Install a NAT router with Windows Server Routing and Remote Access Service (RRAS)

https://4sysops.com/archives/install-a-nat-router-with-windows-server-routing-and-remote-access-service-rras/

Installing a NAT router with Windows Server Routing and Remote Access Service (RRAS) provides secure internet access for internal networks by routing traffic while protecting against external threats. With RRAS, Windows Server can function as a NAT router, VPN server, or gateway for internal and VPN-connected networks. This guide covers step-by-step instructions for configuring NAT and enabling features like DHCP and DNS proxy for seamless network management.

Contents

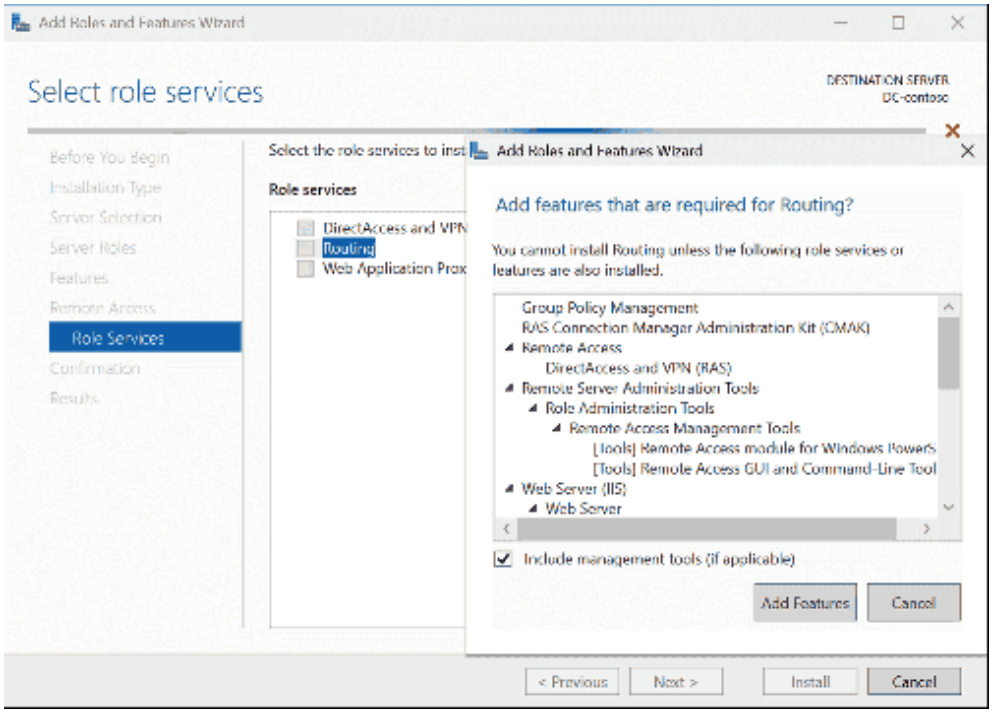
RRAS allows the configuration of Windows Server as a NAT router, protecting an internal network from external access while still allowing its devices to connect to the Internet. This is often used in scenarios like virtual labs that must stay hidden from the production environment.

RRAS has been a server role integrated into the operating system for many years, offering features such as Direct Access and a VPN server. Additionally, you can use Windows Server as a router in specific situations, including between a VPN and an internal network.

Adding the RRAS role

You can install the role as usual via the Server Manager or by using PowerShell:

```
Install-WindowsFeature -Name RemoteAccess, Routing –IncludeManagementTools
```

