



Digi Serial Servers Application Note

Simple Serial Bridge / Tunnel and Loopback Test

1. Configure Digi PortServer TS for Serial Bridge and TCP Socket loopback test.

Objective: Configure a Serial tunnel or bridge between 2 devices or between a computer and a serial device (Cable Replacement) and show how to test / troubleshoot communication with a Loopback connector.

1.1 Software Requirements

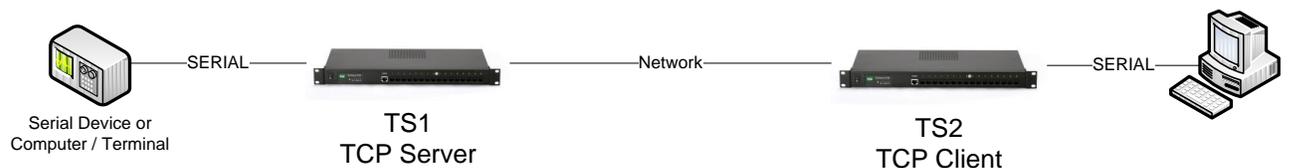
- Digi Device Discovery
- PuTTY or any Terminal application
- Loopback connector

1.2 Hardware Requirements

- 2 Digi Serial Server device

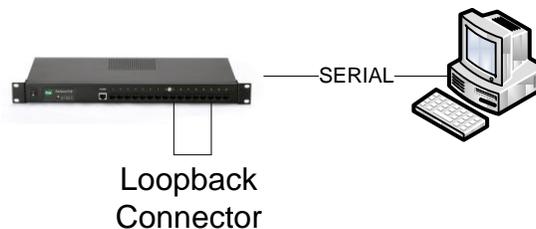
Scenario 1

In this scenario we will build a cable replacement between a computer and a serial device or a computer / terminal using 2 Digi Portserver TS configured in TCP Socket mode.



Scenario 2

In this scenario we will proceed with a loopback test between the computer and a Digi Portserver TS configured in Realport mode.





2. Serial Tunneling between 2 Serial servers.

- a) Connect your computer serial ports to the port 1 of the PortServer TS and your serial device or computer/terminal to the Port 1 of the second PortServer TS.
- b) Using Digi Device Discovery, locate your device on the network. Double click on the unit that is designated as TS2 in our example which will be the TCP Client.
- c) In the web interface, navigate to **Configuration > Serial Port** , select **Port 1** and click **Change Profile** or if the port was in an “Unassigned” state, you will be prompted to chose a profile, select **TCP Socket** and click **Apply**.
- d) In the TCP Client section, check the “**Automatically establish TCP Connections**” box, select **Connect** type as **Always**, and in the **Connect To** box, enter the IP address of the TS1 device. Click **Apply**.

Serial Port Configuration - Port 1 Return to Serial Ports ← Previous Next →

Port Profile
Current Port Profile: **TCP Sockets** [Change Profile...](#)
The TCP Sockets Profile allows a serial device to communicate over a TCP network.

Profile Settings

TCP Server
Connect to the following TCP ports on the network (calculated from [Base Socket](#)).

Telnet TCP Port:	2001	Unavailable
Raw TCP Port:	2101	Unavailable

TCP Client
Automatically establish TCP connections to a server or other networked device.

Automatically establish TCP connections

Connect: Always
 When data arrives
 When DCD goes high

Connect To:

Service:

TCP Port Number:

Connect As:

Flush Start Character:

Send Keepalive Packets:

Auto Drain on Close:

- e) Navigate to **Basic Serial Settings** and select the desired serial ports speed and settings for your application.
- f) Go back to Digi Device Discovery, double click on the TS1 unit, on the web interface repeat the above steps except for the Client part, as this unit will be the TCP Server. Click **Apply**.



