

Ethernet connectivity

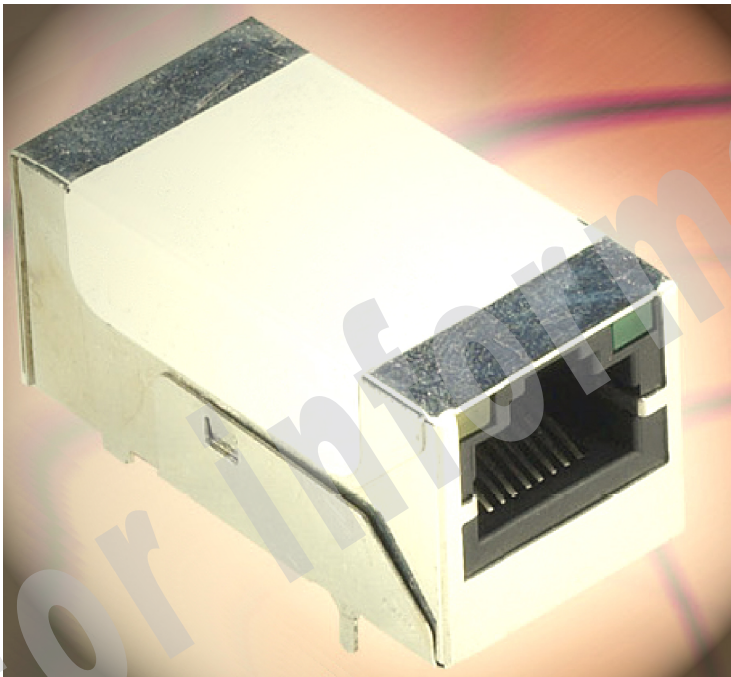


image 9030

Small character ink jet printers



For information



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For information



General



For information



■ Introduction

The Ethernet option can be used to improve communication between the printer and the control application.

This solution has several advantages:

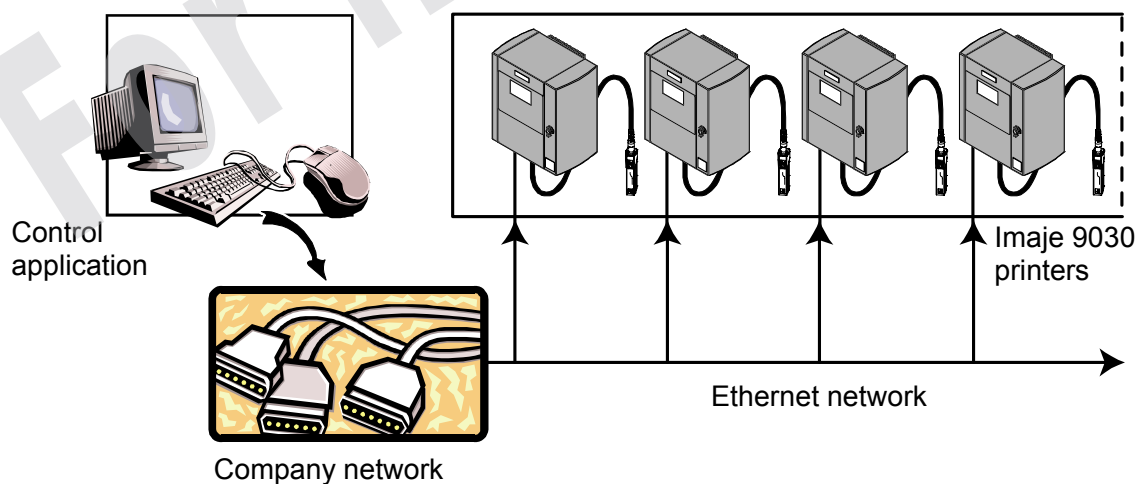
- Greater distance between the control PC and the printers.
- Use of the company's internal network.
- The number of printers accessible to a single PC is no longer limited to the number of serial ports.

NOTE: *The tools and documentation needed to configure the Ethernet option are supplied on the "Documentation" CD-ROM supplied with each printer.*

■ General network information

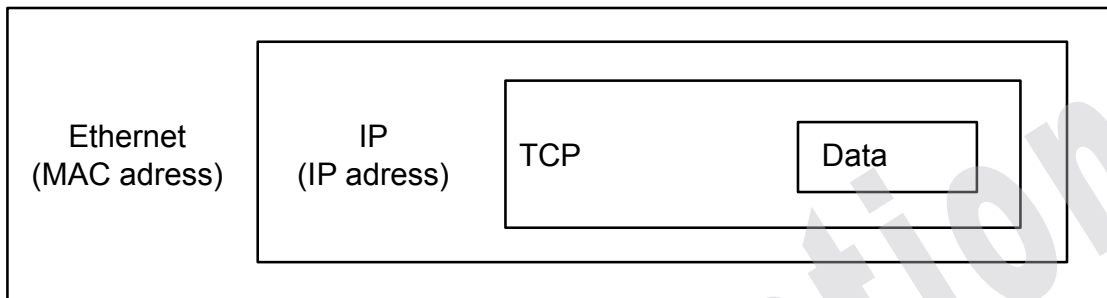
A network is a structured medium, organized and defined in order to exchange information.

In our case it is a set of computers and printers, linked together by physical lines, exchanging information in the form of digital data.





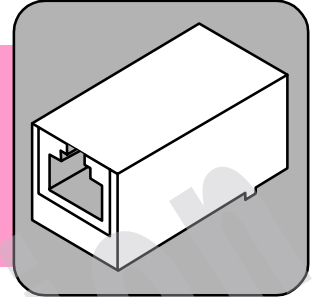
This type of network is organized as follows:



- the Ethernet layer, which uses MAC addresses (Medium Access Control) to identify physical source and destination addresses.
- the IP (Internet Protocol) layer which, among other functions, encapsulates data and provides source and destination IP addresses.

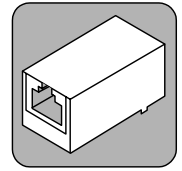
An IP address may be assigned in two ways:

- A temporary address, supplied automatically by a DHCP server.
- A fixed, permanent IP address, configured manually.