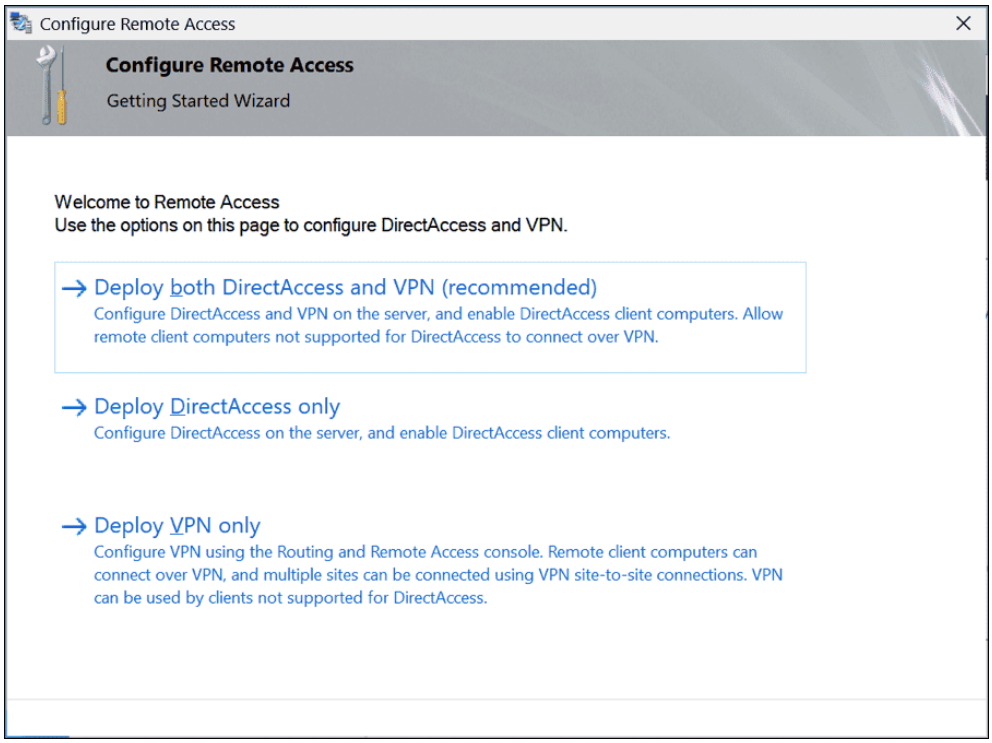


The Server Manager automatically suggests the features required for routing during the installation process

Configuring NAT and routing

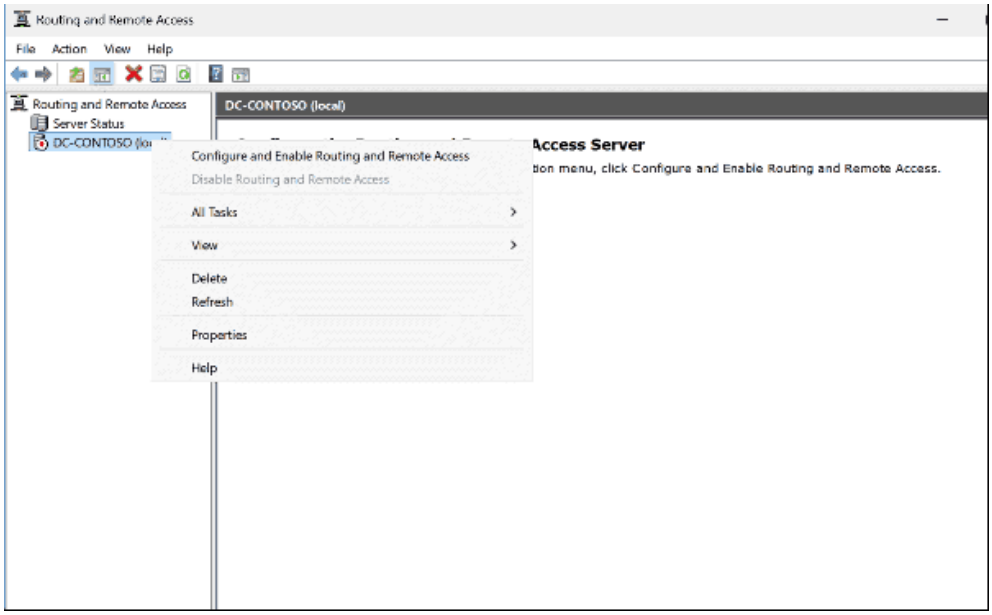
After installation, a notification will appear in the message area, featuring a yellow triangle with an exclamation mark, indicating that the RRAS configuration is still pending.

