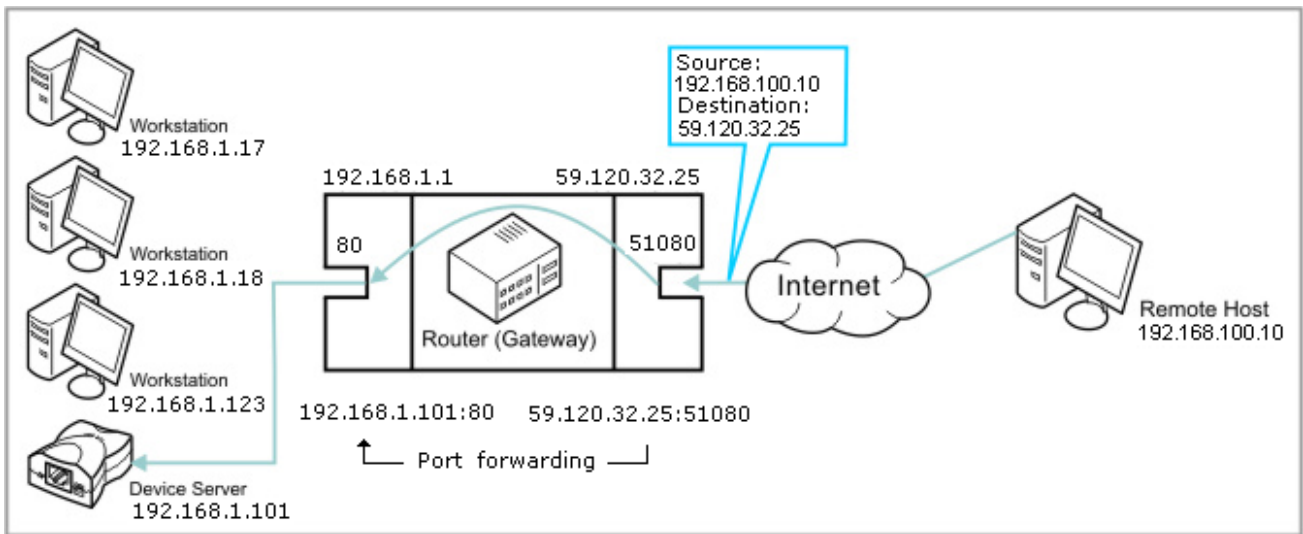


# How to Download the Registered Fingerprints to Remote TR4050-10/20 via Internet

TR4050-20 has a serial (RS232) port for on-line enrollment or fingerprint download. The software- "*SmaFinger Database*" can only enroll or download fingerprint through COM port to TR4050-20. If you want to download the registered fingerprint via Internet to remote TR4050-20, other device and setting tools (software) are needed to construct the whole system. Below diagram is the concept that we will construct for fingerprint download via Internet:



GIGA-TMS provides a Device Server- DS100R. DS100R is a communication bridge that allows the data to send from serial to Ethernet port, or from Ethernet to serial port. Connect the serial port of DS100R to the fingerprint enrollment serial port of TR4050-20, and connect the Ethernet port to any Hub in LAN. Use *Tibbo DS-Manager* (in CD) to set Network, Connection, and Serial Port settings for communication between network and serial port.

There is an important thing - you have to configure a NAT router for Inbound Access to let NAT router allow a certain inbound traffic, and be able to route it to a host (or Device Server) within its LAN correctly. This is done by using *Port Forwarding*. *Port Forwarding* is a feature of many modern routers. In essence, it allows you to map a certain outside port of the router to a specific address and port in the LAN. It is a *static* configuration. **The *Port Forwarding* function is configured with the router itself -- it is not related to Device Server (DS100R).** Use the router's internal configuration interface to configure for *Port Forwarding*. Refer to the manual of your specific router to do this.

