



Quick Note 7

PPTP tunnel to Windows 2003 Server running RRAS

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1 INTRODUCTION

1.1 Outline

This document contains configuration instructions for providing a TransPort router with Internet access to build a PPTP VPN to a Windows 2003 Server running RRAS.

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 router will be connecting to an ADSL service provider and obtains a public IP address.

This application note applies to:

Models shown: Digi Transport WR41v2.

Other Compatible Models: All Digi Transport products.

Firmware versions: 5.123 and later.

NOTE: This quick note has been specifically rewritten for firmware release 5.123 and later but the original quick note was testing as working for routers running 4.694 and later. Routers running earlier firmware will find that the screen shots do not accurately reflect what will be seen on those older routers.

Configuration: This Application Note assumes the devices are set to their factory default configurations. Most configuration commands are only shown if they differ from the factory default.

1.3 Corrections

Requests for corrections or amendments to this Quick Note are welcome and should be addressed to: tech.support@digi.com

Requests for new Quick Notes can be sent to the same address.

1.4 Version

Version Number	Status
1.0	Published
1.1	Rebranded & updated
2.0	Updated for New Web Gui after 5123
2.1	Updated screenshots and instructions for new web interface, rebranding (Feb 2016)

2 SCENARIO

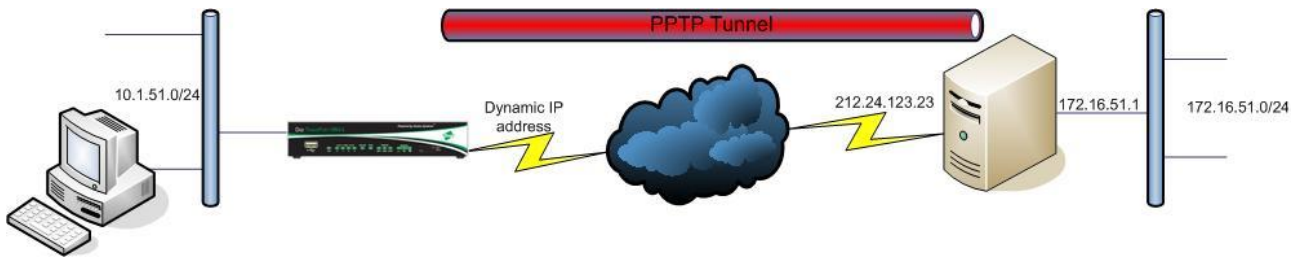


Figure 1: Overview Diagram

A PPTP tunnel is configured between the TransPort and the Windows 2003 Server. The PPTP VPN will allow the PC on the left to access the network behind the Windows 2003 Server on the right.

PPTP works by sending a regular PPP session to the peer encapsulated by GRE (Generic Routing Encapsulation). A second session on TCP port 1723 is used to initiate and manage the GRE session. PPTP connections are authenticated with Microsoft MSCHAP-v2 or EAP-TLS. VPN traffic is protected by MPPE encryption. PPTP does not work with GPRS/HSDPA mobile operators that assign a private IP address then NAT the traffic before it leaves their network. This is because the server tries to build a tunnel back to the router on port 1723 but fails when the traffic is blocked by the mobile operators firewall.

This guide assumes:

- 1: There is an existing Windows 2003 Server running RRAS, available on a public IP address that is accepting PPTP VPN connections.
- 2: The TransPort in use has firmware version 5006 or higher and has already been configured to allow Internet access. This Quick Note shows how to configure this functionality in the newest web interface and therefore you will need to be running firmware version 5123 or higher to follow this particular version.

3 CONFIGURATION

3.1 PPP 5 for PPTP Configuration

Select an unused PPP instance to associate with the PPTP connection, a good choice would be PPP 5 as 0 – 4 may be in use.

Configuration – Network > Interfaces > Advanced > PPP 0 – 9 > PPP 5

Browse to the above link then click on the 'Load dialling defaults' button.

[Configuration - Network > Interfaces > Advanced > PPP 0 - 9 > PPP 5](#)

▼ PPP 5

Load answering defaults

Load dialling defaults

Description:

Then click the 'Apply' button.

