PC and the device server for COM port redirection using RealPort, see Set up COM port redirection.

DF1 profile: serial-connected master

Use the DF1 Serial-Connected Master profile to connect a master device using the DF1 Full-Duplex and protocols to the serial port.



Configuration requirements

The serial port connection must be configured for the protocol required by the master, in this case, DF1 Full-Duplex. If the remote slave supports TCP socket communication, which is the case if the remote slave is connected to another device, Digi recommends this option. For DF1 Full-Duplex users, Allen Bradley Ethernet and Ethernet/IP are other supported network options.

Setup information

- To configure the port for DF1 Full-Duplex and the network for TCP socket communication, see Configure a serial-connected master: TCP/UDP sockets,
- To configure the port for DF1 Full-Duplex and the network for Allen Bradley Ethernet or Ethernet IP, see Configure a serial-connected master: generic procedure.

Omron family profile: serial-connected slave

Use this profile to connect a slave device (or devices) using one of the Omron serial port protocols, Hostlink, FINS, or CompoWay/F.

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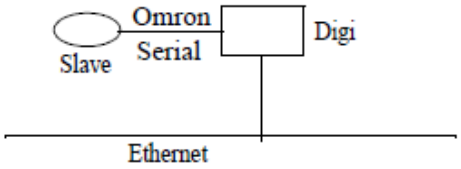


Configuration requirements

The serial port connection must be configured for the protocol required by the slave, Hostlink, FINS, or CompoWay/F.

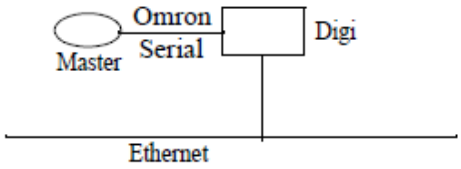
The network connection usually does not require configuration. The only exception is if the master requires COM port redirection. In that case, the master is an application that resides on a PC, such as a Microsoft Windows system, and communicates only with devices on COM ports.

Setup information

- To configure the serial port of the device server for any of the Omron protocols, see Configure a serial-connected slave: generic procedure.
- To set up a PC and the device server for COM port redirection using RealPort, see Set up COM port redirection.

Omron family profile: serial-connected master

Use the Omron Family serial-connected master profile to connect a master device to the serial port using one of the Omron serial port protocols, Hostlink, FINS, or CompoWay/F.



Configuration requirements

The serial port connection must be configured for the protocol required by the master, in this case Hostlink, FINS, or CompoWay/F. If the remote slave supports TCP socket communication, which includes a slave connected to another device server, Digi recommends this network option. UDP Sockets is another supported network option.

Setup information

To configure the port for one of the Omron protocols and the network for TCP or UDP socket communication, see Configure a serial-connected master: TCP/UDP sockets.

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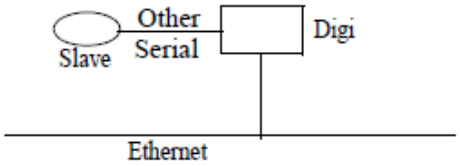
Other serial port protocol profile: serial-connected slave

Use the serial-connected slave profile to connect a slave device to the serial port using any IA serial port protocol not previously discussed in this guide.



Configuration requirements

In this configuration, you do not set up the port of the device server for an IA protocol; instead:

- If you will use RealPort for COM port redirection, you simply set up the port for RealPort.
- If you will have the master access the device server using TCP or UDP sockets, configure the standard serial port parameters required by the attached slave, such as line speed, number of data bits, and parity scheme.

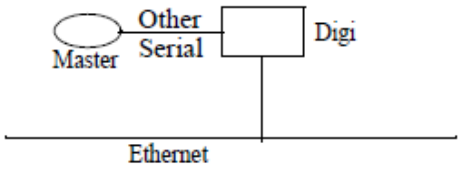
No special network configuration is required in either case.

Setup information

- To set up the device server for RealPort, see Set up COM port redirection.
- To set up the port for an “unsupported” IA protocol, see Configure a serial-connected slave: other IA protocol.

Other serial port protocol profile: serial-connected master

Use the serial-connected master profile to connect a master device to the serial port using any IA serial port protocol not previously described in this section.



