



# **Vodafone MachineLink**

## Port Forwarding Configuration Guide

## Document History

This guide covers the following products:

- Vodafone MachineLink 4G Lite NWL-221
- Vodafone MachineLink 4G Lite NWL-222
- Vodafone MachineLink 4G Lite NWL-224

Ver.	Document Description	Date
v. 1.0	Initial document release.	November 2019

*Table i - Document revision history*



**Note** – Before performing the instructions in this guide, please ensure that you have the latest firmware version installed on your router. Visit <http://vodafone.netcommwireless.com> to download the latest firmware.



**Note** – The functions described in this document require that the router is assigned with a publicly routable IP address. Please ensure that your mobile carrier has provided you with a publicly routable IP address before performing the instructions in this document.

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**Note** – This document is subject to change without notice.

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# Introduction

Port forwarding enables programs or devices running on your LAN to communicate with other devices on the internet as if they were directly connected. Many internet services and applications use designated ports and when packets arrive at the router, they will be lost unless they are directed to the appropriate destination. Port forwarding works by forwarding a specific TCP or UDP port or range of ports from the modem/router to the computer or device you are using.

There might also be times when you wish to place a device connected to your router in the “demilitarized zone” or “DMZ”. A device placed in the DMZ will have all port numbers forwarded to it, giving it unrestricted access to the internet.



## Important –

Each service or application generally uses different TCP or UDP ports. Refer to the documentation for the service or application to find out which ports need to be forwarded.

You can only forward a port or range of ports to a single destination (IP address). In some cases, this may cause issues where multiple LAN devices attempt to use a service simultaneously. Where possible, use an alternate port for any subsequent connections after the first device. Please consult your service provider or application developer for assistance with this.



**Note** – Before performing the instructions in this guide, please ensure that you have the latest firmware version on your router. Visit <http://www.netcommwireless.com/products/m2m-wireless> to find your device and download the latest firmware.

# Adding a Port Forwarding Rule

This guide will take you through the steps required to add a port forwarding rule to your 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-22x series, the default is <https://192.168.1.1>. For every other product, the default is <http://192.168.1.1>.

Login to the router with the following credentials:

- 2 Username: **root**

Password: **Note** – Original factory password is printed on the device’s label on the underside of the router casing.



After the initial login you will be prompted to define your personal secure password.

Thereafter you must use that password to log in.

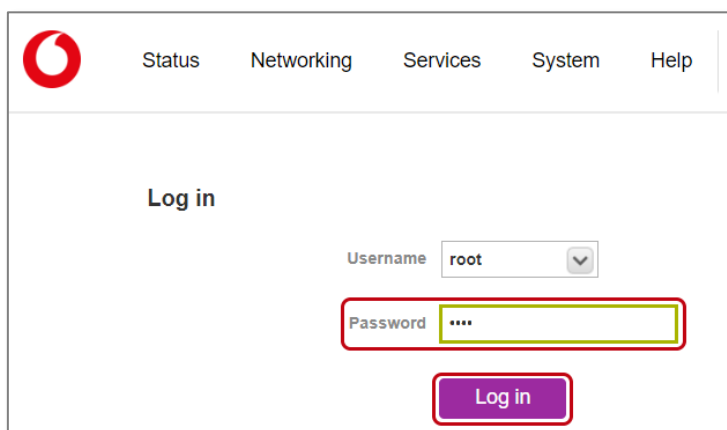


Figure 1: Login page

- 3 From the menu bar along the top of the screen, select **Networking** then from the left select the **Routing** menu followed by the **Port forwarding** option.

