Accessing a device behind a router on Telstra Mobile Broadband

NetComm Wireless Limited • 18-20 Orion Road, Lane Cove NSW 2066, Sydney Australia
t +61 (2) 9424 2000 f +61 (2) 9424 2010 • www.netcommwireless.com • ACN 002 490 486

Introduction

Many network services such as Voice over IP (VoIP) and Virtual Private Networks (VPN) require the use of port forwarding. When using a Mobile Broadband connection, an IP address that is assigned from the mobile broadband provider is usually assigned from a private network address range. A private IP address is unique to the Mobile Broadband provider's network making it not available publicly over the internet.

If a private IP address is assigned to the Mobile Broadband router, port forwarding will not be possible. This is due to the NAT (Network Address Translation) function which is used by the private network to assign IP addresses and in so doing becomes a firewall blocking port traffic. For this reason, port forwarding over a Mobile Broadband network using a Private IP address is not possible.

Checking Whether an IP Address is Private or Public

If the IP address assigned to the router is from the following ranges it has been assigned a private IP address.
Private IP Address Ranges

- 10.0.0.0 - 10.255.255.255
- 172.16.0.0 - 172.31.255.255
- 192.168.0.0 - 192.168.255.255

Obtaining a Public IP Address from Telstra

Check the IP address the router is receiving under the WWAN statistics on the Status page. The APN used with the SIM card determines whether a publicly routable or private IP address is assigned to the router. The "telstra.internet" APN assigns a private IP address using the 10.x.x.x range of IP address.

To obtain a publicly routable IP address on the internet you will need to contact Telstra to add the data code GPTEXB3 to your SIM. After this code has been added, connect with the APN "telstra.extranet" to get assigned a public IP address. This public IP address is dynamic, so a Dynamic DNS service should be used to resolve the issue of the IP address changing each time the router connects to the Telstra network. Further instructions on configuring Dynamic DNS are below. In addition, a port forwarding rule needs to be added or DMZ enabled to forward all packets to a single device in order to access a device behind the unit from a remote location over the internet.

telstra.extranet Data Code Table

MICA CODE	APN	ACCESS PURPOSE	IP ADDRESS ASSIGNED	SESSION IDLE TIME OUT	BILLING DEPENDENCIES
GPTEXB3	telstra.extranet	Internet	203.x.x.x	None	Any Data Pack data volume plan or PAYG

Adding the telstra.extranet APN to the Router

1. Open a web browser and navigate to the LAN IP address of your router. For the NTC-6000 Series, the default is http://192.168.20.1. For NTC-30 and NTC-40 Series, the default is http://192.168.1.1.

   Login to the router with the following credentials:

   Username: **root**
   Password: **admin**.

