

Using one public IP address to access multiple NPorts behind NAT

Andy Chu, Technical Support, MOXA Technical Support Dept.

In this Technical Note, we cover the following topics:

1. Introduction to system architecture
2. Using RealCOM Mode
3. Using TCP Server Mode

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 that can be used to achieve this:

Copyright © 2006 The Moxa Group

Released on December 24, 2006

About MOXA

The MOXA Group manufactures one of the world's leading brands of device networking solutions. Products include serial boards, USB-to-serial Hubs, media converters, device servers, embedded computers, Ethernet I/O servers, terminal servers, Modbus gateways, industrial switches, and Ethernet-to-fiber converters. Our products are key components of many networking applications, including industrial automation, manufacturing, POS, and medical treatment facilities.

How to Contact MOXA

Tel: 1-714-528-6777

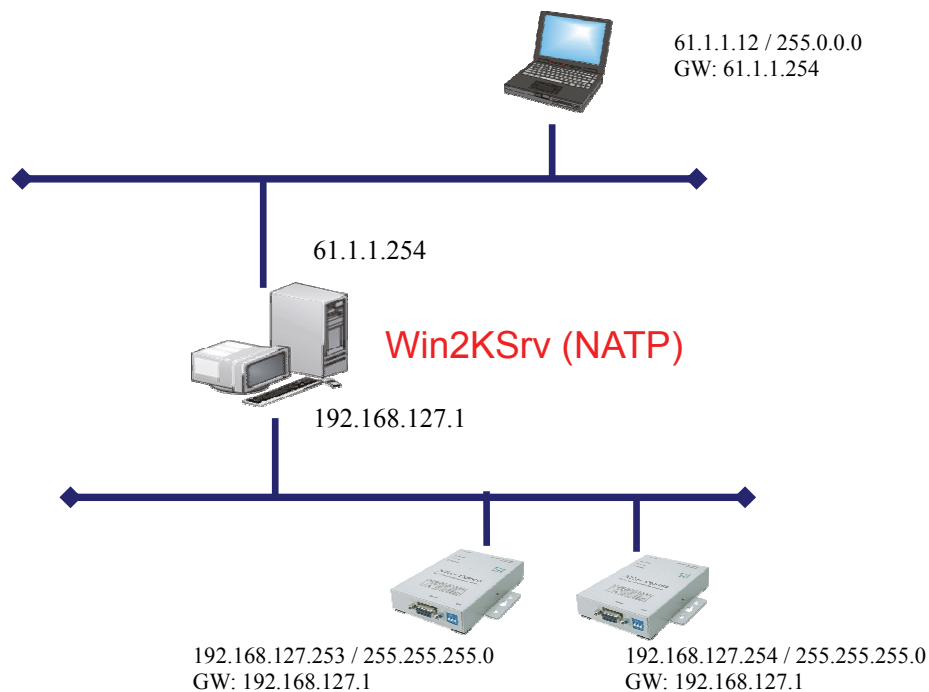
Web: www.moxa.com

Fax: 1-714-528-6778

Email: info@moxa.com



This document was produced by the Moxa Technical Writing Center (TWC). Please send your comments or suggestions about this or other Moxa documents to twc@moxa.com.



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.

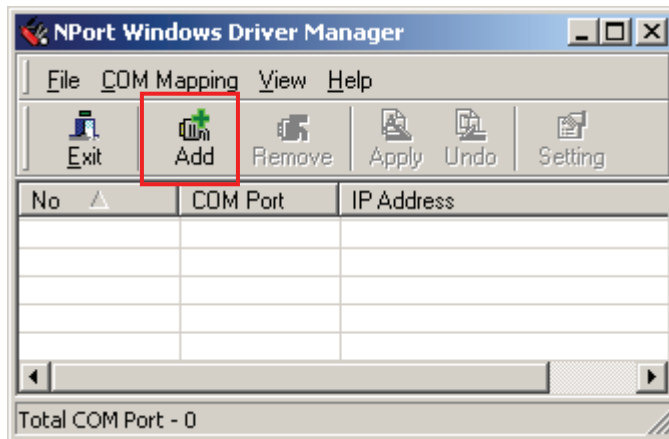
- 2.1 Set the mapping rules on your NAT server as shown:

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

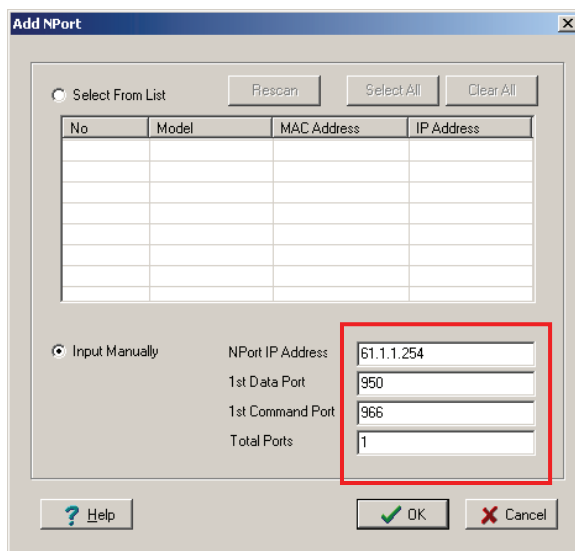
This establishes a unique port number for each device port to be used with public IP 61.1.1.254. For example, a computer on the network will use 61.1.1.254, port 951 to communicate with the device port at 192.168.127.254, port 950.

- 2.2 Configure each device port for Real COM Mode. On some NPorts, this is known as Host based or Driver Mode.

- 2.3 Open NPort Window Drivers Manager and click **Add**. Please note that you must use version 1.1 or greater of NPort Windows Driver Manager.



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



- 2.5 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.

The screenshot shows the 'Add NPort' dialog box with the following configuration:

- Select From List (disabled)
- Input Manually
- NPort IP Address: 61.1.1.254
- 1st Data Port: 951
- 1st Command Port: 967
- Total Ports: 1

- 2.6 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.

- 3.1 Set the mapping rules on your NAT server as shown:

Public IP	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.

- 3.2 Set each device port to TCP Server Mode.
- 3.3 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.