Configuration requirements

In this configuration, you do not set up the port of the device server for an IA protocol. Instead, you configure the standard serial port parameters required by the attached master, such as line speed, number of data bits, and parity scheme, and then configure the port for autoconnection.

Setup Information

See Configure a serial-connected master: other IA protocol.

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Configure the Digi One IAP using IA profiles *Configure a serial-connected slave: generic procedure*

Configure a serial-connected slave: generic procedure

Use this procedure when a protocol slave is connected to the serial port of the device server. If the associated master requires COM port redirection, see Set up COM port redirection.

1. Access the web interface by entering the device server IP address in a browser's URL window.
2. Log in to the device server.
3. From the main menu, choose **Setup Wizards** > **Industrial Protocols**.
4. Choose the serial port protocol required by the slave that is connected to the serial port.
5. For device type, select **Slave**.

Any number of network masters can communicate with the slave.

Configure a serial-connected master: generic procedure

Use this procedure when a protocol master is connected to the serial port of the device server. If the master requires TCP socket or UDP socket communication, see Configure a serial-connected master: TCP/UDP sockets.

1. Access the web interface by entering the device server IP address in a browser's URL window.
2. Log in to the device server.
3. From the main menu, choose **Setup Wizards** > **Industrial Protocols**.
4. Choose the serial port protocol required by the master.
5. For **Mode**, select **Master**.
6. Configure up to 8 network slaves.

Configure a serial-connected master: TCP/UDP sockets

Use this procedure in the following situations:

- When a protocol master using one of the supported serial port protocols (Modbus ASCII, Modbus RTU, DF1 Full-Duplex, FINS, Hostlink, CompoWay/F or a protocol that meets Digi's definition of a "user-defined" protocol) is connected to the serial port.
- When the master requires TCP or UDP sockets for network communication.

To configure a serial-connected master:

1. Access the web interface by entering the device server IP address in a browser's URL window.
2. Log in to the device server.
3. From the main menu, choose **Setup Wizards** > **Industrial Protocols**.
4. Choose the serial port protocol required by the master.
5. For **Mode**, select **Master**.
6. Configure up to 8 network slaves.
7. Change the default socket number only if required.

Configure a serial-connected slave: other IA protocol

Use this procedure in the following situations:

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- When the device connected to the serial port is a slave that is using a “non-supported” serialport protocol, that is, the serial port protocol is not Modbus ASCII, Modbus RTU, DF1 Full-Duplex, FINS, Hostlink, CompoWay/F, or a protocol that meets the definition of a “userdefined” protocol.
- When you do not want to set up the device server for RealPort COM Port redirection.
- When multiple masters will not be communicating with this slave.

To configure a serial-connected slave for other IA protocol:

1. Enter the device server IP address in a browser’s URL window.
2. Log in as the Administrator.
3. From the main menu, select **Configure** > **Port**.
4. From the **Port** configuration screen, set the **Device type** to **Printer**, adjust other serial port communication parameters as required by the connected slave.
5. Click **Submit**.
6. Click **Advanced**, check **Binary Mode**, and click **Submit**.

Configure a serial-connected master: other IA protocol

Use this procedure when the device connected to the serial port is a master that is using a “nonsupported” serial-port protocol. That is, the serial port protocol is not Modbus ASCII, Modbus RTU, DF1 Full-Duplex, FINS, Hostlink, CompoWay/F, or a protocol that meets the definition of a “userdefined” protocol.

1. Enter the device server IP address in a browser’s URL window.
2. Log in as the Administrator.
3. From the main menu, select **Configure** > **Port**.
4. From the **Port** configuration screen, set the **Device type** to **Modem In**, adjust other serial port communication parameters as required by the connected master, then click **Submit**. The Terminal type field does not matter.
5. To configure the port to launch an automatic connection to the slave, click **Advanced**.
6. Select **Enable Autoconnect**.
7. Specify the IP address of the slave.
8. Specify a TCP port to use for this connection. If this is a connection to another device server, use **2101** as the TCP port number.
9. To have the autoconnection to launch immediately, choose **Force DCD**.
10. Choose **Binary Mode**.
11. To enable UDP sockets (instead of TCP sockets), choose **UDP Serial**, and use the online help for information on completing configuration task.
12. When you complete configuration, click **Submit**.