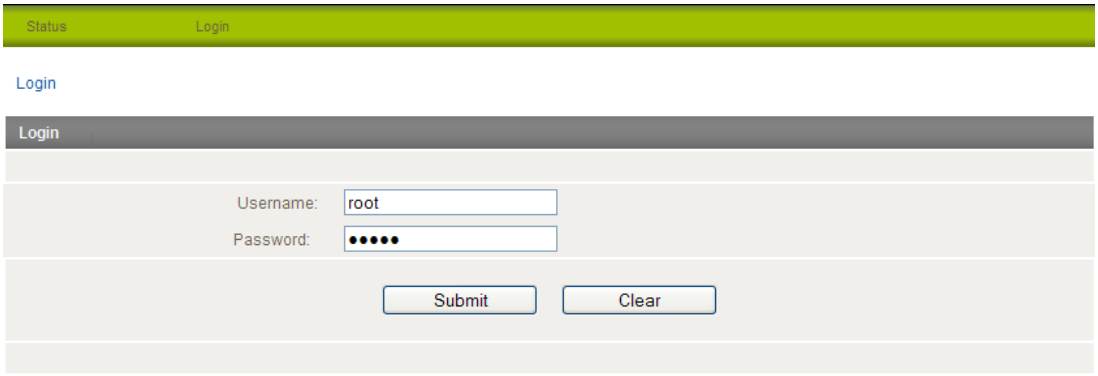


Figure 1: Login page

2. From the menu bar along the top of the screen, navigate to **Internet Settings > Mobile Broadband > Connection.**

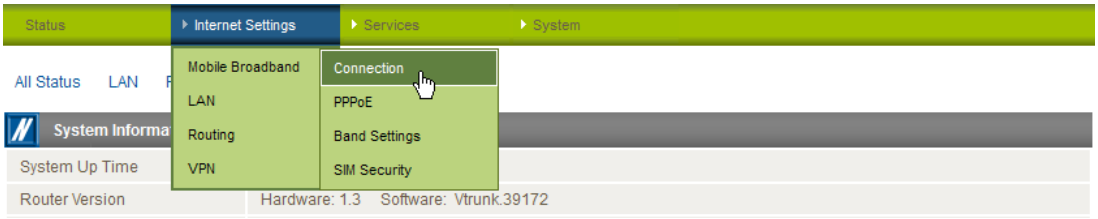


Figure 2: Internet Settings - Mobile Broadband - Connection

3. Clear the "Automatically Configure my Mobile Broadband" option then disable the currently enabled profile and press the **Save** button.

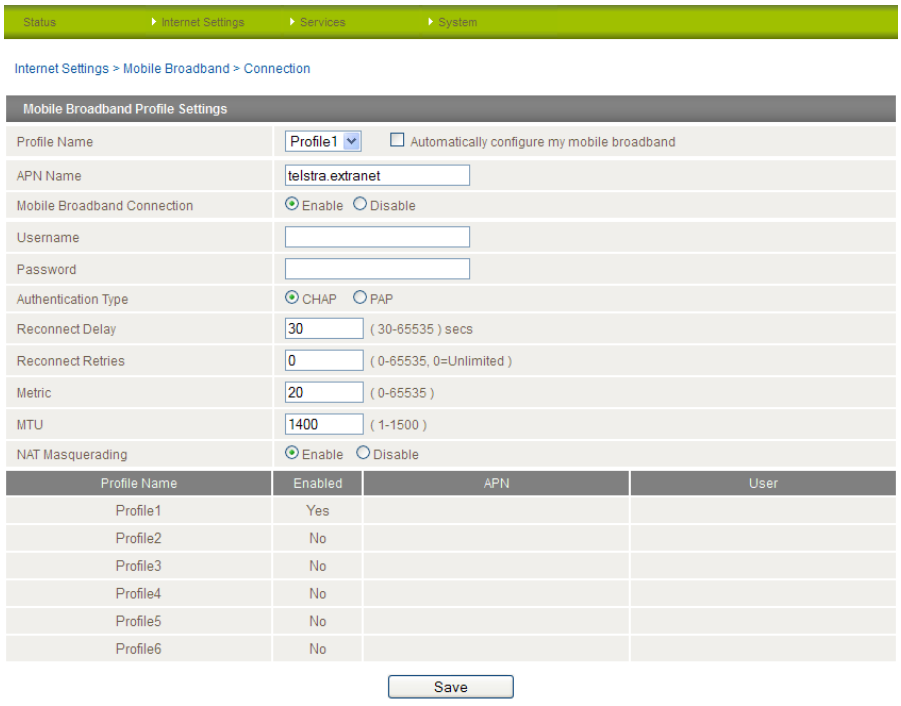


Figure 3: Mobile Broadband Connection Settings

4. From the Profile Name field select a new Profile and select **Enable**.
5. Enter "telstra.extranet" into the APN field and press the **Save** button.
6. On the Status page, check the WWAN settings for the newly assigned public IP address as highlighted in the screenshot below.

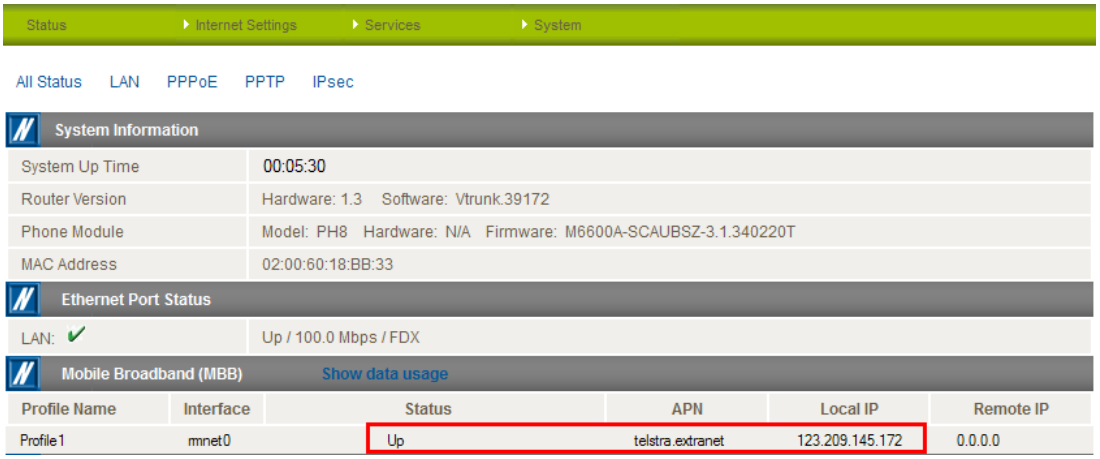


Figure 4: WWAN External IP

The public IP address of 123.209.145.172 shown above is a dynamic address meaning it will change on each connection. We recommend using the Dynamic DNS client on the router use DDNS to connect to a host name instead of the dynamically assigned IP address of the unit.