Clicking on the displayed link will open a dialog where you can select which features you want to enable. Here, choose the option to *Deploy VPN only*.



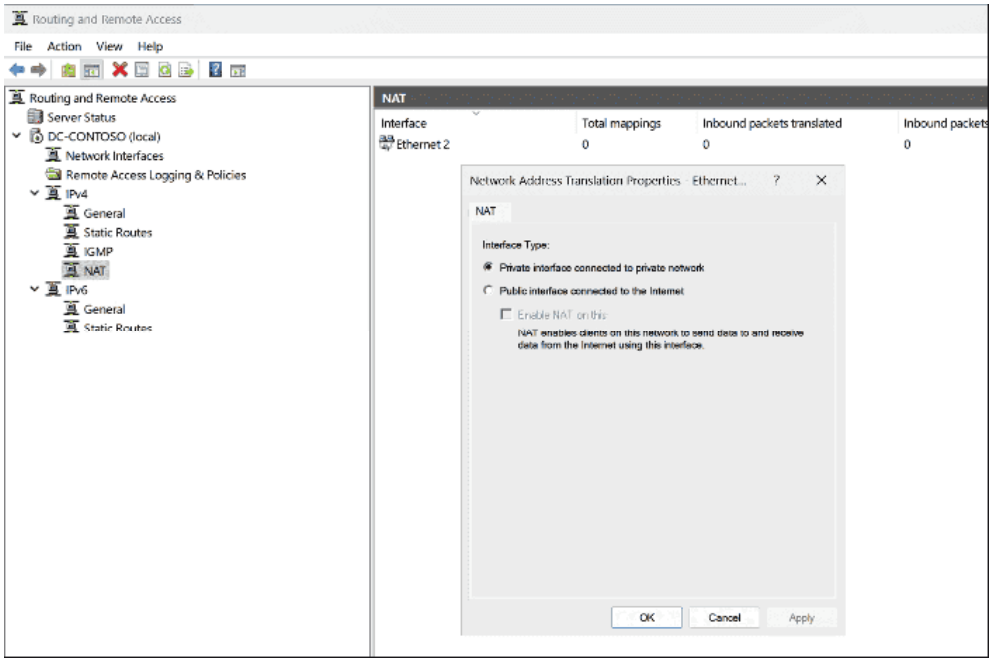
VPN alone is sufficient for setting up a router

The RRAS console will then open to configure the NAT router. Choose to configure and enable Routing and Remote Access from the server's context menu.



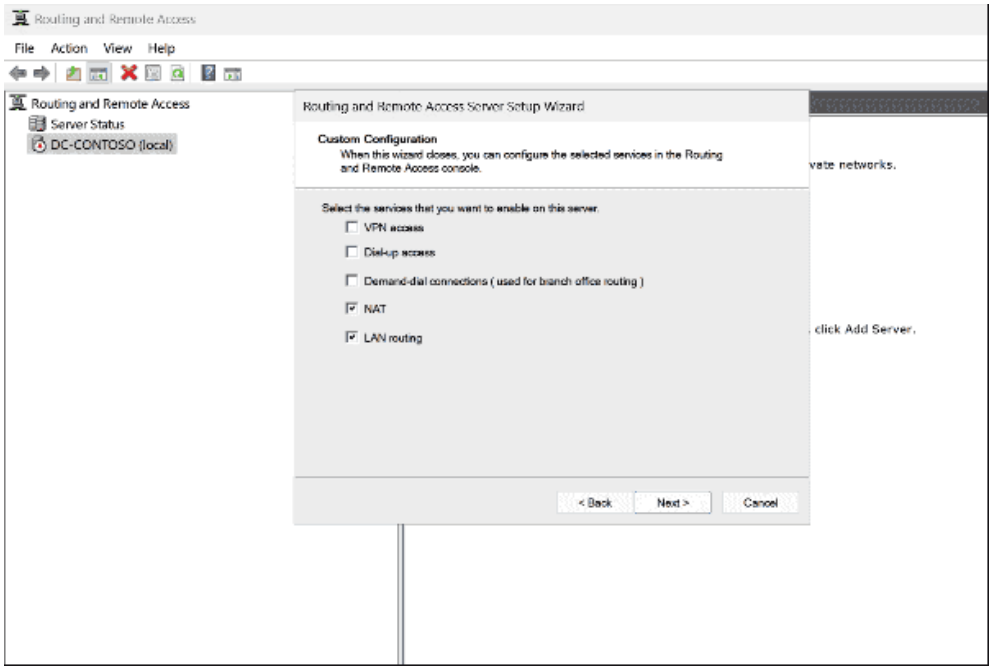
Start the configuration of the router via the command in the server's context menu.