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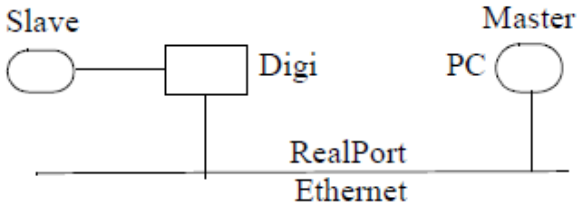
Set up COM port redirection

Use these procedures when a slave is connected to the serial port of the device server and the master, which must be an application residing on a Microsoft Windows system, requires COM port redirection.



Steps for configuring COM port redirection

To enable Com port redirection--which requires that RealPort software be running on the same PC as the master application--complete the following tasks:

1. Configure the serial port for RealPort.
2. Install RealPort software on a host system.
3. Configure the port on the RealPort PC.

See the PC's documentation for information on configuring serial ports.

Configure the serial port for RealPort

Use this topic for information on configuring the Digi One IAP serial port.

1. Access the Digi One IAP configuration from a web browser by entering IP address for the device in the browser's URL window.
2. Log in as the Administrator.
3. Do one of the following:

If the slave is using a supported serial port protocol	If the slave is not using a supported serial port protocol
1. Choose **Port** from the main menu. 2. Set the **Device** type to **IA**. 3. Click **Submit**.	1. Choose **Setup Wizards** > **RealPort**. 2. Use the wizard to complete configuration.

Install RealPort software

Use this topic for information on installing RealPort software on a Microsoft Windows.

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1. Go to the device support page.
2. From the OPERATING SYSTEM SPECIFIC DRIVERS: drop-down list, select your operating system. A list of drivers appears.
3. Click the link for your operating system, and save the .zip file to your hard drive.
4. Navigate to the location of the .zip file, and double-click the file to unzip the files.
5. Select the appropriate setup file for your system, and follow the on-screen prompts.

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Administration tasks

This section discusses the administration tasks that need to be performed on Digi devices periodically.

Log in as the Administrator

The administrator (or root user), is required to perform most administrative tasks. When you log into the web interface on the device, you are asked for the user name and password. The default options are:

- **User name**: **root**
- **Password**: The unique password printed on the device label. If a password is not printed on the label, the default password is **dbps**.

If the default log in information does not work, the user name and/or password may have been updated. Contact your system administrator.

Update firmware

You can upgrade the firmware for Digi One IAP from the web interface using the HTTP or TFTP protocol.

Upgrade firmware from the web Interface using HTTP

1. Download a copy of the firmware.
2. Access the web interface by entering the Digi One IAP IP address in a browser's address bar.
3. Log in as the Administrator.
4. From the web interface's main menu, select **Administration** > **HTTP Upgrade**.
5. Navigate to the firmware and then click **Submit**. When the Digi One IAP determines that the firmware image is valid, it prompts you to reboot.
6. Reboot the device.

Upgrade firmware from the web Interface using TFTP

1. Download a copy of the firmware to a server running TFTP.
2. Access the web interface by entering the Digi One IAP IP address in a browser's address bar.
3. Log in as the Administrator
4. From the web interface main menu, select **Administration** > **TFTP Upgrade**.
5. Enter the firmware image name and the IP address of the TFTP server.

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6. Click **Submit**.
7. When the device server determines that the firmware image is valid, it prompts you to reboot.
8. Reboot the device by selecting **Reboot** > **Continue**.

Upgrade firmware from the command line

To upgrade firmware from the command line to use the boot command. See *Digi One and PortServer TS Family Command Reference* for the **boot** command description.

Update POST code

You can upgrade POST code from a file or TFTP. Typically, POST upgrades are not required and should only be done if the firmware release notes indicate that this step is required.

The preferred method is to use your web browser and download the file onto your PC. TFTP is often used in UNIX environments and is supported as well.

This procedure assumes that:

- You have already downloaded the firmware file from the Digi web site.
- TFTP is running (if you are using the TFTP option).

