

# Helper Service to NetCom Driver

In certain situations users of VScom NetCom Serial Device Servers come to the problem of dynamic IP Addresses. This typically happens when the NetCom is used over Internet, using an ADSL or cable Modem connection. At certain times e.g. every 24 hours the NetCom is disconnected from the internet. When it is re-connected, it will receive a new IP Address, which is different than before.

The NetCom Driver for Windows installs the serial ports on the NetCom Servers as virtual local Com Ports in the system. They are seen in the Device Manager, and standard applications like Hyperterminal have a seamless access to the connected serial devices. To perform this task the driver uses the IP Address of the NetCom Server. On the established TCP connections the driver exchanges serial data, commands and status information.

When the IP Address of the NetCom has changed, the driver attempts to contact the old IP Address, which will fail. So the virtual Com Port is not usable any longer. Up to driver version 1.5.5 users have to use the NetCom Manager NETCOMMGR.EXE to reconfigure the driver.

Since the driver version 1.5.6 there are more options. The software installs a so-called Helper Service on the system. This service monitors the configured NetCom Servers, and detects the changed IP Address. The driver is reconfigured to use the new IP Address, so the port is usable again. This all happens without specific user interaction.

## 1 Configure Helper Service

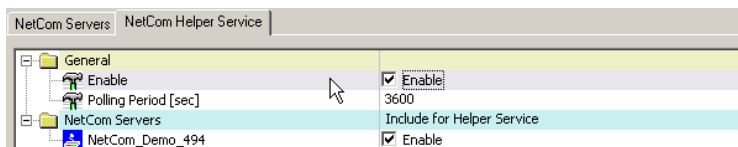


Image 1: NetCom Helper Service Panel

The NetCom Helper Service is configured via NetCom Manager. There is a new Register card. In the upper part users enable the Helper Service, and they also configure the polling frequency. If the Helper

Service is disabled, it is also stopped in the system; it does not consume any system resources. Of course it does not provide any help when disabled. The “Polling Period” is given in seconds. When the interval is over, the configuration of the NetCom Servers is checked.

The lower part in the new panel lists all NetCom Servers available in the system configuration. The user must decide which of those shall be monitored. At the regular intervals as configured above the NetCom Server is checked. The Helper Service attempts to connect to the NetCom Server, and verifies the parameters. If the verification fails, the Service uses several methods to find and identify the NetCom Server.

## **2 Detection and Priority**

The NetCom Helper Service has two basic methods to detect and identify a NetCom Server. The first method is the broadcast search on the network, the new method is DNS based. The DNS method has two variants, with or without firewall configuration. The reasons for changing IP Addresses or the methods to use are discussed later.

### **2.1 Broadcast search**

The method of broadcast search is the same method as used in the NetCom Manager. A broadcast request is sent to the local network, and the NetCom Servers reply to this. The NetCom Manager lists them for configuration.

This method is used by the NetCom Helper Service also. A NetCom Server is identified by MAC-Address and Serial Number. These two parameters are fixed, customers can not change them. If a NetCom Server is found with a changed IP Address, the driver configuration is updated.

### **2.2 DNS based search**

In driver versions up to 1.5.5 the NetCom Server has been configured by its IP Address. This is still the standard situation in later driver versions. However the Info Panel of Server Properties is modified.

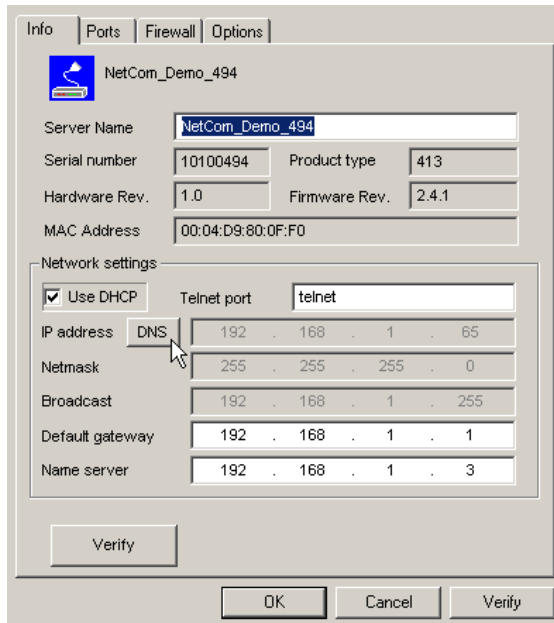


Image 2: Info Panel of Properties

The new button named “DNS” opens a dialogue. This is to enter the DNS name of the NetCom Server. The name is resolved, i.e. translated to the current IP Address associated with the name. This IP Address is configured in the driver, and the DNS name is also saved there.