In the subsequent dialog, choose the *Custom configuration* option.



Select Custom configuration of the RRAS server

Select *NAT* and *LAN routing*in the next step.



In the Custom configuration, select NAT and LAN routing

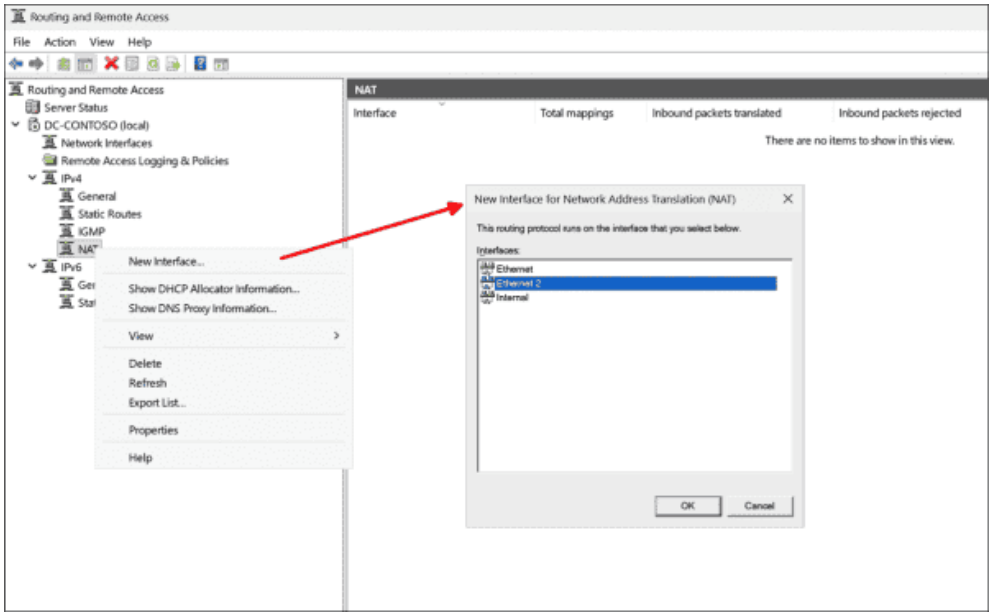
If a warning appears at the end of the wizard stating that no ports can be opened for RAS in the firewall, check the status of the relevant rules with the following command:

```
Get-NetFirewallRule -DisplayGroup \*routing\* | select DisplayName, DisplayGroup, Enabled
```

If necessary, enable the rules using this command:

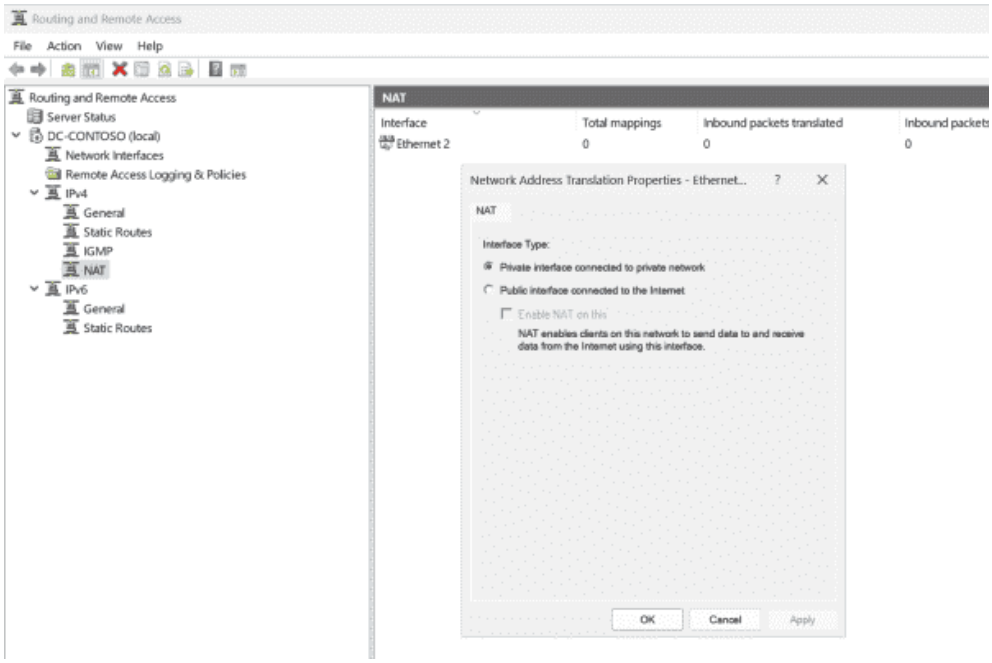
```
Get-NetFirewallRule -DisplayGroup \*routing\* | Enable-NetFirewallRule
```

Next, in the left pane, navigate to *IPv4* and access the context menu for *NAT*. Use the *New Interface* command to specify which adapter is connected internally and externally.



Assigning adapters to the internal and external network

This process must be performed individually for each interface. Once an interface is selected, a dialog will prompt you to choose between connecting to the private or public network.



Select the type of interface (private or public)

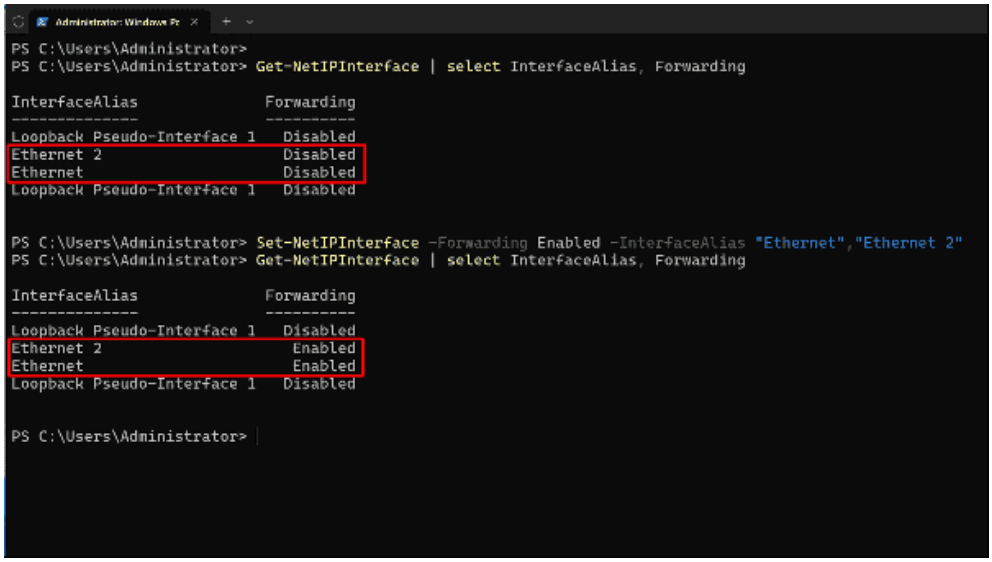
Enable forwarding

Finally, ensure that forwarding is enabled for the interfaces being used. You can check this with this command:

```
Get-NetIPInterface | select InterfaceAlias, Forwarding
```