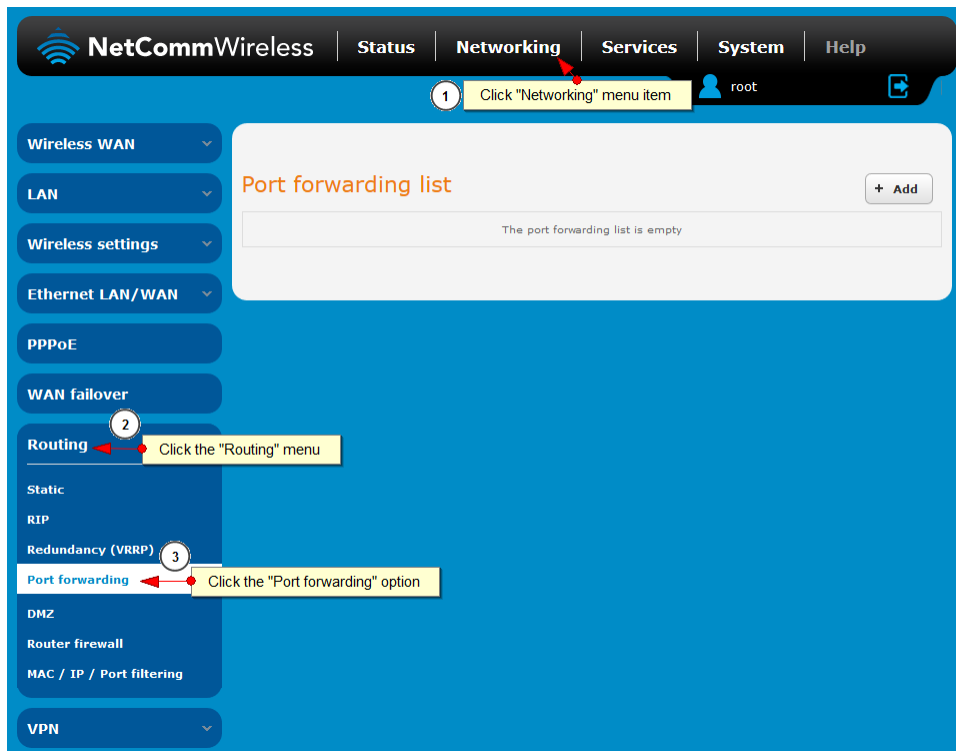


Figure 2: Navigating to the Port forwarding page

- 4 Click the **+ Add** button to add a new rule.

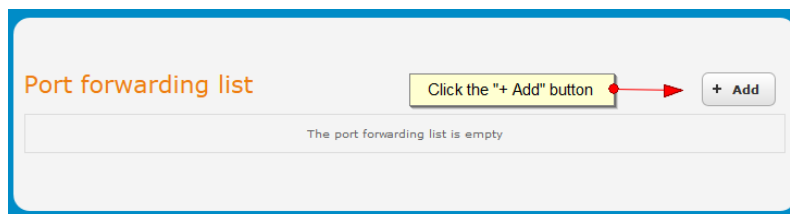
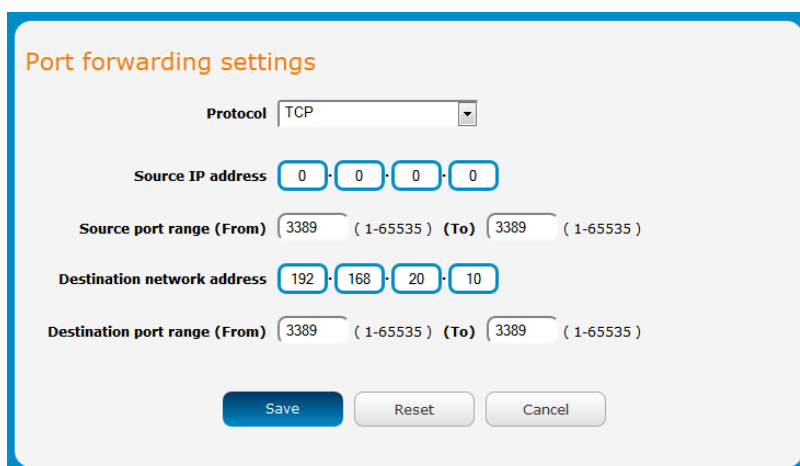


Figure 3: Adding a new rule

- 5 Using the Protocol drop down list, select the protocol type to use for the rule. You can select **TCP**, **UDP** or **ALL**.



