



Quick Note 31

Using an External Modem with a Digi TransPort Router

UK Support

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1 INTRODUCTION

1.1 Outline

This document contains configuration instructions for using an external modem, connected via serial cable, with a Digi TransPort router. The TransPort router is configured to use the external modem as its default route to the Internet. Devices on the TransPort's local network will be able to access the Internet, through the TransPort router, via the external modem.

1.2 Assumptions

This guide has been written for use by technically competent personnel, with a good understanding of the communications technologies used in the product and of the requirements for their specific application.

Configuration: This application note assumes that the TransPort router is initially set to factory default configuration. Most configuration commands are only shown if they differ from the factory default.

This application note applies to:

Models shown: Digi Transport WR44

Other Compatible Models: All Digi TransPort routers

Firmware versions: 5.123 and above

1.3 Version

| Version | Status |
|---------|-----------|
| 1.0 | Published |

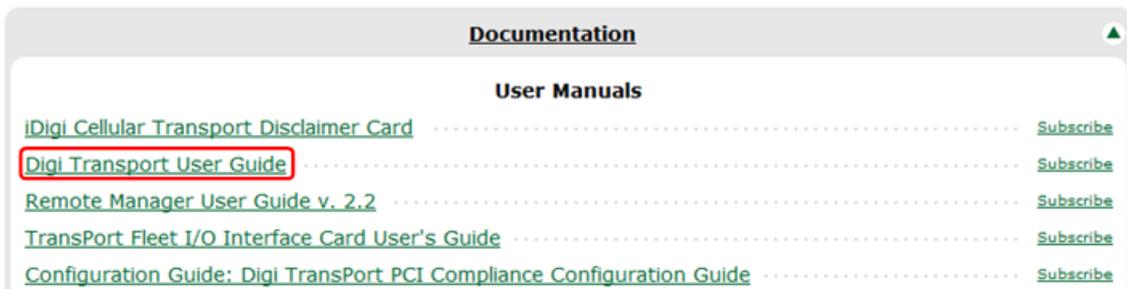
2 CONFIGURATION & SCENARIO

An external PSTN modem is connected to the TransPort router via **crossover** serial cable. The PSTN modem is a 3Com Courier 56k device which supports the standard Hayes AT command set.

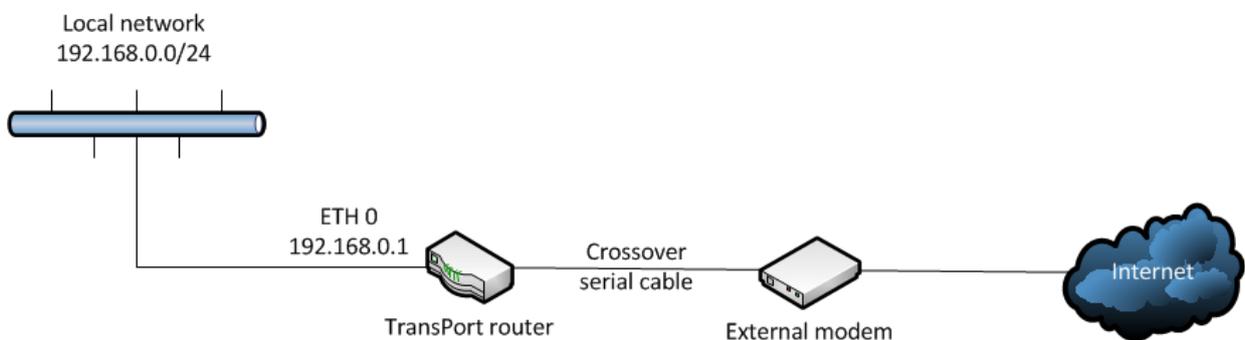
The section “RS-232 (V.24) Serial Cable Wiring” on pages 555 to 557 of the Digi TransPort User Guide contains wiring information for the required serial cable (the crossover cable information begins at the bottom of page 556).

To download the Digi TransPort User Guide, browse to the Digi web site www.digi.com then navigate to **Support > Documentation**. Search for a TransPort model such as WR21, WR41, WR44 or WR11.