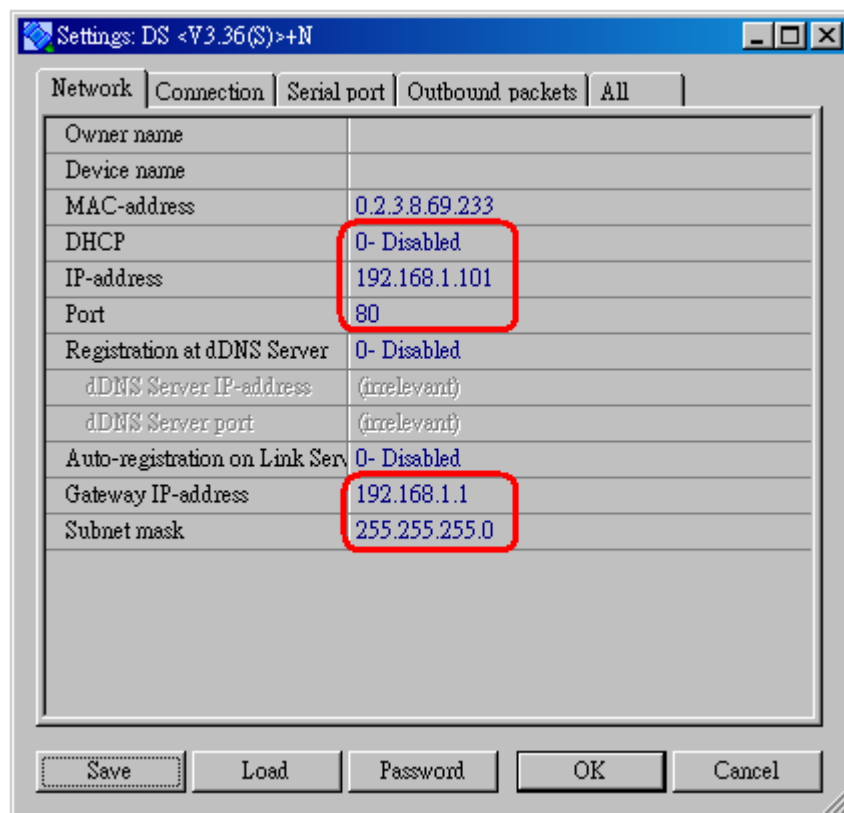
As you can see in the diagram above, it shows that every packet sent to port 51080 on the router from the WAN side is forwarded by the router to *192.168.1.101:80* on the network.

## Setting Device Server (DS100R)

The external ("real") IP address (for example 59.120.32.25) of the router must be static. Otherwise, the Remote Host (for example 192.168.100.10) will not know where to connect.

After configuring *Port Forwarding* on the router properly, every time a connection is established to a specific port on the "real" IP address of the router, the data is forwarded to a specific host and port on the LAN.

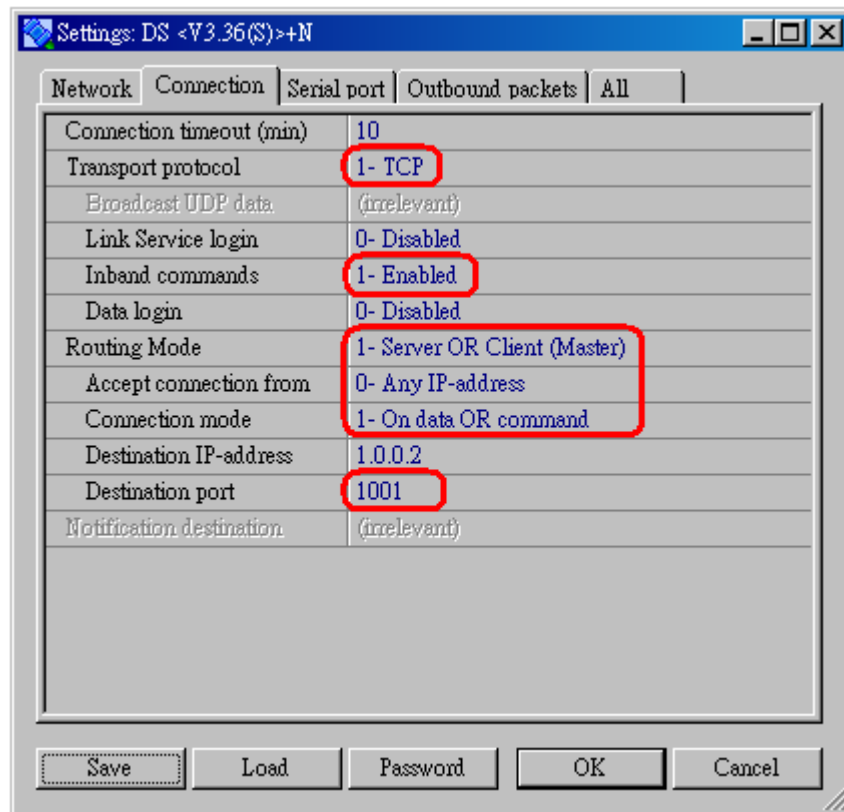
Suppose that you have configured a NAT router for *Port Forwarding* from port 51080 to 192.168.1.101:80. Device Server's (DS100R's) IP address and port must also be static, so set [DHCP] to "Disable", [IP-address] to 192.168.1.101 (for example), and [Port] to 80 (for example). Use *Tibbo DS-Manager* and refer to the picture as below to finish these settings.