If necessary, configure this feature:

```
Set-NetIPInterface -Forwarding Enabled -InterfaceAlias "Ethernet","Ethernet 2"
```

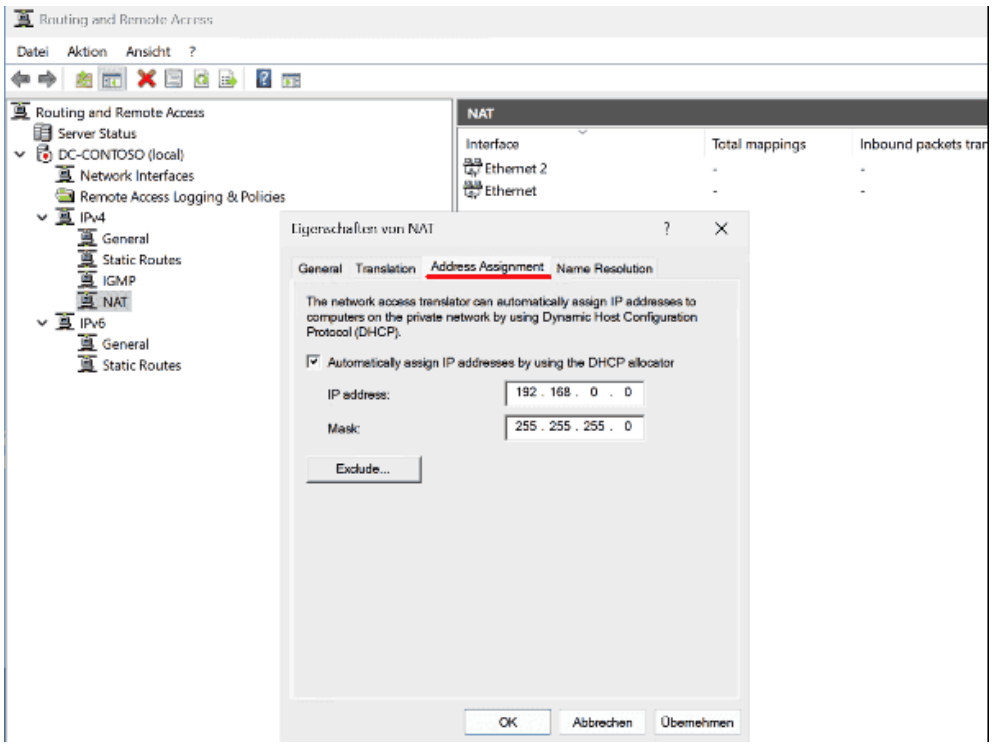


Check whether forwarding is enabled for the participating adapters and activate if necessary

Configure DHCP and DNS proxy

The NAT feature comes with an integrated DHCP service capable of supplying IP configurations to clients within the internal network when necessary. This is a basic implementation that lacks support for reservations or DHCP options.

To use this function, navigate to the *Address Assignment* tab in the NAT context menu and specify the address range.



RRAS includes a simple DHCP service and a DNS proxy.

Additionally, the NAT feature provides a DNS proxy for name resolution within the private network. This can be enabled through the same dialog as the DHCP service if you do not wish to run your own DNS server.

A client connected exclusively via the private network should now have access to the external network or the internet.

Summary

Windows Server, using RRAS, enables the configuration of a NAT router as long as the (virtual) machine has a minimum of two interfaces: one linked to the internal network and the other to the external network.

Installing the role and configuring NAT is fairly simple and can be completed entirely via the GUI. However, using PowerShell to set up forwarding for the involved adapters is recommended.

The NAT feature includes a basic DHCP server and a DNS proxy, eliminating the need to offer these services within the internal network in most situations.