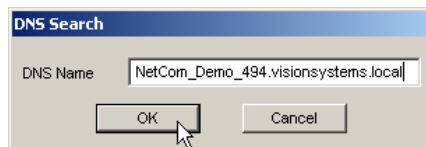


Image 3: DNS Name Dialogue

In a local company network this is not an especially useful option. But when the NetCom Server is used via the Internet, this is the standard situation for most applications. DNS is used when the NetCom is not a part of the local network broadcast domain. As a consequence it is not detectable via the broadcast method described above. Provided there is a reliable DNS service available, now it is more easy to install a NetCom in the system. Please read the main manual for “Manual Installation of a NetCom”.

The NetCom Helper Service regularly checks if the NetCom Server is still available on the known IP Address. If the attempt for contact fails, the Helper Service uses DNS to find the new IP Address of the NetCom Server. This new IP Address is used for future usage.

## **2.2.1 DNS based Firewall Configuration**

The NetCom Servers do not manage an Internet Connection on their own. It is possible to have a NetCom Server on a public IP Address, the Internet Connection is managed by Routers. But more often the NetCom Server connects to a private LAN, and has a private IP Address. The Internet Connection is managed by a Router, which also acts as a Firewall. This Router uses NAT/PAT to make the NetCom Server available via Internet. Please read the main manual about “Firewall Configuration”.

When the Firewall Configuration is activated for access to the NetCom, it has already been possible to enter the DNS name of the NetCom Server. Precisely it was the DNS name of the Router. This name has been resolved at the time of configuration, and has been stored for later use. Now the NetCom Helper Service monitors the DNS name to connect to the NetCom Server. If the connect fails, the DNS name is resolved again. The new result is used in the driver.

## **3 Changed IP Address**

There are several configurations with changed or regularly changing IP Addresses. This is a rough overview.

### **3.1 Broadcast Domain**

The broadcast domain is part of a local network. In typical SOHO networks the domain covers the entire network. The broadcast domain is typically limited by Routers. Broadcasts are transmitted between computer and NetCom Server, if there are only Switches/Hubs or WLAN Access Points on the way between those two.

Usually the IP Addresses in a local network are static. This is also the situation when there is a DHCP server, and all clients use this. If the

server is configured properly, it will provide the same IP Address to a certain station again and again. It does so, because the stations are identified by their unique MAC-Address.

A changed IP Address may occur because the network is re-organized, combined with a reconfiguration of the DHCP server. In most cases however it is simply because the station has been switched off for a comparably long time. So the DHCP server forgot about the station, and provided the IP Address to a different target.

### **3.2 *Internal DNS***

If the company network becomes larger, it will also use some Routers. For organisation the network is grouped in subnets. As mentioned above, typically the broadcasts are blocked by Routers, so the broadcasts only cover a single subnet. To contact stations in other subnets the IP Address of the target is required. Usually this is provided by a DNS server. This server may co-operate with a DHCP server.

A usual cause for a changed IP Address in the NetCom Server is a connection to a different subnet. It will have a different IP Address there, but the DNS server will know about the new address.

### **3.3 *Internet***

Some ISP disconnect the customers stations from the Internet in regular intervals, e.g. every 24 hours. If the station is configured for immediate re-connect, it will get a new IP Address. This station can notify a Dynamic DNS service, so this will resolve to the new address. This is typically combined with a SOHO Firewall/Router.

## **4 Polling Period**

The last matter to check about is a suitable Polling Period for the NetCom Helper Service. The standard value is 3600 seconds, i.e. one hour. With this configuration a change in the address is noticed up to 60 minutes later. When the change occurs just before the Helper Service checks the connect, it will be recognized very soon, if the check happens just before the change, it will require the maximum time.

Usually an installation requires to have changes detected very soon, but this is not possible on networks. The NetCom Server has no feature to contact all clients, and notify them of a changed configuration. This is because the NetCom Server can not manage a possibly huge list of client computers.

So the Helper Service is installed on the client computers. If there are a lot of clients, very frequent polls cause a high load. For one side on the network, but most important on the NetCom Server. The best choice for a suitable polling interval depends on the usage period of the client computer. If it is unused for some hours per day (over night), it will detect a change at least the next morning. Provided the change happens over night.

If the NetCom Server uses an Internet connection with regular disconnects, it is a good idea to configure those disconnects to times of inactivity of the clients.

For manual detection of changes it is possible to restart the NetCom Helper Service. Controlling a service requires administrative privileges on the Windows system. A restricted user account can not do this. Restricted users use the Polling Period configured by the system Administrator.