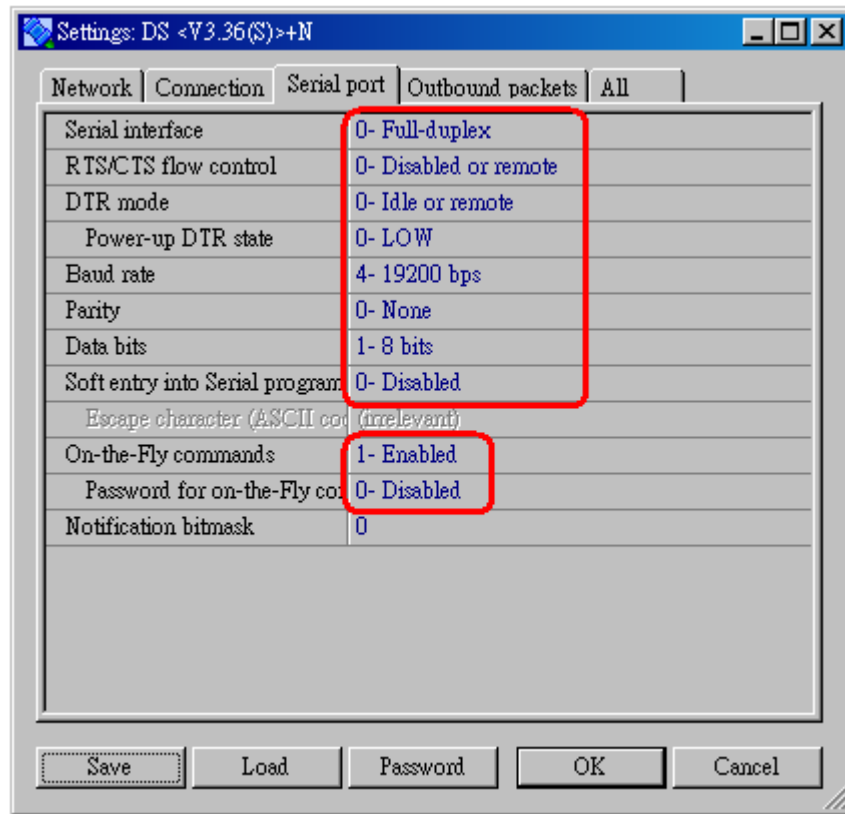
\*Note 1: A colon (:) mark at the end of an IP address refers to the port for that address. The address 192.168.1.101:80 refers to port 80 of the IP address 192.168.1.101.

\*Note 2: The IP address and port setting here are examples. All settings should depend on your actual application.