**Port forwarding settings**

Protocol:

Source IP address:  ·  ·  ·

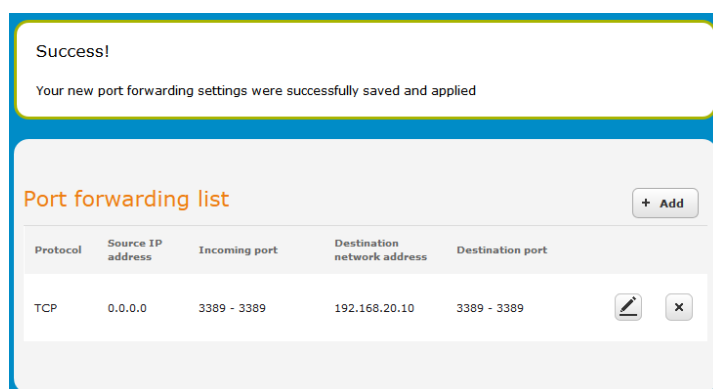
Source port range (From):  ( 1-65535 ) (To):  ( 1-65535 )

Destination network address:  ·  ·  ·

Destination port range (From):  ( 1-65535 ) (To):  ( 1-65535 )

Figure 4: Entering the port forwarding rule details

- 6 In the **Source IP address** field, enter the address from which the traffic will originate. This is usually a WAN IP address originating from the internet. In this example, we are setting the Source IP Address to 0.0.0.0 which allows connections from anywhere.
- 7 In the **Source port range (From)** and **(To)** fields, enter the range of ports to forward. For example, entering 6881 in the first field and 6999 in the second field will forward the 19 ports between and including 6881 and 6999. If you wish to forward a single port, enter the same port number in both the first and the second fields.
- 8 In the **Destination networking address** field, enter the local IP address of the LAN client to which port traffic will be forwarded.
- 9 In the **Destination port range (From)** and **(To)** fields, enter the port range for the destination. In many cases these ports will be the same as the Incoming Port Range. If you wish to specify a single port, enter the same port number in both the first and the second fields.
- 10 Click the **Save** button. The port forwarding rule is displayed at the bottom of the screen as highlighted in Figure 5 below.



Success!  
Your new port forwarding settings were successfully saved and applied

**Port forwarding list**

Protocol	Source IP address	Incoming port	Destination network address	Destination port	
TCP	0.0.0.0	3389 - 3389	192.168.20.10	3389 - 3389	<input type="button" value="✎"/> <input type="button" value="✕"/>

Figure 5: A completed port forwarding rule

# Verifying the Port Forwarding rule

In the example above, we forwarded port 3389 which is the default port for Microsoft’s Remote Desktop Protocol (RDP). The client machine (192.168.20.10) is accepting Remote Desktop connections on port 3389 so we can verify the connection by connecting to the client using RDP. We need to connect to the WAN IP address of the router and our request is forwarded on to the client (192.168.20.10). The WAN IP Address can be found by viewing the Status page of the NetComm Wireless M2M Series Router as shown below:

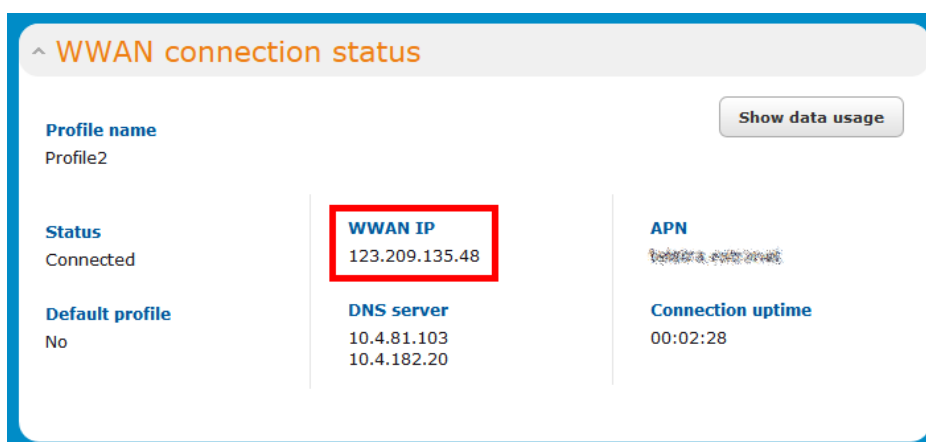


Figure 6: The Status page showing the WAN IP Address

- 11 Click the Windows **Start** button then type **mstsc** and press Enter.
- 12 Type the WAN IP address of the remote router and click **Connect**.