When the page has confirmed that the dialling defaults have been loaded, enter the values below:

[Configuration - Network > Interfaces > Advanced > PPP 0 - 9 > PPP 5](#)

▼ PPP 5

Load answering defaults

Load dialling defaults

Dialling config loaded

Description: PPTP Test

This PPP interface will use PPTP

▼

0

Dial out using numbers:

Prefix:

to the dial out number

Username: pptptest

Password: ●●●●

Confirm password: ●●●●

Allow the remote device to assign a local IP address to this router

Then click the 'Apply' button.

Parameter	Setting	Description
Description:	<Description of Interface>	Use something here that will be meaningful to your setup e.g. "PPTP Test"
Username	<VPN_Username>	Username for the VPN
Password	<VPN_Password>	Password for the VPN
Confirm Password	<VPN_Password>	Confirm password for the VPN
Allow the remote device to assign a local IP address to this router	Ticked	The remote server will allocate the IP address for this interface

Scroll down if needed to expand the second 'Advanced' section then enter these values:

[Configuration - Network](#) > [Interfaces](#) > [Advanced](#) > [PPP 0 - 9](#) > [PPP 5](#) > [Advanced](#)

Attempt to negotiate MPPE encryption on this interface
 MPPE key size:

Enable MPPE stateless mode

Use PPP for processing CHAP

Then click the 'Apply' button.

Parameter	Setting	Description
Attempt to negotiate MPPE encryption on this interface	Ticked	Enable Microsoft Point-to-Point Encryption on this interface
MPPE key size:	Auto	Allow the connection to automatically work out the key size to use.

NOTE: You will only see the MPPE key size box once you have ticked the "Attempt to negotiate MPPE encryption on this interface" option.

The default Windows MRU for PPTP is 1400. Browse to the location below and set both 'Desired local MRU' and 'Desired remote MRU' to 1400.

[Configuration - Network](#) > [Interfaces](#) > [Advanced](#) > [PPP 0 - 9](#) > [PPP 5](#) > [PPP Negotiation](#)

▼ **PPP Negotiation**

Restrict the negotiation time to seconds

Disconnect if the remote requests an IP address

Desired local ACCM: Desired remote ACCM:

Desired local MRU: bytes Desired remote MRU: bytes

Then click the 'Apply' button.

Parameter	Setting	Description
Desired local MRU:	1400	Set the local MRU value that will be suggested for this link.
Desired remote MRU:	1400	Set the remote MRU will be requested for this link

OPTIONAL SETTING: If the tunnel should be 'Always on', set the following:

[Configuration - Network](#) > [Interfaces](#) > [Advanced](#) > [PPP 0 - 9](#) > [PPP 5](#)

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

Parameter	Setting	Description
Close the PPP Connection ... if it has been idle for <n> hrs <n> mins <n> secs	0 hrs 0 mins 0 secs	Set all to zero to stop the interface being detached if idle for a period of time.

Scroll down if needed to expand the second 'Advanced' section then enter these values:

[Configuration - Network](#) > [Interfaces](#) > [Advanced](#) > [PPP 0 - 9](#) > [PPP 5](#) > [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

Then click the 'Apply' button.

Parameter	Setting	Description
Enable "Always On" mode of this interface	Ticked	Enable always on for this interface.

3.2 PPTP o Configuration

[Configuration - Network](#) > [Virtual Private Networking \(VPN\)](#) > [PPTP](#) > [PPTP 0](#)

▼ PPTP 0

Description:

Remote Host:

Use Interface:

Enable Server Mode

Enable Client mode

Enable Socket mode

Encrypt control data using SSL version

Enable PPTP debug

Enter the values above, and then click the 'Apply' button.

NOTE: If the TransPort is running an older firmware release 5.123 to 5.129, check "Enable Server Mode" instead of "Enable Client Mode".