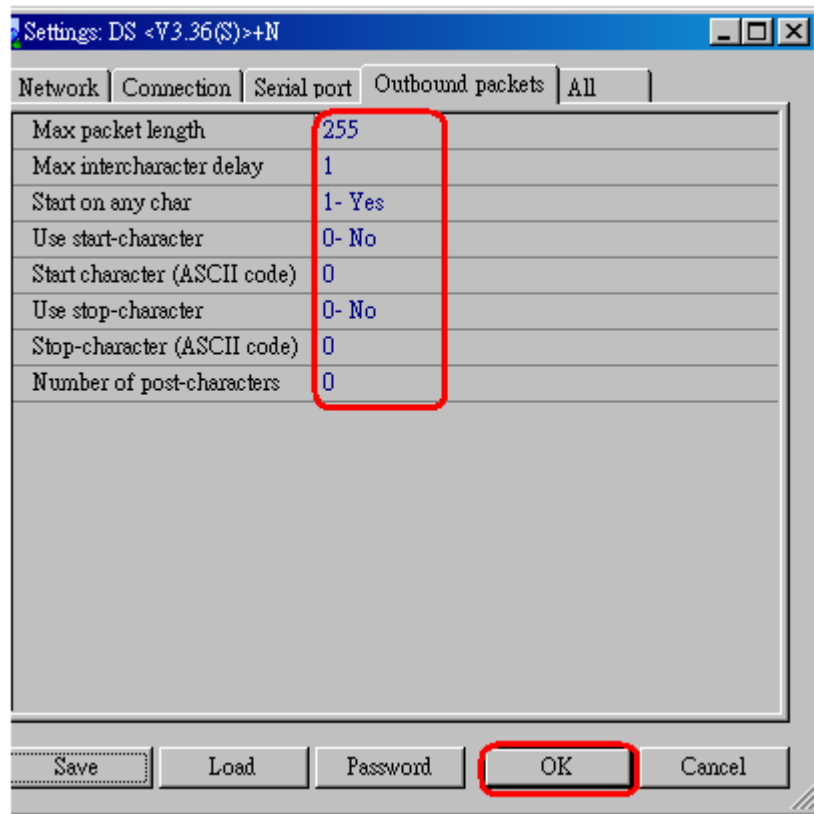
In this application, the connection is established by the remote host, not by Device Server (DS100R). Therefore, set [Routing Mode] for Device Server (DS100R) to "Client only" or "Server OR Client (Master)". In our diagram example on page 1, we set remote host port to 1001, so set the [Destination port] to "1001" here. Refer to the picture as below to set the settings for the connection.



Set the settings of Device Server's (DS100R's) serial port the same as the picture below to communicate with TR4050-20's fingerprint enrollment serial port.



Refer to the picture as below to set outbound packets settings. Data packets will be output from Device Server's (DS100R's) serial port.



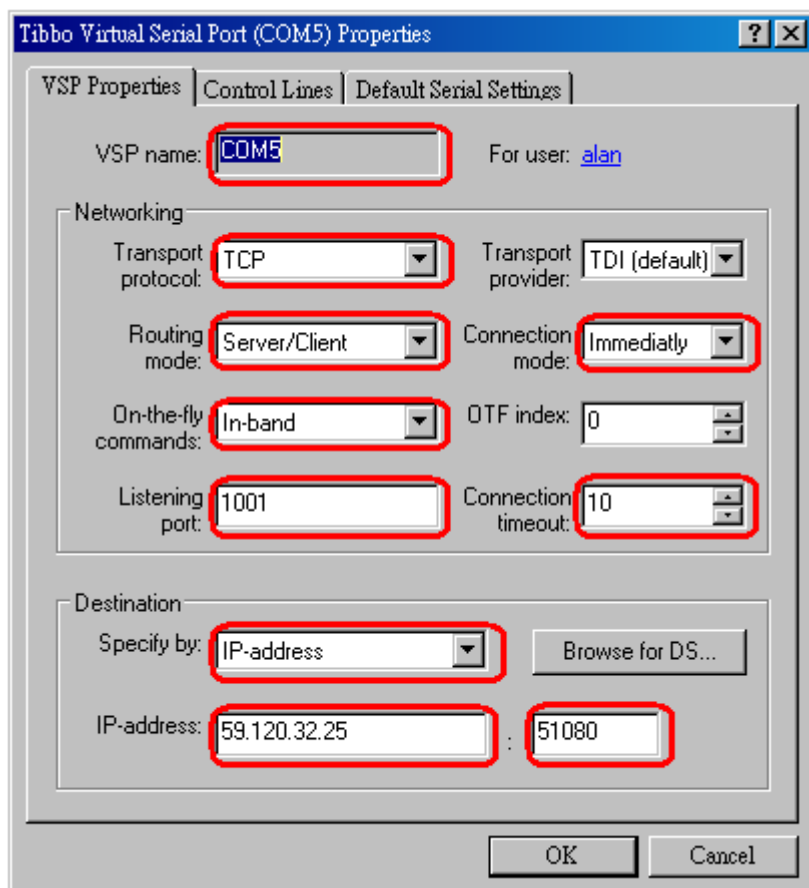
Now, all Device Server (DS100R) settings are finished. Next, set the remote host side.