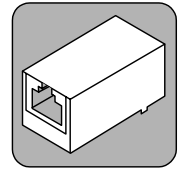
Description of the Ethernet option

Description of the Ethernet option



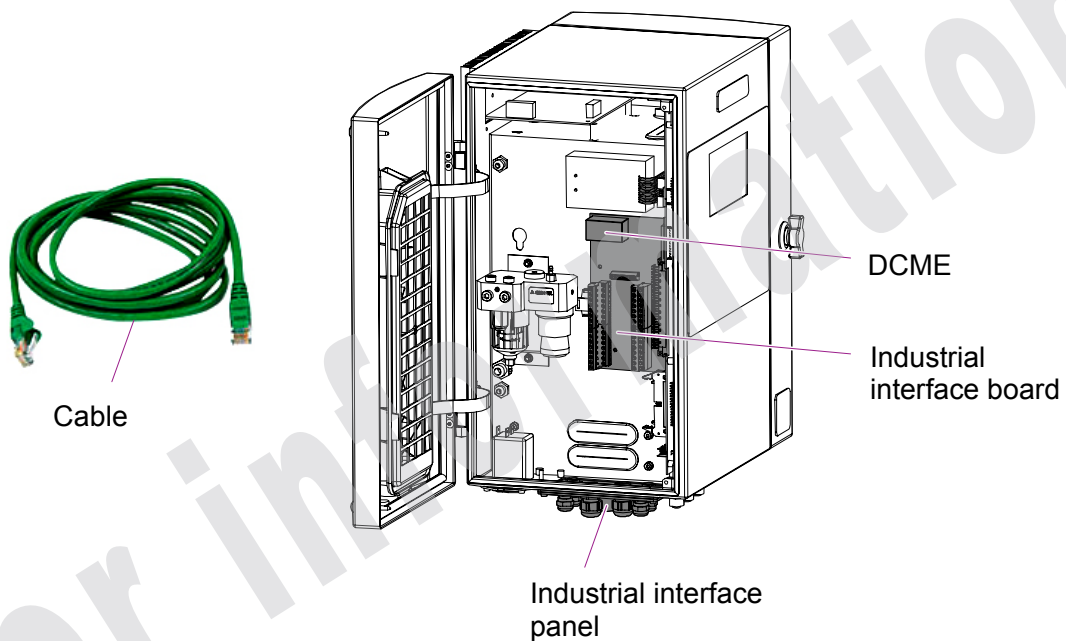
For information

Description of the Ethernet option



■ Description

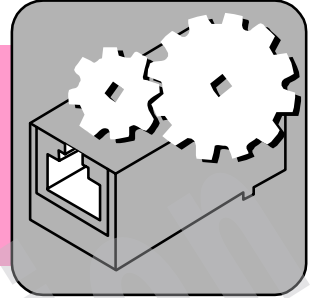
This option involves installing an industrial interface board fitted with a DCME unit which converts data from Ethernet packets to the printer's built-in serial link and vice-versa. It features an RJ45 connector for connecting the printer to the local area network. A cable gland allows the cable to traverse the industrial interface panel.



NOTE: Communication via an Ethernet network requires a correctly configured network card on the control PC.

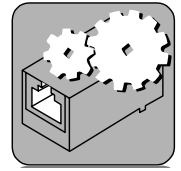
For information





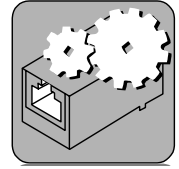
Configuring the Ethernet option

Configuring the Ethernet option



For information

Configuring the Ethernet option

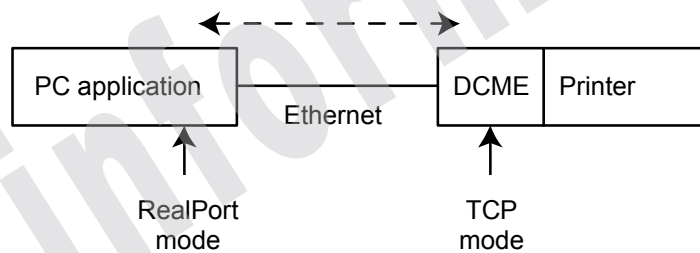


■ Communication principle

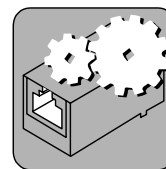
The PC can communicate with the printer over an Ethernet network in one of two modes:

- **TCP mode:** This mode communicates directly with the printer. The control application must be configured to transmit data over TCP/IP. The DCME unit must be configured.
- **RealPort mode:** RealPort mode effectively simulates a serial link. The PC application should be configured for to transmit data over a serial port. The serial port is only virtual but this makes no difference as far as the application is concerned. However, it requires a driver to be installed and configured on the PC(s) where the printer control program is installed. This mode is used when the control application can only communicate over a serial link.

The diagram below shows that RealPort mode is effectively located on the PC and TCP mode in the DCME unit, i.e. in the printer.



Configuring the Ethernet option



■ Configuration in TCP mode

The unit is factory-configured in DHCP mode, and the printer is therefore assigned a temporary IP address when it is connected to the network.

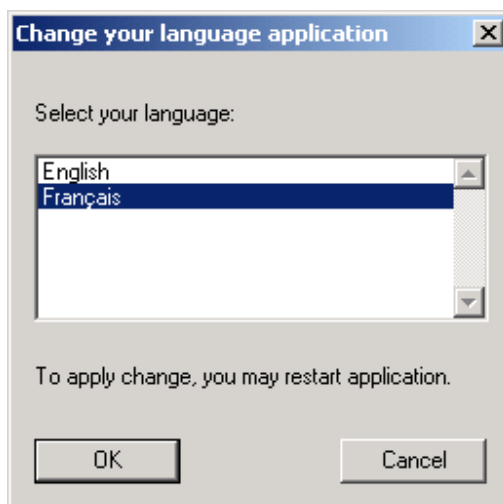
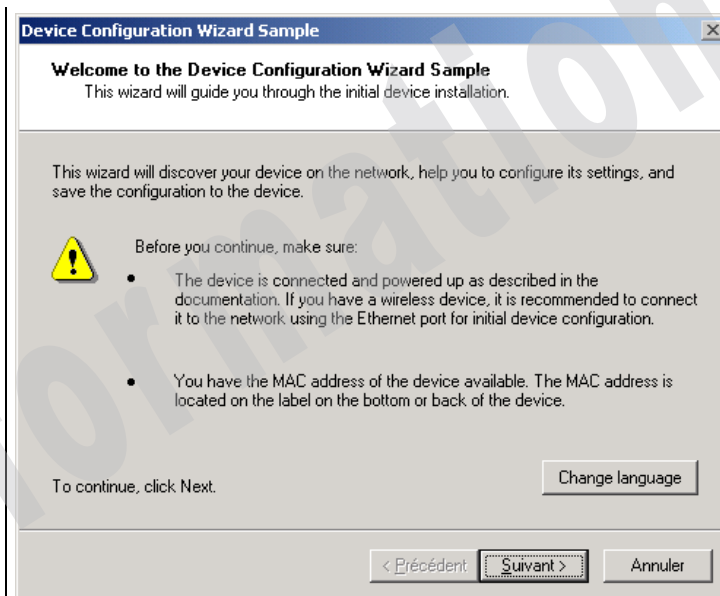
The **CFGWIZ.EXE** program provided can identify this address and reconfigure the DCME unit for an optimal connection.

1. Run the application by double-clicking on **CFGWIZ.EXE**.

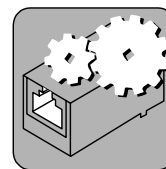
The installation language may be changed by clicking the **"Change Language"** button.

The application must be restarted for the change of language to take effect.

Click **"Next"**



Configuring the Ethernet option



2. The unit is recognized by its MAC address and its IP address.

The list shows one IP address for each printer on the network. Select an address then click **"Next"**.

Note: The serial number shown can be used to identify the printers. The number is marked on the manufacturer's plate on the printer.

