

Port Forwarding Setup Guide

NF20 / NF20MESH

Port Forwarding Overview

Port forwarding enables programs or devices running on your LAN to communicate with the internet as if they were directly connected. This is most used for remotely accessing DVR/NVR Controller, IP Cameras, Web Server or online gaming (via game console or computer).

Port forwarding works by “forwarding” a specific TCP or UDP port from the Gateway to the computer or device you are using.

Prerequisite

Prior to setting the port forwarding function you must know which ports need to be opened. If you are not sure, contact the application vendor or developer.

Also, you need to make sure that you have a **Public Routable IP address**. To do that first check your WAN IP from Gateway Web UI (Device info > WAN) and then Google for "what is my IP". If they match, then you have a public routable IP address. Otherwise please call your ISP for a public routable IP address.

Please ensure required ports are not blocked by your Internet Service Provider.

Add a Port Forwarding Rule

Logging in to the web interface of the Gateway

- 1 Connect your computer to the Gateway using a wired or wireless connection. We recommend connecting via Ethernet cable.
- 2 Open a web browser (such as Internet Explorer, Google Chrome, Safari or Mozilla Firefox), type the following address into the address bar and press **Enter**.
<http://192.168.20.1>
- 3 Enter the Gateway Login **Username** and **Password** printed on the label at the bottom of the Gateway and click on the **Login** button.



Set up a Virtual Server

- 1 From the **Advanced Setup** menu, open the **NAT** sub-menu and then select **Virtual Servers**.
- 2 The **NAT – Virtual Servers Setup** screen will open:

Device Info

Basic Setup

Advanced Setup

Layer2 Interface

WAN Service

LAN

NAT

Virtual Servers

Port Triggering

DMZ Host

ALG

NAT -- Virtual Servers Setup

Virtual Server allows you to direct incoming traffic from the WAN interface (identified by its Protocol and External port) to the Internal server with a private IP address on the LAN interface. The Internal port is required only if the external port needs to be converted to a different port number used by the server on the LAN side. A maximum of 64 entries can be configured.

Note: An IPv4 address is not editable if the IPv4 NAT function is turned off.

Note: An IPv6 address is not editable if the IPv6 function of the interface is turned off.

Add
Remove

Server Name	External Port Start	External Port End	Protocol	Internal Port Start	Internal Port End	Server IPv4 Address	Server IPv6 Address	WAN Interface	Remove

- 3 Click on the **Add** button to add a port forwarding rule. The **NAT – Virtual Servers** screen is displayed.

Device Info
Basic Setup
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NAT
Virtual Servers
 Port Triggering
 DMZ Host
 ALG
 MAC Filtering
 Parental Control
 Firewall
 Quality of Service
 Routing
 DNS
 DSL
 UPnP
 DNS Proxy
 DLNA
 Storage Service
 Interface Grouping
 Wi-Fi
 Voice
 Diagnostics
 Management
 Logout

NAT -- Virtual Servers

Select the service name, and enter the server IP address and click "Apply/Save" to forward IP packets for this service to the specified server. **NOTE: The "Internal Port End" cannot be modified directly. Normally, it is set to the same value as "External Port End". However, if you modify "Internal Port Start", then "Internal Port End" will be set to the same value as "Internal Port Start".**

Note: Ipv4 address will prohibit edit if the NAT function of IPV4 is turned off.

Note: Ipv6 address will prohibit edit if the Ipv6 function of interface is turned off.

Remaining number of entries that can be configured:64

5 Use Interface: **eth4.1/eth4.1**

6 Service Name: **Age of Empires**

8 Server IPv4 Address: **192.168.20.100**

Server IPv6 Address:

9 ☒ Enable LAN Loopback

Apply/Save

External Port Start	External Port End	Protocol	Internal Port Start	Internal Port End
47624	47624	TCP	47624	47624
6073	6073	TCP	6073	6073
2300	2400	TCP	2300	2400
2300	2400	UDP	2300	2400
		TCP		
		TCP		
		TCP		
		TCP		
		TCP		
		TCP		
		TCP		
		TCP		
		TCP		
		TCP		

12 Apply/Save

- 4 Select the correct Interface in the **Use Interface** field as a misconfiguration will end up failing to forward anything.