The User Guide will be listed under **Documentation**:



The TransPort router is configured to dial the ISP via the external modem using a PPP instance. The default route on the TransPort router is configured to point to the external modem. Therefore devices on the TransPort's local network can access the Internet by using the TransPort router as their Internet gateway:

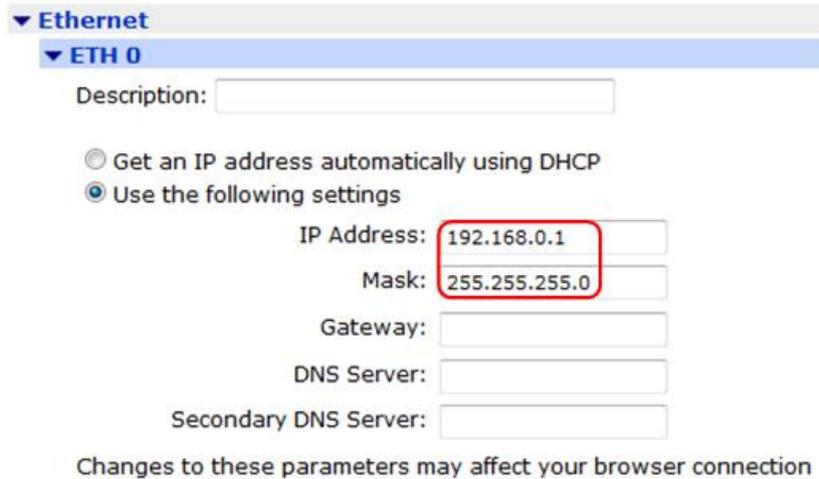


3 TRANSPORT ROUTER CONFIGURATION

3.1 Configure LAN interface

Configuration - Network > Interfaces > Ethernet > ETH 0

Configure as below, then click Apply:



The screenshot shows the configuration page for the Ethernet interface ETH 0. The 'Description' field is empty. Under the 'Use the following settings' option, the IP Address is set to 192.168.0.1 and the Mask is set to 255.255.255.0. The Gateway, DNS Server, and Secondary DNS Server fields are empty. A note at the bottom states: 'Changes to these parameters may affect your browser connection'.

▼ Ethernet

▼ ETH 0

Description:

Get an IP address automatically using DHCP

Use the following settings

IP Address:

Mask:

Gateway:

DNS Server:

Secondary DNS Server:

Changes to these parameters may affect your browser connection

3.2 Configure PPP (WAN) interface

Configuration - Network > Interfaces > Advanced > PPP 2

In this example PPP 2 is configured, but any unused PPP instance can be chosen.

Firstly click “Load dialling defaults” – the web interface will display the confirmation “Dialling config loaded”.

The PPP instance needs to be associated with an “external modem” instance. This is configured in the web interface with the parameter “This PPP interface will use...”. Select “External Modem” rather than “External Modem 0” or “External Modem 1”. Selecting “External Modem” ensures that the first free external modem instance is used. For example, the TransPort router may already be using an external modem instance to control its cellular module.

In addition to this parameter, configure as below, replacing the dial out phone number, the username and the password with the relevant parameters provided by the ISP, then click Apply:

▼ PPP 2

Dialling config loaded

Description:

This PPP interface will use

Dial out using numbers:

Prefix: to the dial out number

Username:

Password:

Confirm password:

3.3 Check which “modem” instance has been configured

Administration - Execute a command

For TransPort routers that contain a cellular module, the first free external modem instance will usually be instance “2” – check which modem instance was configured in step 3.2 by issuing the following command, assuming PPP instance 2 was configured:



The screenshot shows a web-based interface for executing a command. At the top, there is a blue header with the text "Administration - Execute a command". Below the header, there is a text input field containing the command "ppp 2 use_modem ?". To the right of the input field is a blue button labeled "Execute". Below the input field and button, there is a horizontal line. Underneath the line, the text "Command: ppp 2 use_modem ?" is displayed in blue. Below that, the text "Command result" is displayed in blue. At the bottom left of the result area, the number "2" is enclosed in a red square, and the text "OK" is displayed below it.

3.4 Configure “modemcc” instance

Administration - Execute a command

A modemcc (modem call control) instance also needs to be configured, in order to control the modem instance.