IP Address	MAC Address	Printer serial	Product
10.0.56.102	00:40:9D:24:D1:5D		Digi Connect ME

3. By default the unit is configured in DHCP mode. To use a fixed IP address, click "Use the following IP settings", enter the various addresses (IP address, subnet mask and default gateway)

Click **"Next"**

Caution: Only change these settings if you understand the implications.

☒ Obtain IP settings automatically using DHCP

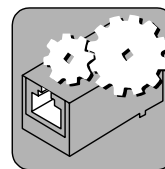
☐ Use the following IP settings

IP Address: 10 . 0 . 56 . 42

Subnet Mask: 255 . 255 . 0 . 0

Default Gateway: 10 . 0 . 1 . 240

Configuring the Ethernet option



4. Configure the serial port settings as shown opposite.

Note: The maximum serial link speed on the printer is 38400 baud.

Click **"Next"**

The screenshot shows a window titled "Device Configuration Wizard Sample" with a close button (X). The main heading is "Configure Serial Settings" with the subtitle "Configure the port settings of the device." Below this, it says "Select the serial port settings for your device." There are five dropdown menus: "Baud Rate" (set to 38400), "Data Bits" (set to 8), "Parity" (set to None), "Stop Bits" (set to 1), and "Flow Control" (set to None). An information icon (i) is next to a note: "Reference the documentation that came with your serial device if you don't know the port settings." At the bottom, there are three buttons: "< Précédent", "Suivant >", and "Annuler".

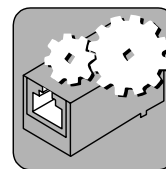
5. Your configuration is displayed.

You may change the settings by clicking **"Previous"**, to return to the previous screens.

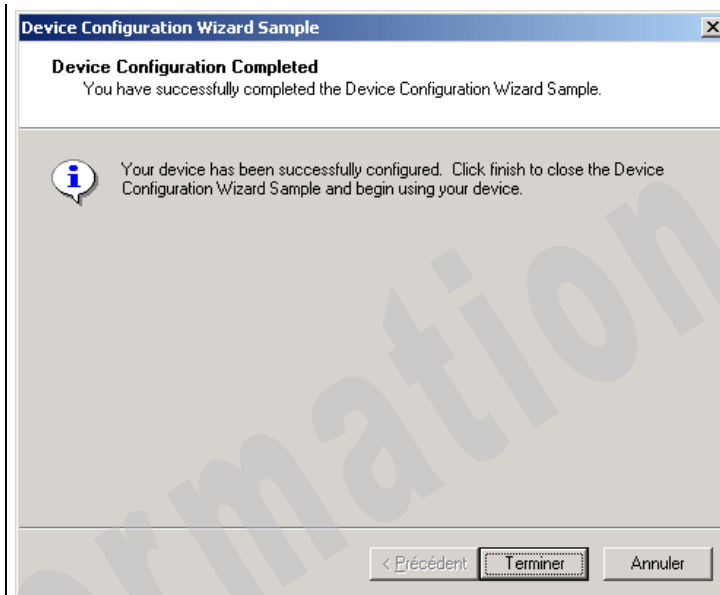
Otherwise confirm by clicking **"Next"**.

The screenshot shows a window titled "Device Configuration Wizard Sample" with a close button (X). The main heading is "Verify Configuration" with the subtitle "Verify the configuration before it is uploaded to your device. All previous settings will be erased before the new settings are applied." Below this, it says "Configuration Report:". There is a text area showing the following settings: "The Digi Connect ME, with MAC address 00:40:9D:26:05:80 will be configured with the following settings:" followed by "Network Settings:" (IP Address: Address determined by DHCP, Subnet Mask: Address determined by DHCP, Default Gateway: Address determined by DHCP) and "Device Settings:" (Baud Rate: 38400, Data Bits: 8, Parity: None, Stop Bits: 1, Flow Control: None). At the bottom, it says "Click Next to save settings to the device." There are three buttons: "< Précédent", "Suivant >", and "Annuler".

Configuring the Ethernet option

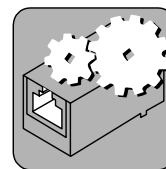


6. The DCME unit is now configured.
Click **"Finish"** to quit the application.



NOTE: *The application must be run once for each printer connected to the network.*

Configuring the Ethernet option



■ Configuration in RealPort mode

Some PC applications, such as Imaje Message Center or Imaje Graphic Center, can only communicate over a serial link. The DCME unit effectively transforms an Ethernet connection into a serial link; what is needed is a means of doing the reverse, i.e. transforming a serial link into an Ethernet link.

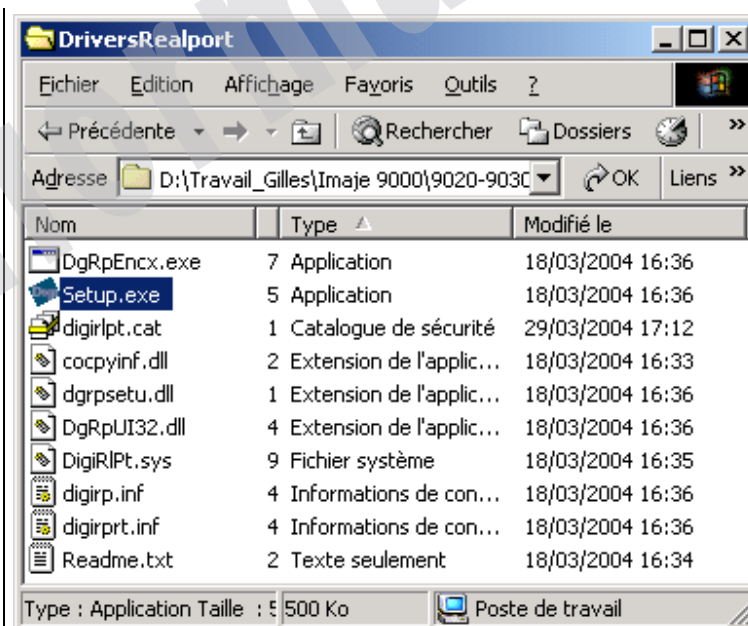
This is what the RealPort driver does.

Installing RealPort

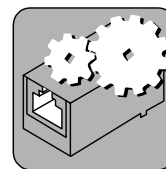
See document 90000630-B: "RealPort installation".

The unit is factory-configured in DHCP mode, and the printer is therefore assigned a temporary IP address when it is connected to the network.

1. Start the RealPort installation by double-clicking on the file **Setup.exe**.



Configuring the Ethernet option



2. A welcome screen is displayed.

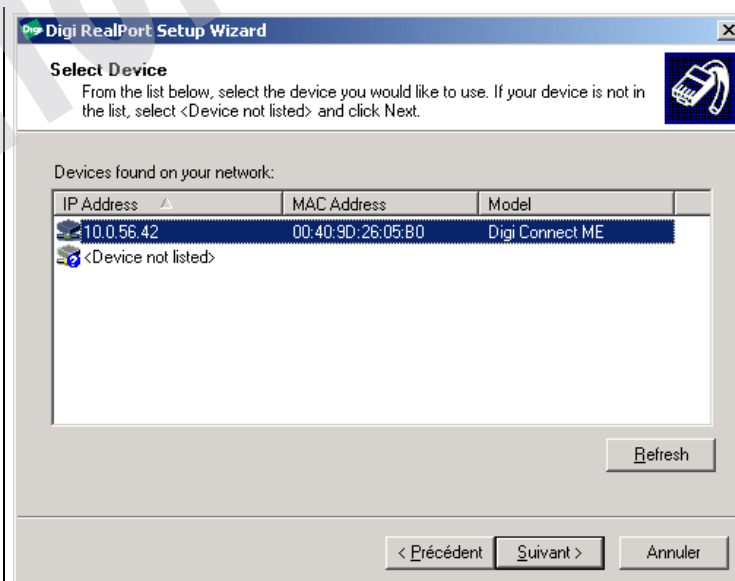
Ensure that the printers are connected to the network then click **"Next"**.