To update POST code:

1. Open a web browser and enter the device server's IP address in the URL window.
2. Log in as the Administrator
3. From the main menu, select **Administration** > **Update Firmware**.
4. From the dropdown menu, select **Boot/POST**.
5. Click **Browse** to select the **Boot/Post** image.
6. Click **Update**.

Reset the Digi One IAP configuration to factory defaults

You can reset the Digi One IAP configuration to factory defaults from the web interface or command line, or by pressing the reset button on the Digi One IAP hardware.

Note When you reset the device to factory defaults, all previous configuration changes will be lost.

Reset the Digi One IAP from the web interface

1. Access the web interface by entering the device server IP address in a browser's URL window.
2. Log in as the Administrator
3. From the main menu, choose **Administration** > **Factory Default Settings**.
4. Enable or disable **Keep IP address settings and administrator password** as desired.
5. Click **Restore** to reset the configuration.

Reset the Digi One IAP from the command line

To reset the Digi One IAP from the command line, use the revert and boot commands. For command descriptions, see *Digi One and PortServer TS Family Command Reference*.

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Reset the Digi One IAP using the reset button

1. Use a pen or other object that is pointed but not sharp to press and hold the recessed reset button, which is located on the side with the Ethernet connection.
2. While holding down the button, power on the device server.
3. When a 1-5-1 LED pattern appears, release the button. The device boots up and restores to the default configuration.

Enable pass-through port

The Digi One IAP has a second DIP switch on the top of the device for enabling the pass-through port. When the pass-through port DIP switch is enabled (ON), the DIP switch bank for EIA-232/422/485 operates for the screw terminal port only. The screw terminal port is port 1. The DB-9 serial port operates as the second port supporting only EIA-232.

The following are the procedures to enable the pass-through port as well as diagnostic and troubleshooting tips for using the pass-through port.

Enable the pass-through port

1. While the unit is off, slide the pass-through switch to ON.
2. Power up the unit.
3. Install RealPort from the Access Resource CD under Software.

Note If the unit has already been configured and you are adding the pass-through port, reboot the unit after enabling the pass-through port. If RealPort is installed before the pass-through port is enabled, the driver must be reinstalled. Configure the pass-through port as the Master port. See Configure a serial-connected slave: other IA protocol.

Run diagnostics

The following diagrams are for the screw terminal loopback used when testing two port functionality with the user diagnostics. When running diagnostics, connect to the DB-9. When running user diagnostics in single port mode, remove the TS-9 loopback.

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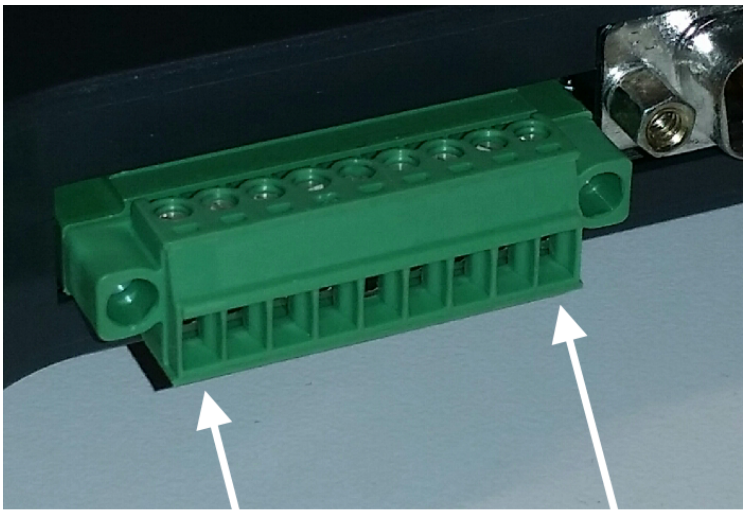

Screw terminal connector	Signal RS232	Signal RS485
Pin 1	RTS	RTS+
Pin 2	DTR	RTS-
Pin 3	Tx	TX+
Pin 4	RI	TX-
Pin 5	GND	GND
Pin 6	Rx	RX+
Pin 7	DSR	RX-
Pin 8	CTS	CTS+
Pin 9	DCD	CTS-

232 loopback for screw terminal

- Connect Pin 1 to 8
- Connect Pins 2, 4, 7, 9
- Connect Pin 3 to 6

485 loopback for screw terminal

- Connect Pin 1 to 8
- Connect Pin 2 to 9
- Connect Pin 3 to 6
- Connect Pin 4 to 7

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Interpreting the status LEDs

Use the following table to interpret LED activity.

