

Using one public IP address to access multiple NPorts behind NAT

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About Moxa

Moxa is a leading provider of edge connectivity, industrial computing, and network infrastructure solutions for enabling connectivity for the Industrial Internet of Things. With 35 years of industry experience, Moxa has connected more than 82 million devices worldwide and has a distribution and service network that reaches customers in more than 80 countries. Moxa delivers lasting business value by empowering industry with reliable networks and sincere service for industrial communications infrastructures. Information about Moxa’s solutions is available at www.moxa.com.

How to Contact Moxa

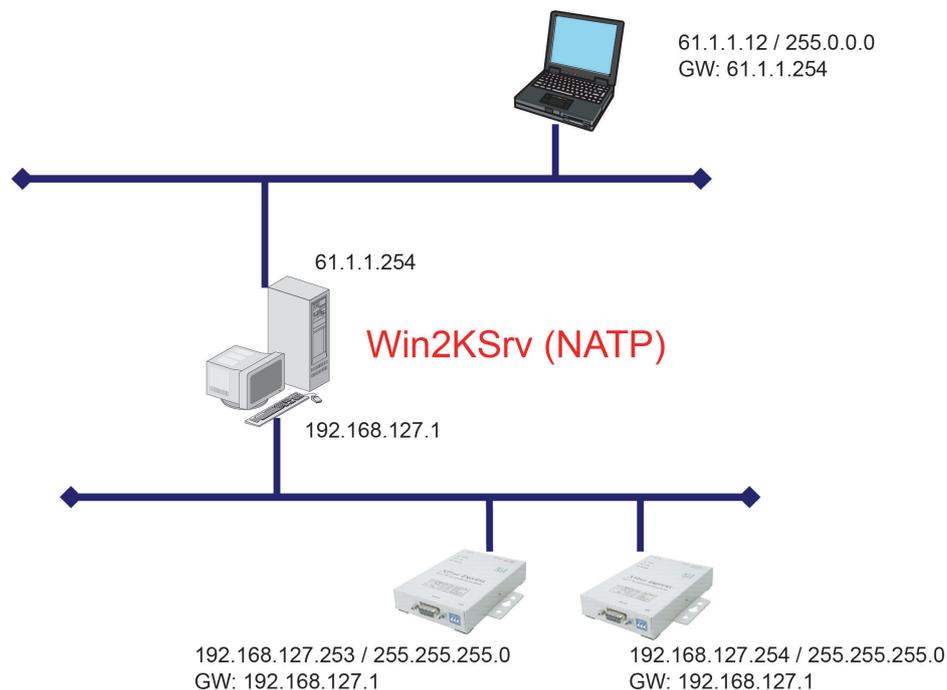
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1 Introduction to system architecture

As public IP addresses grow more and more scarce, many customers are installing their NPorts behind NAT and connecting to the attached devices over Internet. In this situation, hosts may have to use one public address to access multiple NPorts, even though each NPort is assigned an individual private IP address.

It is not difficult to configure one NPort behind NAT. However, it requires additional effort to configure multiple NPorts under one public address behind NAT. The following diagram shows the architecture can achieve this:



In this paper, we will explain how to configure the NPort DE-311 for this architecture. This may be used as a starting reference point for other similar systems.

The following related products are also suitable for this kind of application:
DE-311, NPort 5000 Series, NPort 6000 Series , Wireless NPort Series, NE Series.

2 Using RealCOM Mode

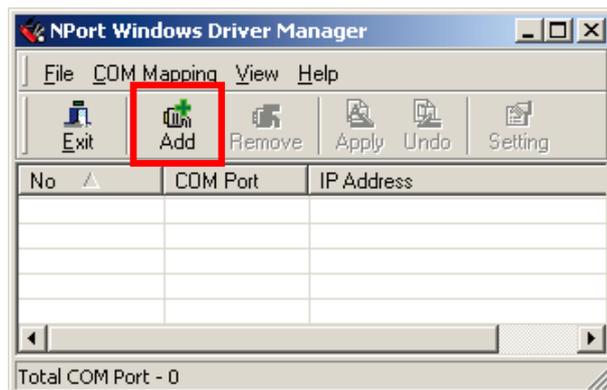
Multiple NPorts can be accessed using a single IP address by mapping unique port numbers to each device port.