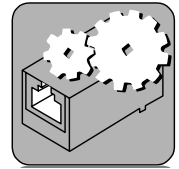
3. The printer(s) are automatically detected.

The list shows one IP address for each printer on the network.

Select a printer and click **"Next"**.



Configuring the Ethernet option

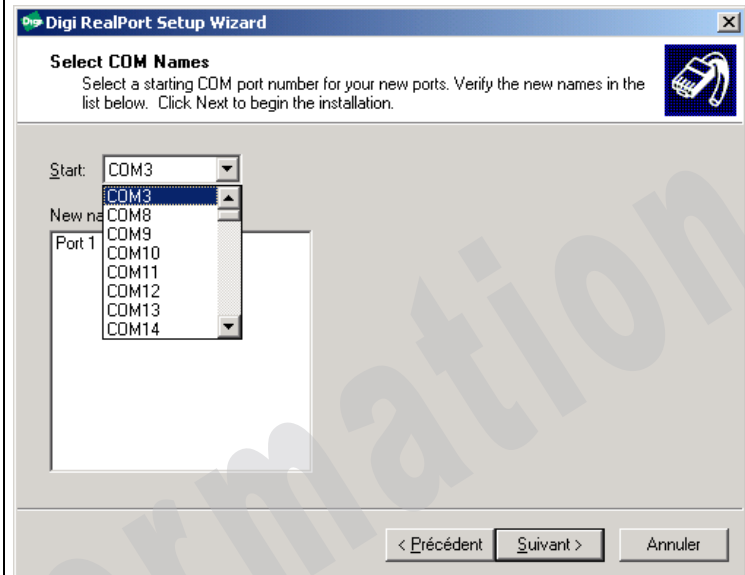


4. Select a serial port.

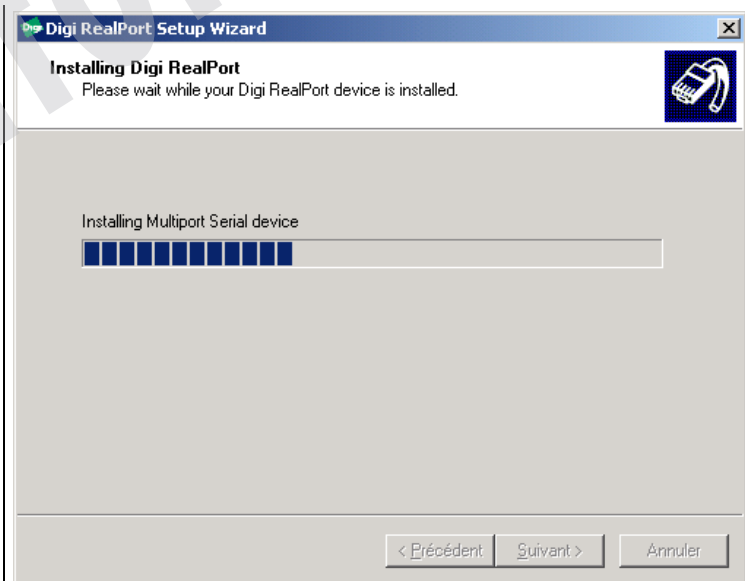
The port selected by default is the first in a list sorted in alphanumeric order.

Note: These are virtual serial ports, and do not physically exist on the machine.

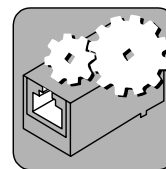
Click "Next"



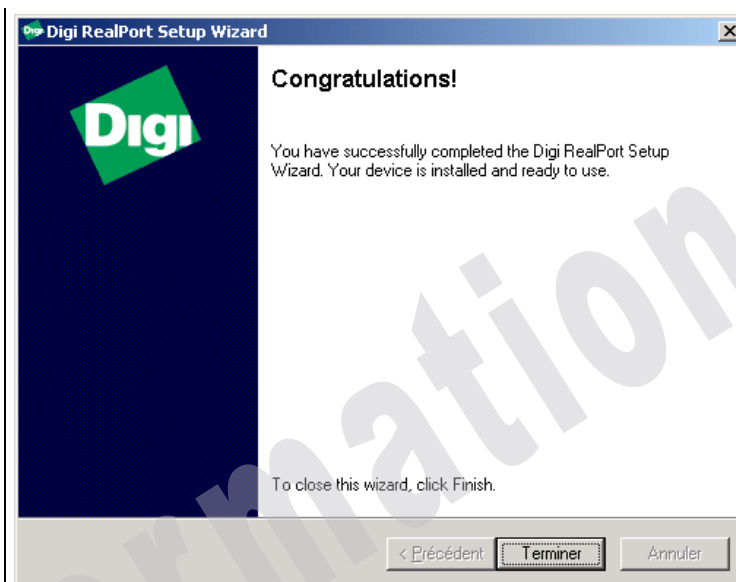
5. The port is configured automatically.



Configuring the Ethernet option



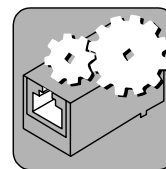
6. Click **"Finish"** to finish installing the driver.



NOTE: *The configuration steps must be performed for each printer connected to the network.*

At this stage you do not know which printers correspond to which IP addresses. To find out, use the "Cfgwiz.exe" tool (See the "TCP mode" section.)