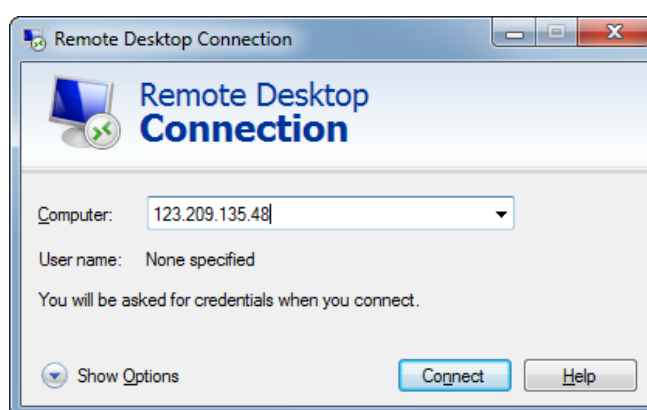


Figure 7: RDP Connection screen

- 13 The remote desktop opens and prompts you to login. If it does not, verify your settings and try again.
- 14



# Place device in the Demilitarized Zone (DMZ)

A device connected to the router may be placed in the DMZ which gives it unrestricted access to the internet. All ports are forwarded to the device when it is in the DMZ. Placing a device in the DMZ can be useful for testing certain scenarios but is also risky since it puts the client device in a vulnerable position.



**Important** – Placing a device in the DMZ puts it in a vulnerable position and is open to potential threats from the internet. It is not recommended that you leave a device in the DMZ during normal operation.

To place a device in the DMZ:

- 15 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>. For NTC-22x series, the default is <https://192.168.1.1>.

Login to the router with the following credentials:

Username: **root**

Password:



**Note** – Default password is **admin** which must be changed after first login.

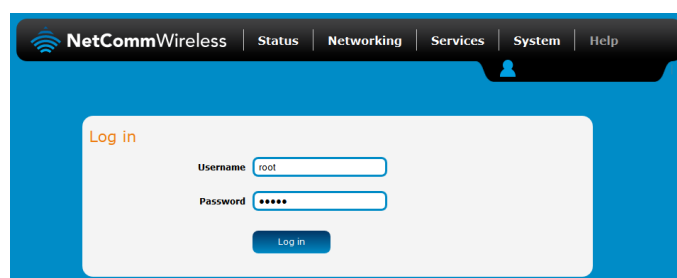


Figure 8: Login page

- 16 From the menu bar along the top of the screen, select **Networking** then from the left select the **Routing** menu followed by the **DMZ** option.