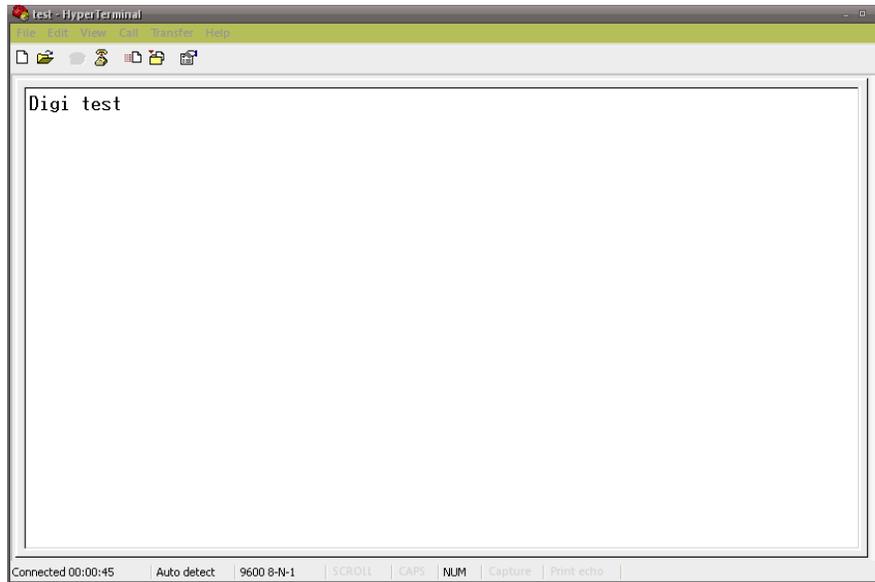
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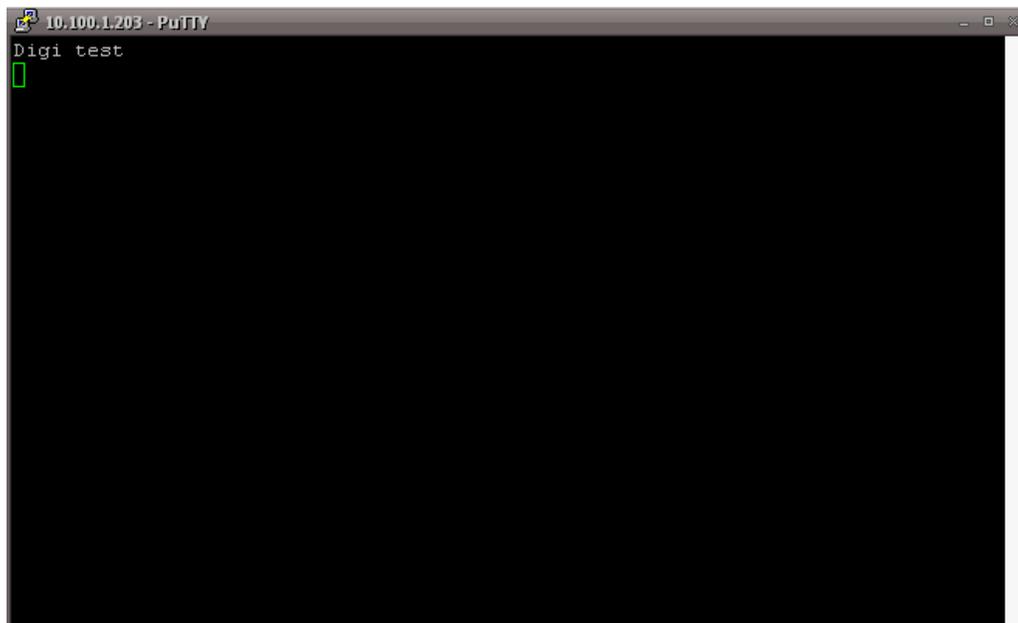
e) Depending on your setup, if you have a serial device, open the application needed to connect to it, data will be transferred from your computer COM ports, through the 2 PortServer and sent to your device. If you have another computer/terminal, open your Terminal application such as PuTTY, select your computer COM port and the serial port settings defined previously on the web interface.

Data sent from your terminal should appear on the other computer/terminal like shown here :

Local PC connected to TS2 sending “Digi test” :



Remote computer connected to TS1 receiving “Digi test” :





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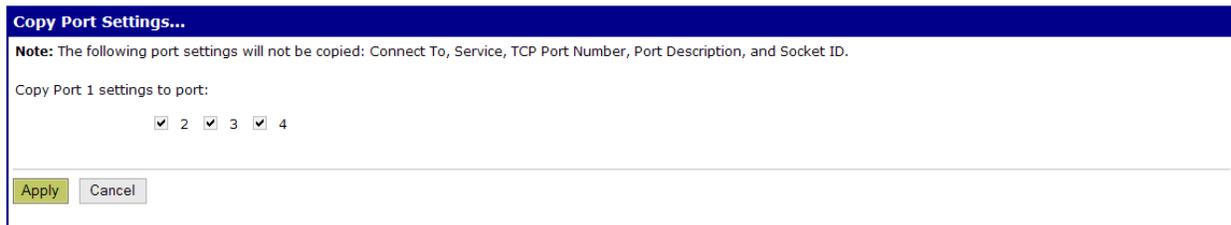
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3. Testing Serial communication with Loopback test through TCP Socket.

In some situations, where communication to an end device is not working, it is essential to proceed with basic tests, such as verifying that connectivity from your computer to the Digi and then the serial communication itself works fine, therefore the loopback test will provide you with a confirmation that unit is communicating fine.