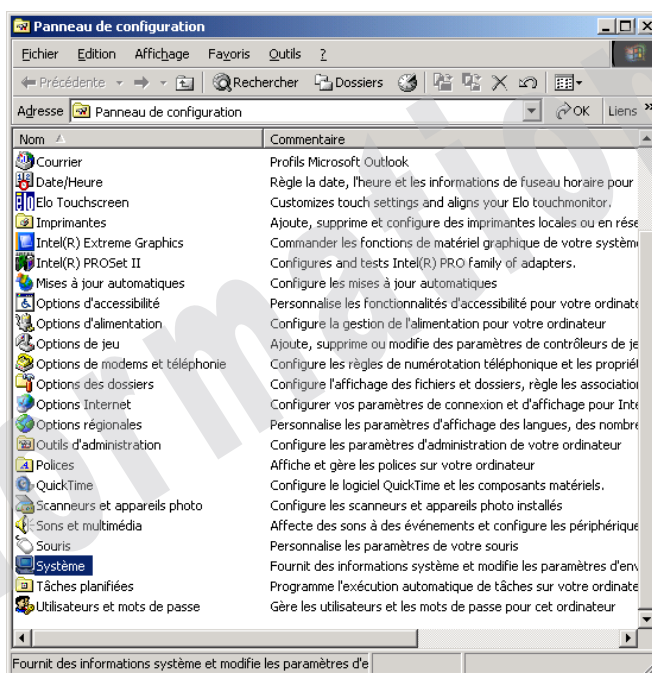
Configuring the Ethernet option



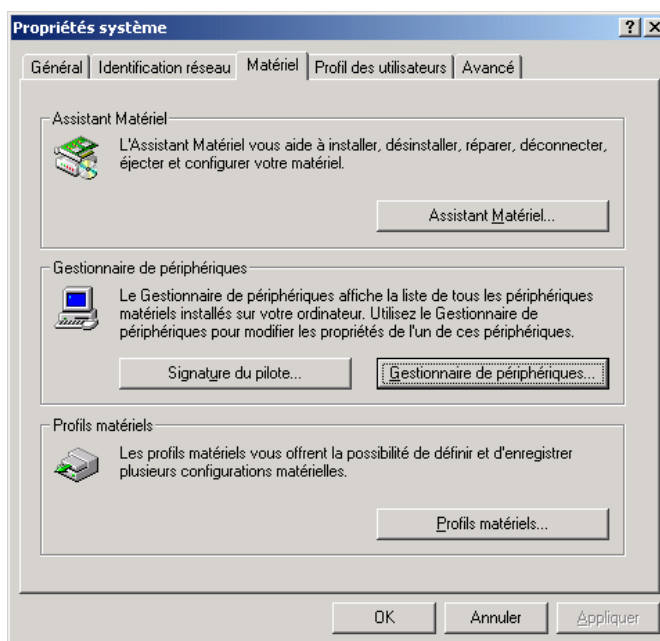
RealPort configuration

Once the "RealPort" driver has been installed, the serial port needs to be configured to optimize the link, as follows:

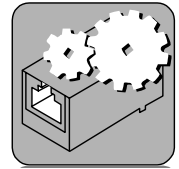
1. Open the system control panel using the **Start / Settings / Control Panel** menu and double-clicking on the **"System"** icon.



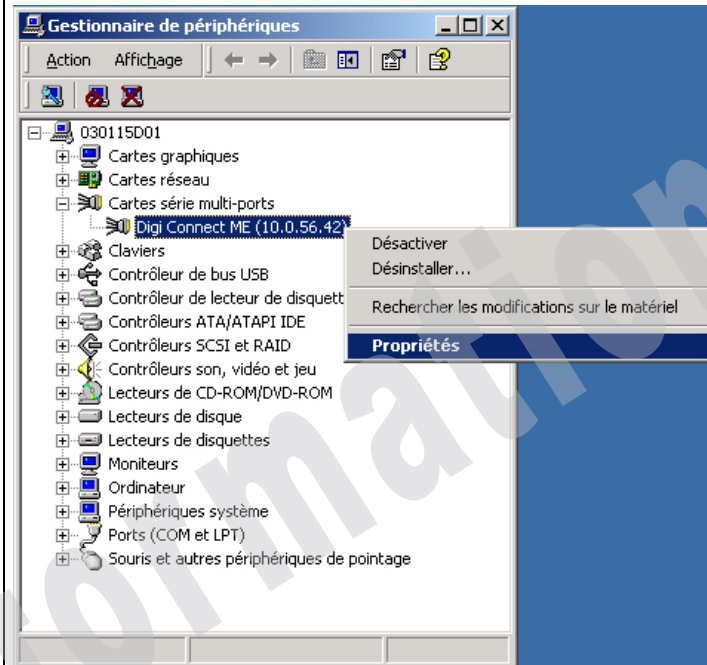
2. On the **"Hardware"** tab, click **"Device Manager"**.



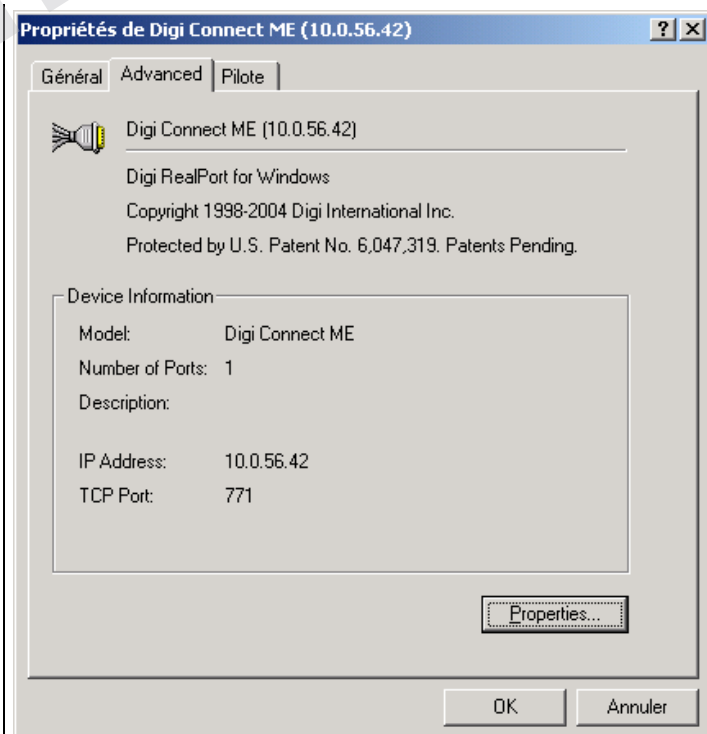
Configuring the Ethernet option



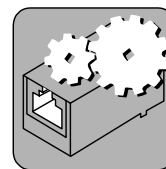
3. Expand the **"Multi-port serial adapters"** entry created during when the **RealPort** driver was installed. Right-click (or double-click) on the device and select **"Properties"**.



4. On the **"Advanced"** tab, click the **"Properties"** button.



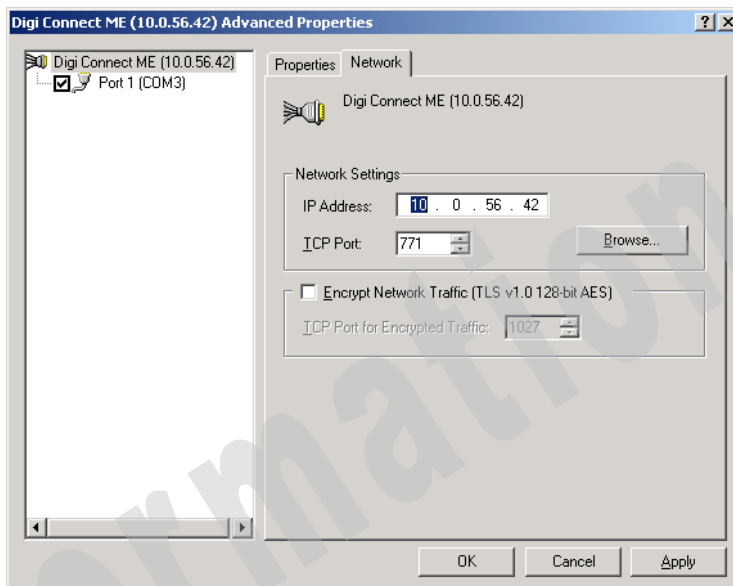
Configuring the Ethernet option



5. Select "DigiConnect ME".

The unit's IP address is shown on the **"Network"** tab. You may need to modify these settings if they have been changed with the **CFGWIZ.exe** program.