## Setting Remote Host

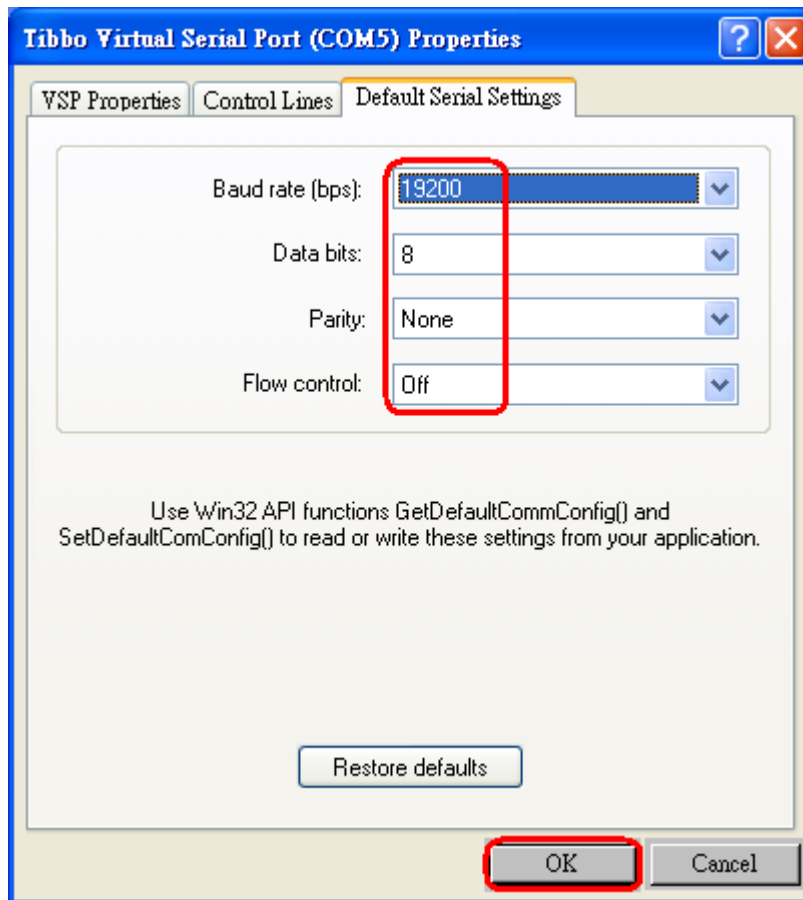
Because the software- "*SmaFinger Database*" can only enroll or download fingerprint through COM port to TR4050-20. Here we use *Tibbo VSP Manager* to create a virtual serial port to receive data from *SmaFinger Database* and route the data through Internet to remote TR4050-20.

Here the virtual serial port driver plays the "Client" role and it takes the duty of "establishing connection". Therefore, set [Routing mode] to "Client" or "Server/Client", and [Connection mode] to "Immediately". Set [Listening port] to "1001" that must be the same as Device Server's destination port which you set in [Connection] of Device Server.

Set [Specify by] to "IP-address", and [IP-address] to 59.120.32.25 (for example), this IP-address is the external ("real") IP address of the remote NAT router. Then set port to 51080 (for example), remember that we had configured *Port Forwarding* from this port (51080) to Device Server's (DS100R's) IP and port (192.168.1.101:80). Refer to the picture as below to set all settings.



Set the virtual serial port settings the same as the picture below, and click [OK] to save all settings.  
Close *Tibbo VSP Manager*.



## Set the Device Server (DS100R) from Remote Host

You can set the Device Server's (DS100R's) settings from remote Host by the followings. Click [Add] to add an external-IP (the real IP) of remote router to Address Book in *Tibbo DS-Manager*. Set [IP-address] to 59.120.32.25 (for example), [Access method] to "Out-of-Band (UDP)" and [Access port] to "65535". Click [OK] to save settings. Close Address Book Entry window. Then select [Settings] to remote set Device Server's (DS100R's) settings.