The modemcc instance number is 1 less than the modem instance number that it controls. For example, modemcc instance 1 controls modem instance 2.

The modemcc instance needs to point to the physical ASY (serial) port that is connected to the external modem.

Assuming that modem instance 2 has been configured for the new PPP interface, and that the external modem is connected to ASY 0 (serial port 0) of the TransPort router, enter the following command then click Execute:



Administration - Execute a command

Command:

Command: modemcc 1 asy_add 0
Command result

OK

This will configure modemcc instance 1 (which controls modem instance 2) to point to serial port 0.

3.5 Optionally configure “always on” mode

By default the PPP interface will come up only if traffic needs to be sent via the interface (for example if a device on the TransPort’s subnet sends traffic to the Internet) – this is known as “dial on demand” mode.

Alternatively, the PPP interface can be configured for “always on” mode.

Please note that depending on the ISP, charges may be incurred based on the amount of time that the modem is connected, in which case an “always on” connection may not be appropriate.

If the PPP interface does need to be configured for “always on” mode, change the following two parameters:

Configuration - Network > Interfaces > Advanced > PPP 2

Close the PPP connection

after seconds

if it has been up for minutes in a day

if it has been idle for hrs mins secs

Alternative idle timer for static routes seconds

if the link has not received any packets for seconds

if the negotiation is not complete in seconds

Configuration - Network > Interfaces > Advanced > PPP 2 > Advanced

▼ **Advanced**

Metric:

Allow this PPP interface to settle for x 100 milliseconds after the connection has come up

Enable "Always On" mode of this interface

On On and return to service immediately

Put this interface "Out of Service" when an always-on connection attempt fails

Attempt to re-connect after seconds

If a PPP interface that would be inhibited by this PPP is connected,
attempt to re-connect after seconds

Wait seconds after power-up before activating this interface

3.6 Optionally change the default route

Configuration - Network > IP Routing/Forwarding > Static Routes > Default Route 0

If the route via the external modem is to be the TransPort's only or primary WAN link, configure default route 0 as below, then click Apply:

▼ **Default Route 0**

Description:

Default route via

Gateway:

Interface:

Use PPP sub-configuration:

Metric:

4 TESTING

4.1 Check that the route via PPP 2 is up

Management - Network Status > IP Routing Table

▼ IP Routing Table

| Destination | Gateway | Metric | Protocol | Idx | Interface | Status |
|------------------|---------------|--------|----------|-----|-----------|--------|
| 192.168.0.0/24 | 192.168.0.1 | 1 | Local | - | ETH 0 | UP |
| 195.92.168.22/32 | 217.134.1.115 | 1 | Remote | - | PPP 2 | UP |
| 217.134.1.115/32 | 217.134.1.115 | 1 | Local | - | PPP 2 | UP |

Default Routes

| Destination | Gateway | Metric | Protocol | Idx | Interface | Status |
|-------------|---------------|--------|----------|-----|-----------|--------|
| 0.0.0.0/0 | 217.134.1.115 | 2 | Static | 0 | PPP 2 | UP |

Refresh Toggle Src Addr

4.2 Check access to the Internet from the TransPort router

Administration - Execute a command

For example, ping www.google.com:

```
Administration - Execute a command
Command: ping www.google.com
Execute

Command: ping www.google.com
Command result

Pinging 'www.google.com' [173.194.69.106]

sent PING # 1
PING receipt # 1 : response time 0.12 seconds
Iface: PPP 2
Ping Statistics
Sent      : 1
Received  : 1
Success   : 100 %
Average RTT : 0.12 seconds
```

4.3 Check access to the Internet from a device in the TransPort's local network

For example, from a PC behind the TransPort that is configured to use the TransPort as its gateway, ping www.google.com:

```
C:\Windows\System32>ping www.google.com

Pinging www.google.com [74.125.132.104] with 32 bytes of data:
Reply from 74.125.132.104: bytes=32 time=55ms TTL=44
Reply from 74.125.132.104: bytes=32 time=36ms TTL=44
Reply from 74.125.132.104: bytes=32 time=37ms TTL=44
Reply from 74.125.132.104: bytes=32 time=36ms TTL=44

Ping statistics for 74.125.132.104:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 36ms, Maximum = 55ms, Average = 41ms
```