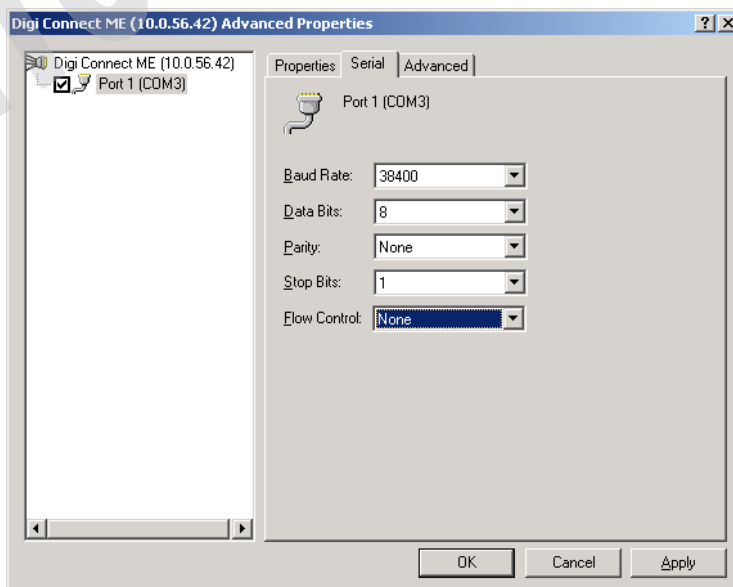
Caution: only change these settings if you understand the implications.



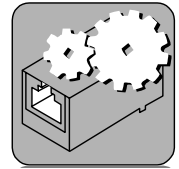
6. Click on the port to configure.

Set the parameters as shown opposite.

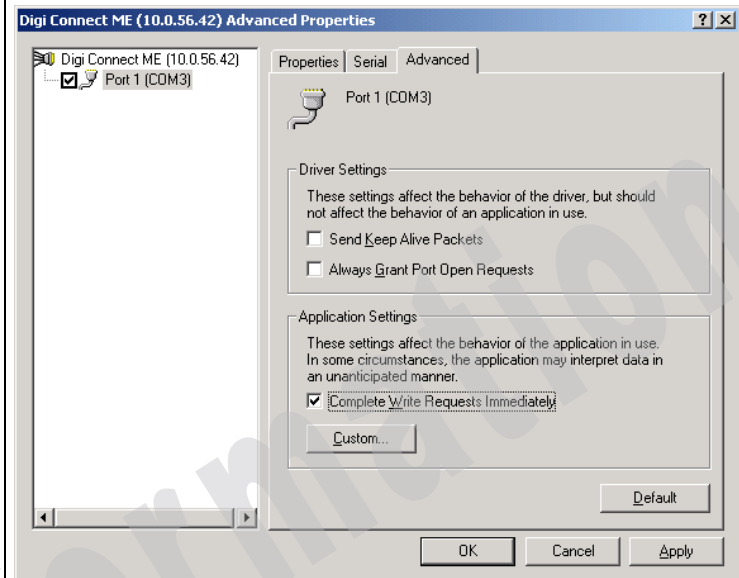
Note: the maximum serial link speed on the printer is 38400 baud.



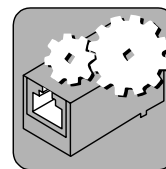
Configuring the Ethernet option



7. On the "Advanced" tab, check the **"Complete write requests immediately"** box to optimize the connection. Confirm the changes by clicking **"OK"**.



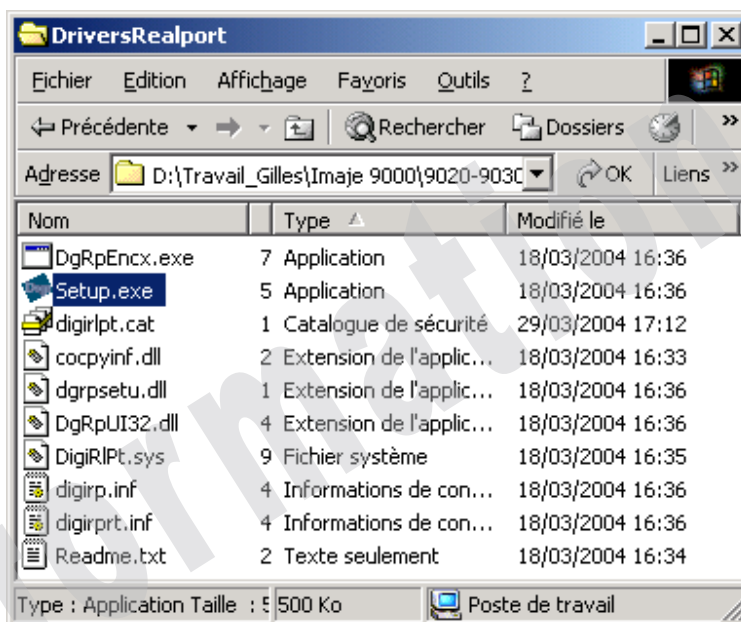
Configuring the Ethernet option



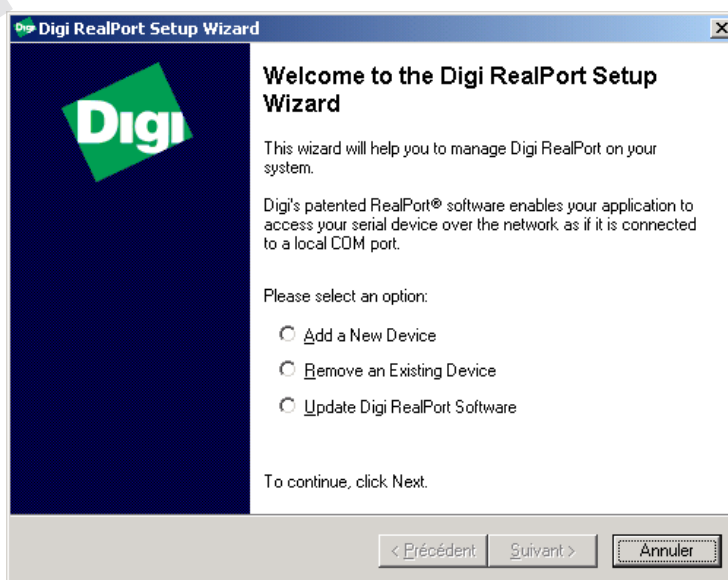
Adding / deleting printers

1. If the number of printers on the network is modified, you must run the "RealPort" setup program to update your configuration.

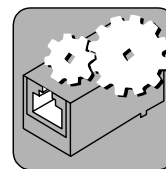
Double click on the "setup.exe" file.