Dynamic DNS

The dynamic DNS router function can be used to remotely connect to the router using a hostname in place of the dynamic public IP address assigned when using the telstra.extranet APN. To do this you will need a dynamic DNS account from one of the following DDNS providers.

- www.dhs.org
- www.dyndns.org
- www.dyns.cx
- www.easydns.com
- www.justlinux.com
- www.ods.org
- www.tzo.com
- www.zoneedit.com

To configure the Dynamic DNS settings on the M2M Series router:

1. From the menu bar along the top of the screen, navigate to **Services > Dynamic DNS.**
2. Set the DDNS Configuration option to **Enable.**
3. Enter your dynamic DNS account credentials and press the **Save** button.

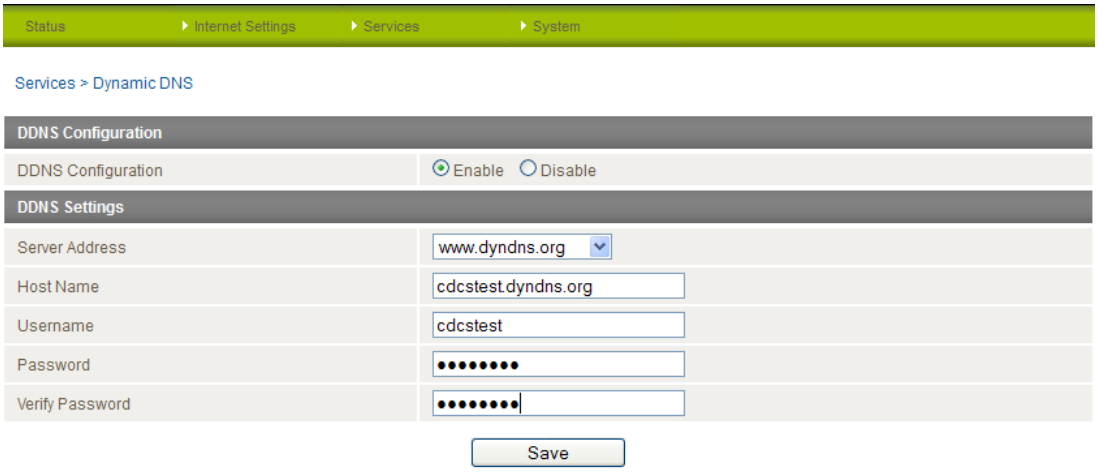


Figure 5: Dynamic DNS Settings

Remote Administration

Whether a Dynamic DNS hostname is used to access the router or an IP address is used, the router's Remote Administration function must be enabled in order to perform remote administration.

To enable remote administration:

1. From the menu bar along the top of the screen, navigate to **System > Administration**
2. Set the Remote Administration option to **Enable** and enter the port number you wish to use.