The correct interface can be checked from **Device Info > WAN**.

If you have multiple entries, choose one with an available IPv4 address.

- 5 The **Service Name** drop down list has a predefined list of port forwarding for many services and games. If you can find your desired service listed, select the item in the drop-down list and check ☒ **Select a Service**.

A sample configuration for "Age of Empires" is shown, above.



Important – If you found an appropriate service in the **Service Name** drop down list, then you can skip steps 7, 11 and 12, below.

- 6 If you could not find one, you may create your own defined port forwarding rule, select the ☐ **Custom Service** button and enter a unique name for the port forwarding rule.

- Device Info
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- Advanced Setup
 - Layer2 Interface
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 - LAN
 - NAT
 - Virtual Servers
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 - DMZ Host
 - ALG
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 - Parental Control
 - Firewall
 - Quality of Service
 - Routing
 - DNS
 - DSL
 - UPnP
 - DNS Proxy
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- Logout

[illegible]

- 7 In either case you must enter the Private IP address of the computer or device you wish to port forward to in the **Server IP Address** field.
- 8 This will be a local IP address in the subnet 192.168.20.xx (by default); where xx can be equal to 2 to 254.
- 9 Select ☒ **Enable LAN Loopback**.
- 10 Enter the port number or port range into the **External Port Start** and **External Port End** fields.

If you only want to open one port, then enter the same number in **Start** and **End** port fields, but if you want to open range of ports, then enter the start number in **Port Start** field and end number in **Port End** field.

Note that the Internal Port Start and Internal Port End fields will automatically populate with the same port numbers.

- 11 Select the **Protocol** to be used for the port forwarding rule: **TCP**, **UDP** or **TCP/UDP** both
- 12 Click on the **Apply/Save** button.
- 13 The port forwarding rule will now be added to the list.

This example created in this user guide description is displayed in the bottom row, below.

Device Info

Basic Setup

Advanced Setup

Layer2 Interface

WAN Service

LAN

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ALG

MAC Filtering

Parental Control

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Storage Service

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NAT -- Virtual Servers Setup

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Note: An IPv6 address is not editable if the IPv6 function of the interface is turned off.

Server Name	External Port Start	External Port End	Protocol	Internal Port Start	Internal Port End	Server IPv4 Address	Server IPv6 Address	WAN Interface	Remove
Age of Empires	47624	47624	TCP	47624	47624	192.168.20.100		eth4.1	<input type="checkbox"/>
Age of Empires	6073	6073	TCP	6073	6073	192.168.20.100		eth4.1	<input type="checkbox"/>
Age of Empires	2300	2400	TCP	2300	2400	192.168.20.100		eth4.1	<input type="checkbox"/>
Age of Empires	2300	2400	UDP	2300	2400	192.168.20.100		eth4.1	<input type="checkbox"/>
Remote Desktop and Custom Application	3389	3389	TCP	3389	3389	192.168.20.101		eth4.1	<input type="checkbox"/>
Remote Desktop and Custom Application	10001	10010	TCP/UDP	10001	10010	192.168.20.101		eth4.1	<input type="checkbox"/>

Please note

We recommend that you set a Static IP address on the end device, instead of obtaining one automatically, to make sure that the request is forwarded to the appropriate machine every individual time. Also, you need to specify a Default Gateway when configuring Static IP address on the end device.

You can only forward a port to one location (IP address). In some cases, this may cause issues when multiple LAN devices (computers, game consoles, or VOIP ATAs) attempt to use online gaming at the same time or make multiple VOIP service connections. In these cases, you will need to use an alternate port for any subsequent connections after the first device. Please consult your VOIP provider or game manufacturer for assistance with this.

Similarly, remote access and the webserver must have unique port numbers. For example, you cannot host a web server accessible through port 80 of your public IP and enable remote http administration of the Gateway through port 80, you must provide both with unique port numbers.

Note also that ports 22456 to 32456 are reserved for RTP protocol in VOIP services. Do not use any of these ports for any other service.