1. Set the mapping rules on your NAT server as shown:

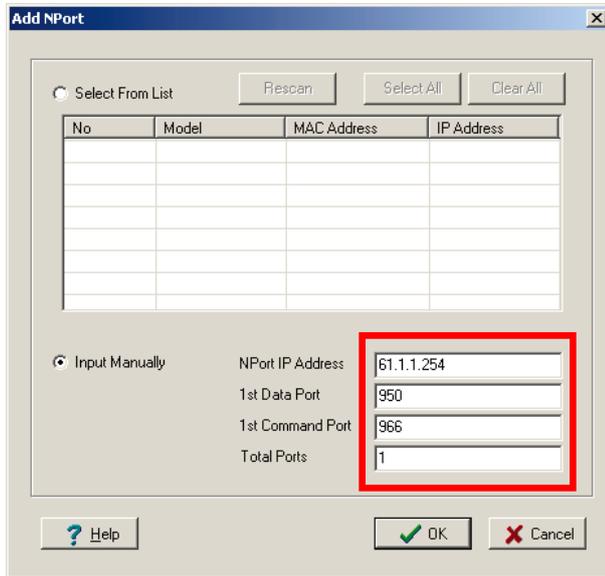
Public IP	TCP port	Private IP	TCP port
61.1.1.254	950	192.168.127.253	950
61.1.1.254	966	192.168.127.253	966
61.1.1.254	951	192.168.127.254	950
61.1.1.254	967	192.168.127.254	966

This establishes a unique port number for each device port to be used with public IP 61.1.1.254. For example, a computer on the network will use 61.1.1.254, port 951 to communicate with the device port at 192.168.127.254, port 950.

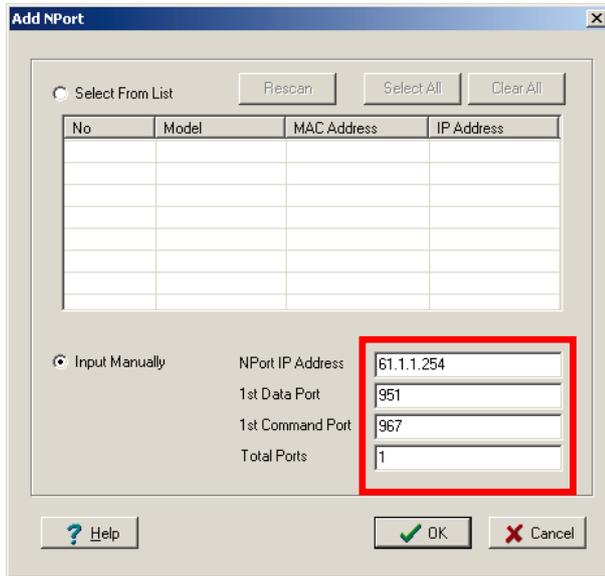
2. Configure each device port for Real COM Mode. On some NPorts, this is known as Host based or Driver Mode.
3. Open NPort Window Drivers Manager and click Add. Please note that you must use version 1.1 or greater of NPort Windows Driver Manager.



- 4. Use **Input Manually** to map the first device port. Use the public IP and port number as defined in the NAT mapping rules.



- 5. Use the same method to map all device ports. Make sure that "Data Port" and "Command Port" settings are modified for each device port as appropriate.



- 6. After completing the configuration, the host PC should be able to access device ports on multiple NPorts behind the NAT server, using only one public IP address.

3 Using TCP Server Mode

For some applications, software may require direct access to devices rather than using MOXA's Real COM drivers. TCP Server Mode can be used for this kind of situation.

1. Set the mapping rules on your NAT server as shown:

Public	TCP port	Private IP	TCP port
61.1.1.254	4001	192.168.127.253	4001
61.1.1.254	4002	192.168.127.254	4001

This establishes a unique port number for each device port to be used with public IP 61.1.1.254. For example, a computer on the network will use 61.1.1.254, port 4002 to communicate with the device port at 192.168.127.254, port 4001.

2. Set each device port to TCP Server Mode.
3. After completing the configuration, the host PC should be able to access device ports on multiple NPorts behind the NAT server, using only one public IP address.