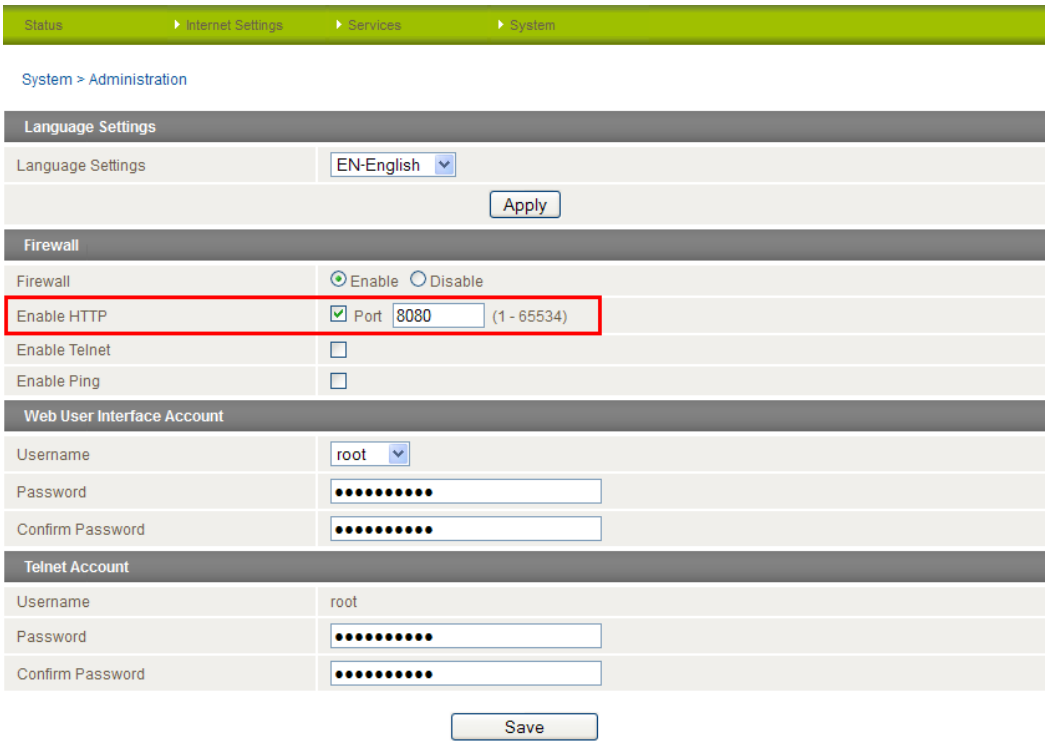
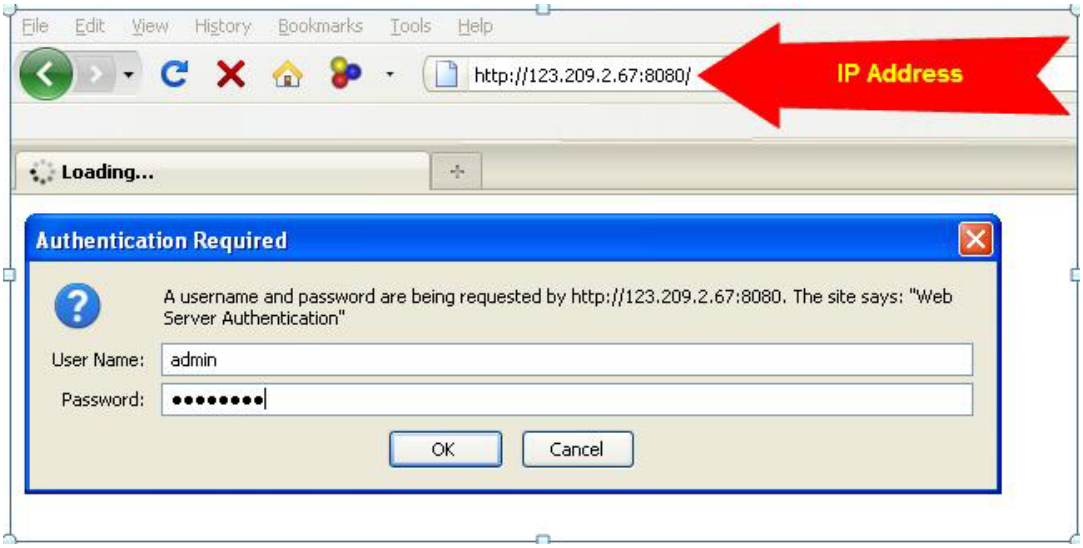
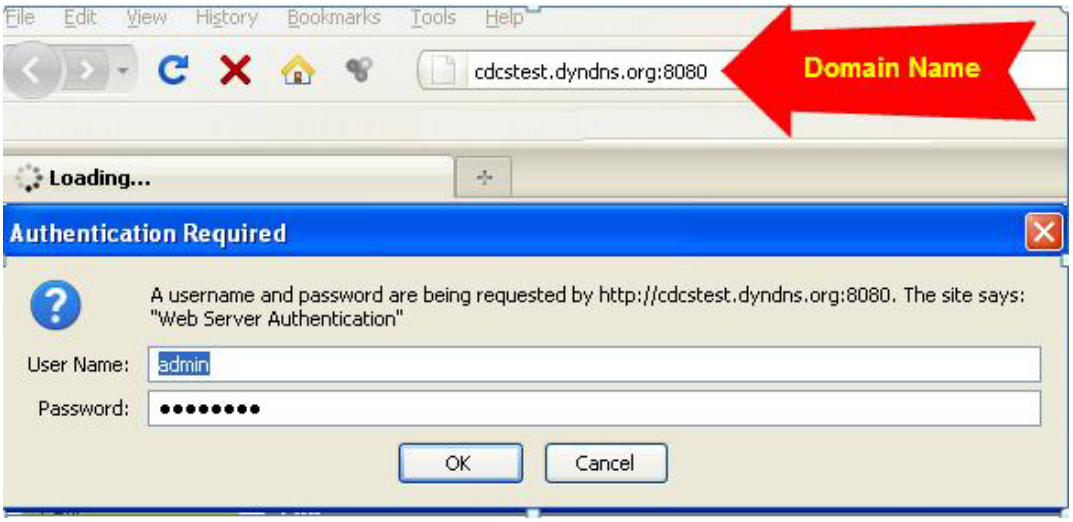