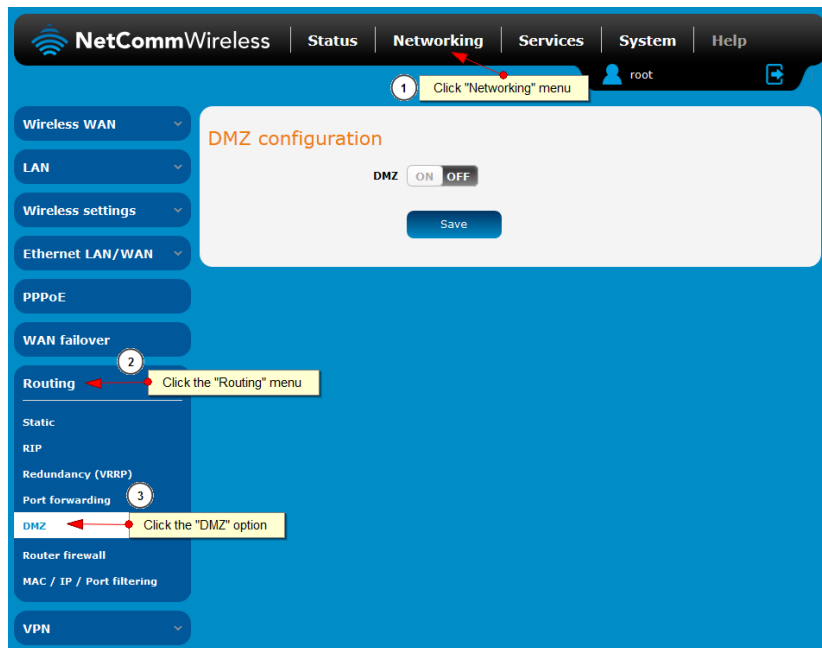


Figure 9: Internet Settings - Routing – DMZ

- Set the **DMZ** option to **ON** and enter the IP address of the device that you want to place in the DMZ.



Figure 10: DMZ Settings

- Click the **Save** button. The IP address you entered will have all ports forwarded to it.

# Verify the DMZ configuration

In the example above, we placed the client machine on 192.168.20.10 in the demilitarized zone. This means that all ports are forwarded directly to it. To test that it is in the DMZ, we can connect to the WAN IP Address using RDP. The WAN IP Address can be found by viewing the Status page of the NetComm Wireless M2M Series Router as shown below:

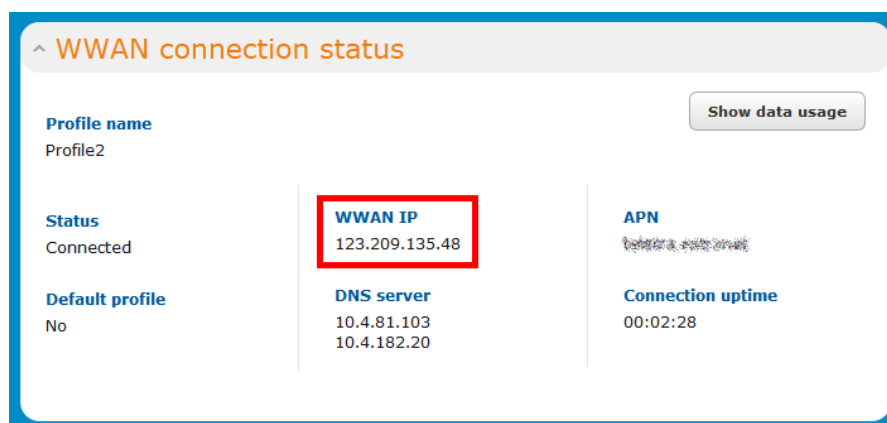


Figure 11: The Status page showing the WAN IP Address

- 19 Click the Windows **Start** button then type **mstsc** and press Enter.
- 20 Type the WAN IP address of the remote router and click **Connect**.

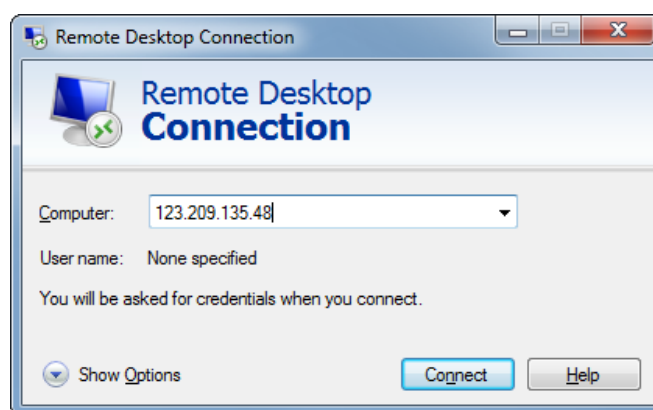


Figure 12: RDP Connection screen

- 21 The remote desktop opens and prompts you to login. If it does not, verify your settings and try again.