Parameter	Setting	Description
Description:	<Description of Interface>	Use something here that will be meaningful to your setup e.g. "PPTP for PPP 5"
Remote Host:	<IP or Hostname>	Enter the hostname or IP address of the remote PPTP server
Enable Client Mode	Ticked	Sets the type of outgoing call type when calling the remote server.

3.3 Route to Remote LAN Configuration

Enter the following details:

[Configuration - Network](#) > [IP Routing/Forwarding](#) > [Static Routes](#) > [Routes 0 - 9](#) > [Route 0](#)

▼ Route 0

Description:

Destination Network: Mask:

via

Gateway:

Interface:

Use PPP sub-configuration:

Metric:

Then click the 'Apply' button.

Parameter	Setting	Description
Description:	<Description of Route>	Use something here that will be meaningful to your setup e.g. "Route via PPTP Connection"
Destination	<IP Address>	Enter the IP Address of the remote network.

Network:		
Mask:	<Subnet Mask>	Enter the subnet mask of the remote network.
Interface:	PPP	Select the interface type for this route.
Interface:	5	Enter the interface number for this route.

3.4 Save Configuration

Administration - Save configuration

Save current configuration to Config 0 (power up) ▼

Save

Save all configuration. This includes the following

- Save the current configuration to config 0
- Save the current firewall
- Save all sregisters on all ports to profile 0
- Save all PAD parameters on all PADs to profile 0

Save All

4 TEST

From the PC on the left of the network diagram for this project, send a ping to the server on the right, using the LAN side IP address as the destination.

```
Administrator: Command Prompt (2)
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
H:\>ping 172.16.51.100
Pinging 172.16.51.100 with 32 bytes of data:
Reply from 172.16.51.100: bytes=32 time=1ms TTL=126
Reply from 172.16.51.100: bytes=32 time=1ms TTL=126
Reply from 172.16.51.100: bytes=32 time=2ms TTL=126
Reply from 172.16.51.100: bytes=32 time=2ms TTL=126
Ping statistics for 172.16.51.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

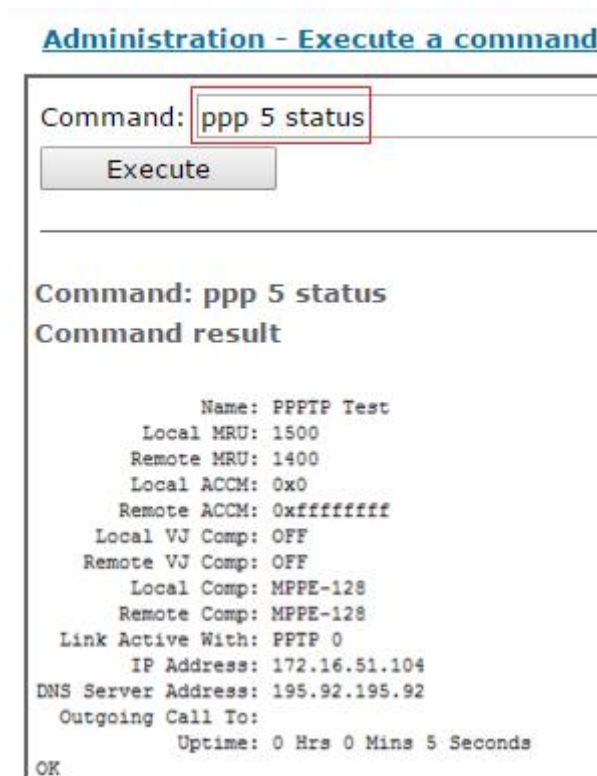
The ICMP echo requests should receive a reply, if this is a dial on demand VPN the 1st few echo requests may time out.

4.1 Check Tunnel Status

In the 'Command' box type the following:

```
ppp 5 status
```

Then click the 'Execute' button. The tunnel will be up and the IP address assigned by the Windows server is shown also.



5 CONFIGURATION FILE