Figure 6: Enable HTTP port

3. Click the **Save** button to save the settings and then reboot the router by going to menu bar and selecting **System > Reboot**.
4. To access the router use either the Dynamic DNS hostname and port number or the current dynamic IP address assigned to the router with the port number. Both examples are shown below.

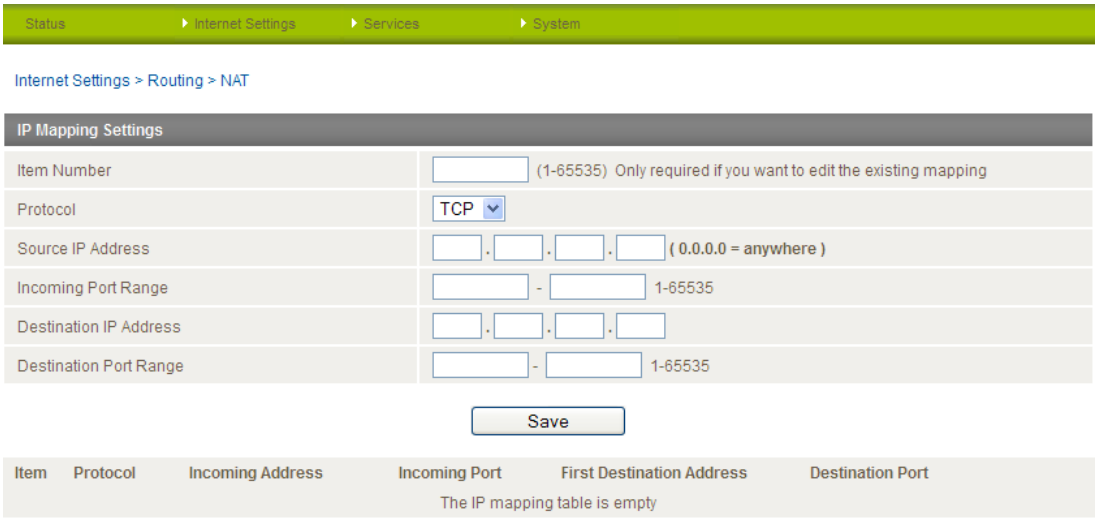

File Edit View History Bookmarks Tools Help
http://123.209.2.67:8080/
IP Address
Loading...
Authentication Required
A username and password are being requested by http://123.209.2.67:8080. The site says: "Web Server Authentication"
User Name:
admin
Password:
OK
Cancel


File Edit View History Bookmarks Tools Help
cdcstest.dyndns.org:8080
Domain Name
Loading...
Authentication Required
A username and password are being requested by http://cdcstest.dyndns.org:8080. The site says: "Web Server Authentication"
User Name:
admin
Password:
OK
Cancel

Configuring NAT (Port Forwarding) to Access a Device behind the Router

To configure port forwarding on the NetComm M2M Series routers:

1. From the menu bar along the top of the screen, navigate to **Internet Settings > Routing > NAT.**



2. Select the protocol to use, either TCP, UDP or both.
3. In the Source IP Address field, enter the address that the traffic will originate from. This is usually a WAN IP address originating from the internet. Use 0.0.0.0 if you would like to access the device from any IP address on the internet.
4. In the Incoming Port Range fields, enter the range of ports to forward.
5. In the Destination IP Address field, enter the local IP address of the LAN client to which port traffic will be forwarded.
6. In the Destination Port Range fields, enter the port range for the destination.

Note: If the Incoming Port Range specifies a single port then the Destination Port can be set to any port. However if the "Incoming Port Range" specifies a range of port numbers then the Destination Port range must be the same as the Incoming Port Range.

7. Click the **Save** button to save the settings and then reboot the router by going to menu bar and selecting **System > Reboot**.