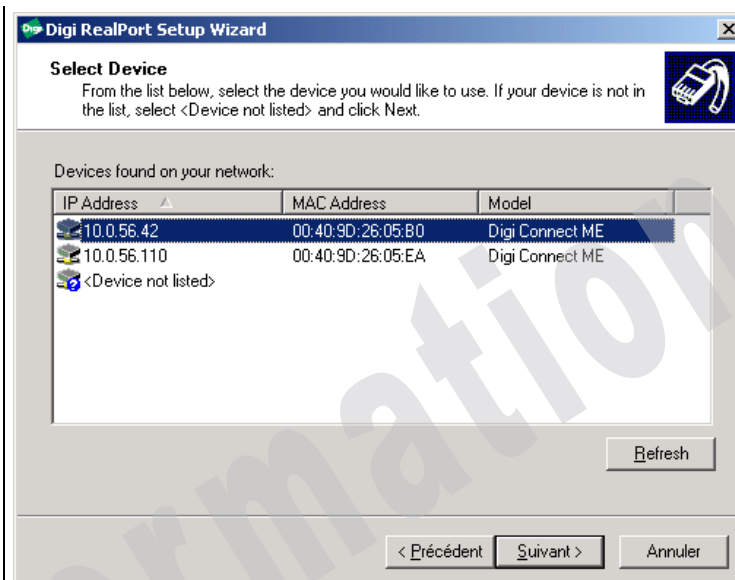
2. This window enables you to add new printers or remove printers which have been disconnected from the network.



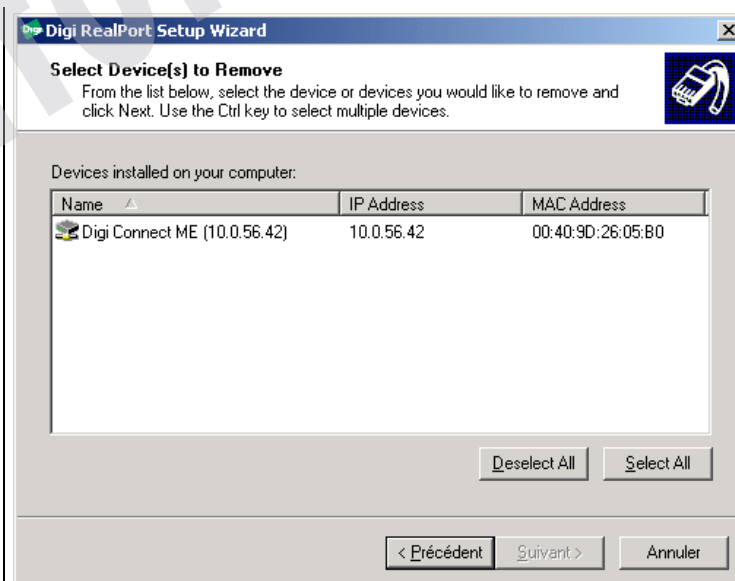
Configuring the Ethernet option



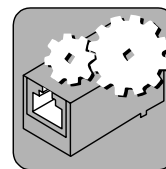
3. New printers are automatically detected. Proceed as described in steps 3 to 7 of the "RealPort configuration" section.



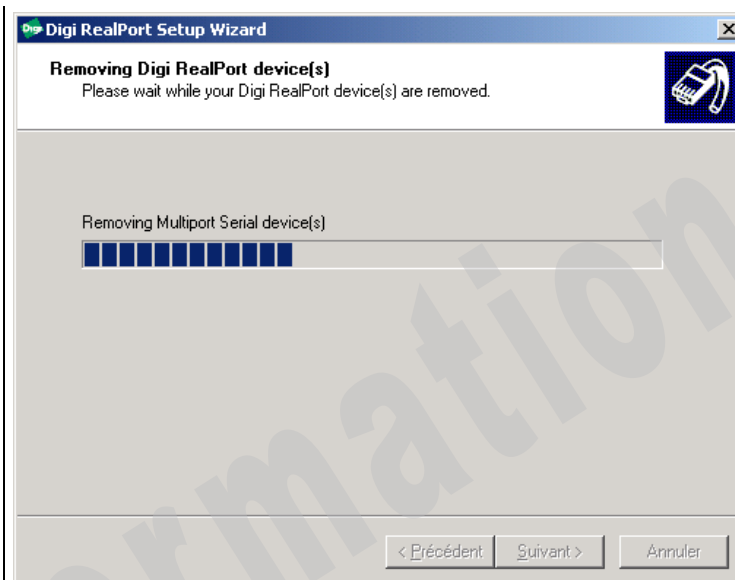
4. To delete a printer from your configuration after it has been disconnected from the network, select the printer and Click "**Next**".



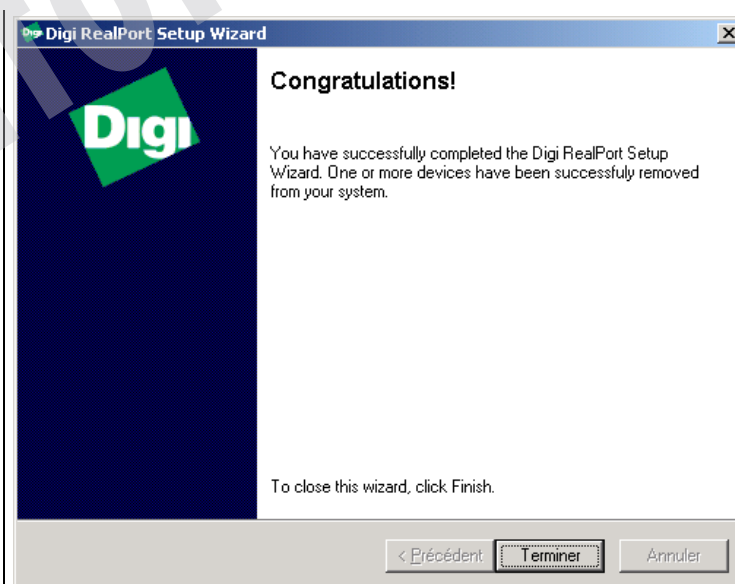
Configuring the Ethernet option



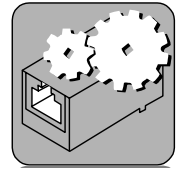
5. The device is removed automatically.