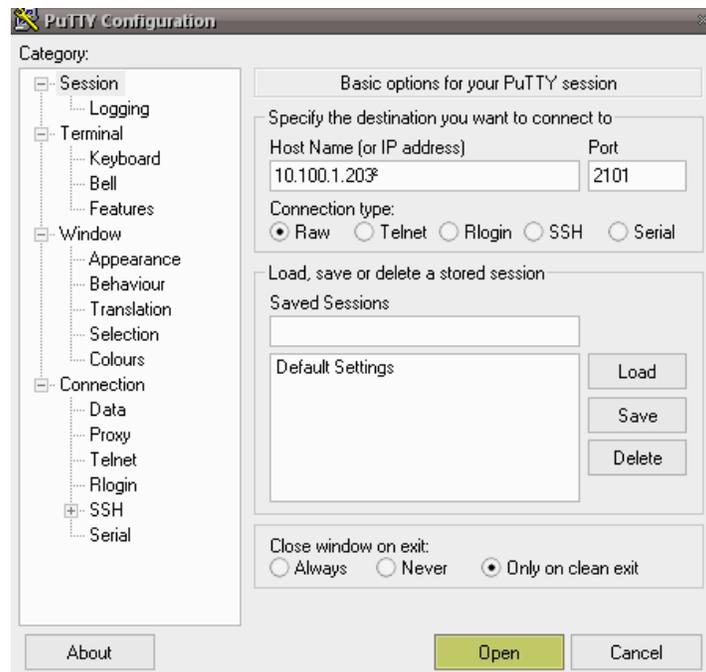
a) Using Digi Device Discovery, locate your device on the network and double click on it. Navigate to **Configuration > Serial Ports** and select the TCP Socket profile. Click **Apply**

b) Apply this to every serial ports by going to **Configuration > Serial Ports** click on the “**Copy**” link next to Port 1 in the Action column, in the next window select all the ports of the device and click **Apply**



c) Connect the loopback connector provided in the package of your Portserver to the 1st serial port.

d) Open your terminal application such as PuTTY, select **RAW** as connection type, enter the IP Address of the PortServer in the Hostname field and Port : **2101** click **OK/Open**



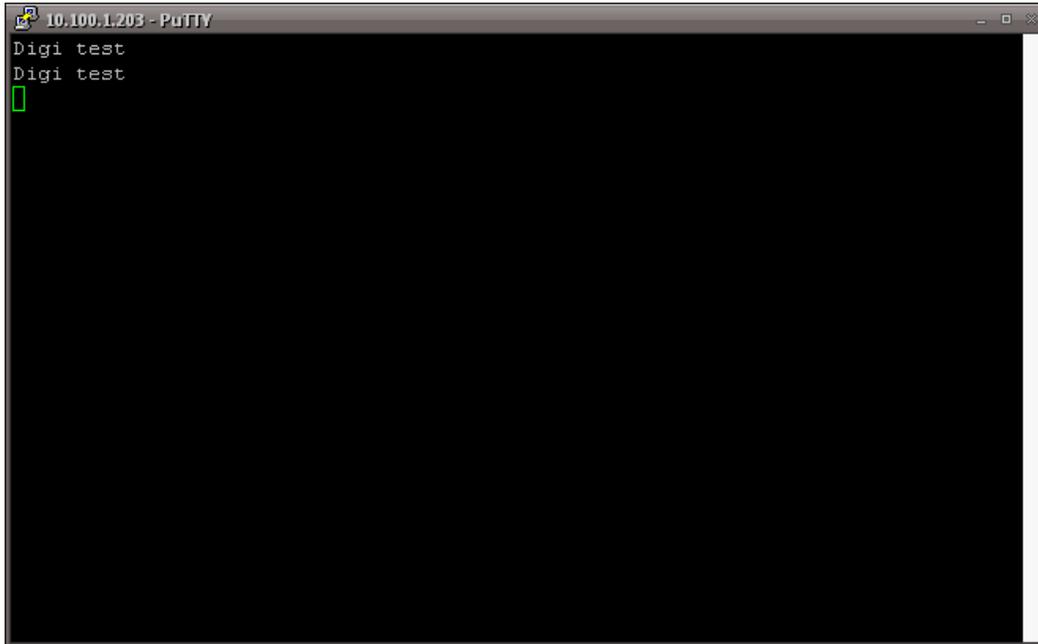


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e) Send any characters from the Window, this should provide with an Echo of what is being send (or press ENTER after typing characters) meaning that the data is going through the network in the loopback and back to your terminal application, and confirms communication is working as intended.

Repeat those steps for each serial ports.



```
10.100.1.203 - PuTTY
Digi test
Digi test
█
```

Line 1 is data sent, line 2 is received data.