```
eth 0 IPAddr "10.1.51.254"
eth 0 bridge ON
addp 0 enable ON
pptp 0 name "PPTP for PPP 5"
pptp 0 remhost "10.1.253.251"
pptp 0 swap_io ON
lapb 0 ans OFF
lapb 0 tinact 120
lapb 1 tinact 120
lapb 3 dtemode 0
lapb 4 dtemode 0
lapb 5 dtemode 0
lapb 6 dtemode 0
ip 0 cidr ON
route 0 IPAddr "172.16.51.0"
route 0 ll_ent "PPP"
route 0 ll_add 5
def_route 0 ll_ent "ppp"
def_route 0 ll_add 1
dhcp 0 IPmin "192.168.1.100"
dhcp 0 mask "255.255.255.0"
dhcp 0 gateway "192.168.1.1"
dhcp 0 DNS "192.168.1.1"
dhcp 0 respdelms 500
ppp 0 timeout 300
ppp 1 r_chap OFF
ppp 1 IPAddr "0.0.0.0"
ppp 1 phonenum "*98*1#"
ppp 1 name "W-WAN (HSPA 3G)"
ppp 1 timeout 0
ppp 1 use_modem 1
ppp 1 aodion 1
ppp 1 autoassert 1
ppp 1 ipanon ON
ppp 3 defpak 16
ppp 4 defpak 16
ppp 5 l_mru 1400
ppp 5 l_acfc ON
ppp 5 l_pfc ON
ppp 5 l_accm "0x00000000"
ppp 5 l_comp ON
ppp 5 l_addr ON
ppp 5 mppe ON
ppp 5 r_mru 1400
ppp 5 r_pap ON
ppp 5 r_chap ON
ppp 5 r_accm "0xffffffff"
ppp 5 IPAddr "0.0.0.0"
ppp 5 IPmin "10.10.10.0"
ppp 5 IPrange 5
ppp 5 DNSport 53
ppp 5 username "pptptest"
ppp 5 epassword "PTNgU1Y="
ppp 5 name "PPPTP Test"
ppp 5 timeout 60
ppp 5 maxneg 80
ppp 5 dorest ON
```

```

ppp 5 restdel 2000
ppp 5 lcn 1027
ppp 5 defpak 128
ppp 5 baklcn 1027
ppp 5 mask "0.0.0.0"
ppp 5 netip "0.0.0.0"
ppp 5 do_nat 1
ppp 5 ip2count 3
ppp 5 l1iface "PPTP"
ppp 5 ripauth 1
ppp 5 inrip ON
ppp 5 l_md5 1
ppp 5 r_md5 ON
ppp 5 r_ms1 ON
ppp 5 r_ms2 ON
ppp 5 metric 1
modemcc 0 info_asy_add 7
modemcc 0 init_str "+CGQREQ=1"
modemcc 0 init_str1 "+CGQMIN=1"
modemcc 0 apn "internet"
modemcc 0 link_retries 10
modemcc 0 stat_retries 30
modemcc 0 sms_interval 1
modemcc 0 sms_access 1
modemcc 0 sms_concat 0
modemcc 0 init_str_2 "+CGQREQ=1"
modemcc 0 init_str1_2 "+CGQMIN=1"
modemcc 0 apn_2 "Your.APN.goes.here"
modemcc 0 link_retries_2 10
modemcc 0 stat_retries_2 30
ana 0 anon ON
ana 0 l1on ON
ana 0 lapdon 0
ana 0 asyon 1
ana 0 logsize 45
cmd 0 unitid "ss%s>"
cmd 0 cmdnua "99"
cmd 0 hostname "digi.router"
cmd 0 asyled_mode 2
cmd 0 tremto 1200
user 0 access 0
user 1 name "username"
user 1 epassword "KD51SVJDVg="
user 1 access 0
user 2 access 0
user 3 access 0
user 4 access 0
user 5 access 0
user 6 access 0
user 7 access 0
user 8 access 0
user 9 access 0
local 0 transaccess 2
sslsvr 0 certfile "cert01.pem"
sslsvr 0 keyfile "privrsa.pem"
ssh 0 hostkey1 "privSSH.pem"
ssh 0 nb_listen 5
ssh 0 v1 OFF
wifinode 0 enabled OFF
wifinode 0 ssid "digi.router.SN:%s"

```