6. Click "**Finish**" to confirm your new configuration.



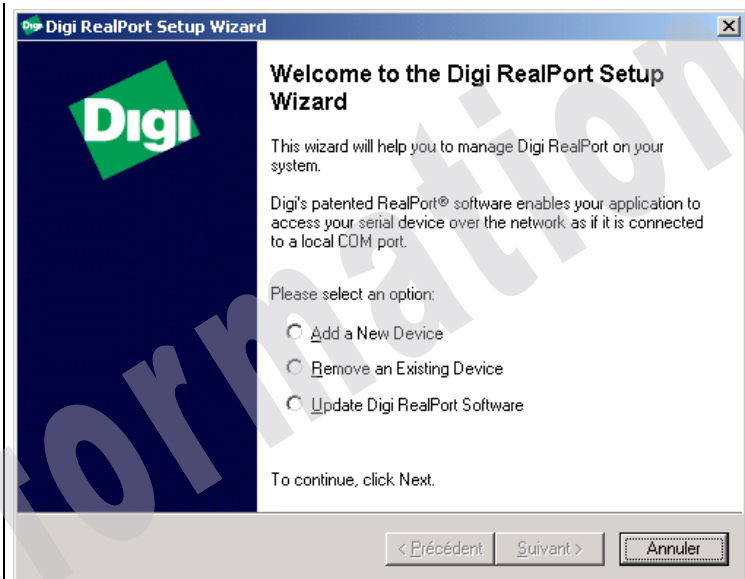
Configuring the Ethernet option



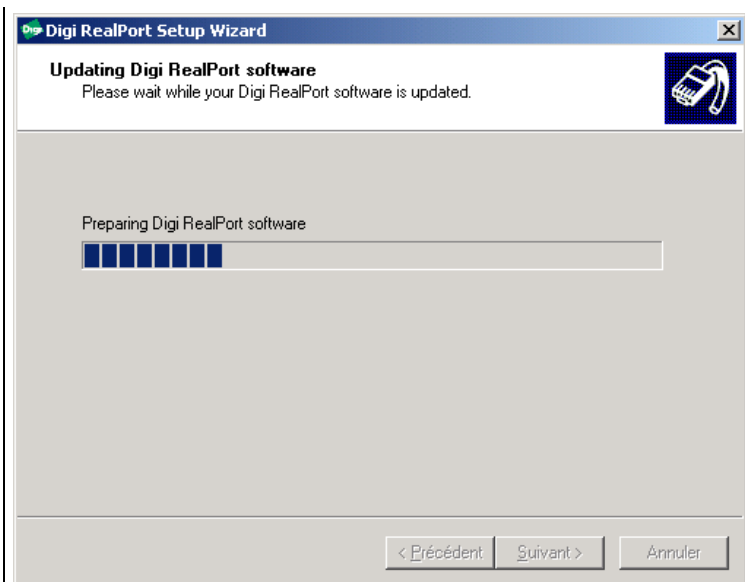
Updating the RealPort driver

NOTE: An Internet connection is needed to download updates.

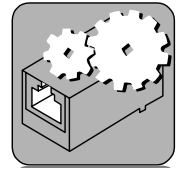
1. Select "Update Digi RealPort Software" then Click "Next".



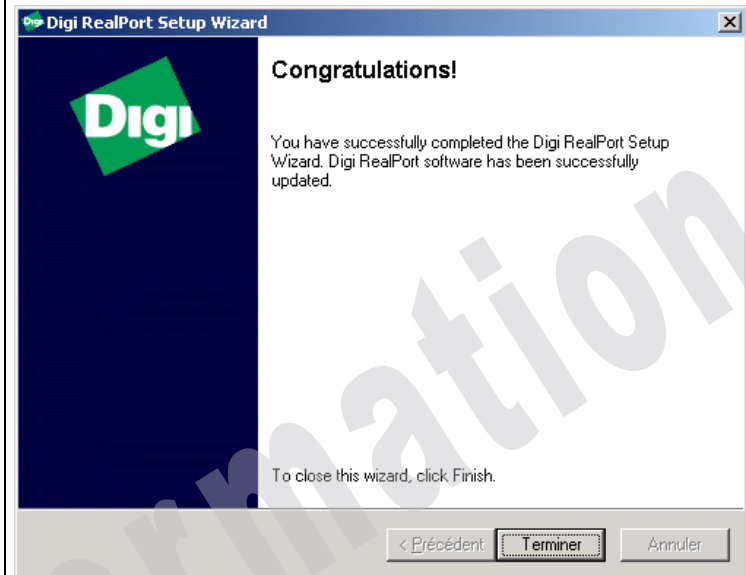
2. The application uses the Internet connection to check for available updates.

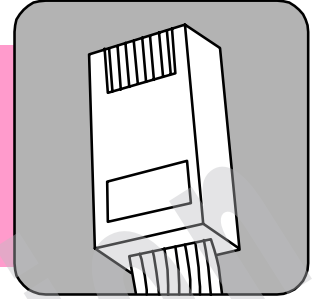


Configuring the Ethernet option



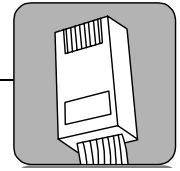
3. Click **"Finish"** to finish updating the RealPort driver.





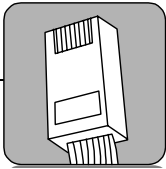
RJ45 connection

For information



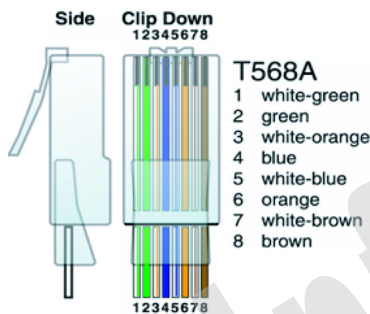
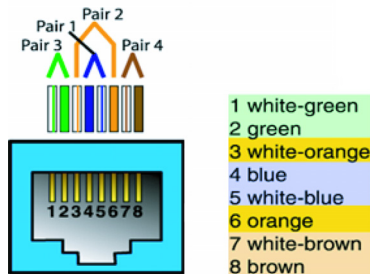
For information

RJ45 connection

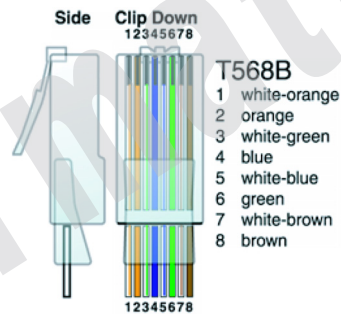
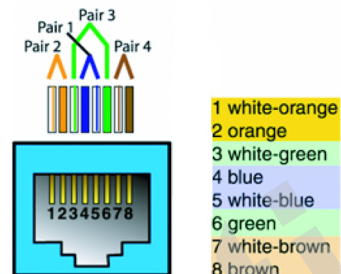


Cables

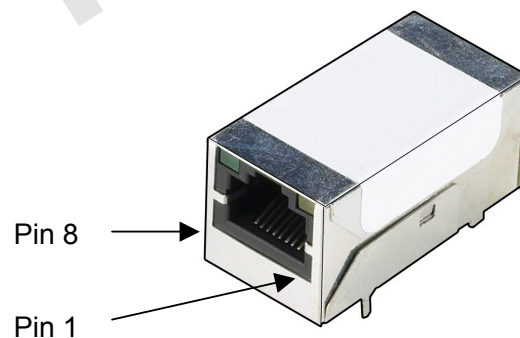
TIA / EIA T568 A standard



TIA / EIA T568 B standard



DCME unit: Ethernet connector



Pinout							
Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
TXD +	TXD -	RXD +	NC	NC	RXD -	NC	NC
Transmit Data +	Transmit Data -	Receive Data +	Not connected	Not connected	Receive Data -	Not connected	Not connected

For information



Revision

Ethernet link manual

Manual updates

- Revision index A corresponds to the first issue of this manual.
- The revision index changes each time the manual is updated.

Date of issue	Documentation revision index	Software revision
08/2005	A	C10

For information

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