LED label	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 device's operating system.
		Blinking 1-3-1	Starting the TFTP process.
		Blinking 1-5-1	Configuration set to factory defaults.
		Steady blinking	Device seeking an IP address from a DHCP server.
		Blinking 4-1-1	Problems with the operating system. Contact Customer Support.
		Blinking 9-1-1	
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	DSR is on.
		Off	DSR is off.
DCD	Green	On	DCD is on.
		Off	DCD is off.

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Hardware information

This topic provides hardware specifications, regulatory and safety statements, and certifications for the Digi One IAP.

Hardware specifications

Category	Specification	Value
Power requirements	2-pin Terminal Connector (green)	+9 to +30 VDC 500 mA (max) external power supply
	RJ-45 Powered Ethernet	+37 to +57 VDC 100 mA (max) (802.3afcompliant)
Environmental	Ambient temperature	0 to 60 degrees C Relative humidity not to exceed 95% noncondensing over the temperature range of from 4C to 45C. Above 45C, constant absolute humidity shall be maintained.
	Relative humidity	5 to 90% non-condensing
Mechanical	Width	101 mm
	Height	22.5 mm
	Depth	120 mm

CAUTION! This unit has two power inputs. For total isolation from electrical shock and energy hazard, disconnect both power inputs.

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WARNING! EXPLOSIVE HAZARD. DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

Regulatory information

FCC Part 15 Class A

Radio Frequency Interference (RFI) (FCC 15.105)

This equipment has been tested and found to comply with the limits for Class A digital devices pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Labeling Requirements (FCC 15.19)

This device complies with Part 15 of 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 undesired operation.

Modifications (FCC 15.21)

Changes or modifications to this equipment not expressly approved by Digi may void the user's authority to operate this equipment.

Cables (FCC 15.27)

Shielded cables must be used to remain within the Class A limitations.

International EMC (Electromagnetic Emissions/Immunity/Safety) standards

The Digi One IAP complies with the requirements of following Electromagnetic Emissions/Immunity/Safety standards:

Electromagnetic Emissions Standards

- EN55022 Class A
- EN61000-6-2
- VCCI
- AS/NZS 3548

Product Safety Standards

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- UL 60950
- EN60950

Safety considerations and warnings

⚠	■ Do not attempt to service the power supply that comes with the Digi One IAP. This sealed unit contains no user-serviceable parts or adjustments. Do not open or tamper with the power supply. ■ Carefully inspect the work area in which the Digi One IAP will be located to ensure against hazards such as damp floors, ungrounded power extension cords, and missing ground connections. ■ Before operating the Digi One IAP, ensure that external power sources comply with the requirements listed in the specifications. If you are not sure of the type of power source, contact your dealer or power company. ■ Ensure that the ampere rating of all equipment plugged into wall outlets does not exceed the capacity of the outlet. ■ Ensure that the cover is secure on completion of installation to reduce safety hazards.

Other considerations

- If you require an extension cord, ensure that the ampere rating of all equipment plugged into the extension cord does not exceed the ampere rating of the cord.
- If the Digi One IAP is exposed to moisture or condensation, disconnect it from the power source immediately and obtain service assistance.
- If the Digi One IAP exhibits unexpected behavior, such as smoking or becoming extremely hot, disconnect it from power sources immediately and then obtain service assistance.

Environmental considerations and cautions

⚠	To ensure safe and efficient operation of your Digi device, observe these environmental recommendations and cautions: ■ Do not position the Digi device near high-powered radio transmitters or electrical equipment, such as electrical motors or air conditioners. Interference from electrical equipment can cause intermittent failures. ■ Do not install the device in areas where condensation, water, or other liquids may be present. These may cause safety hazards and equipment failure.

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