ThinPATH Plus V3 Startup Guide

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Revision History

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Welcome to ThinPATH Plus V3

NCD ThinPATH Plus V3™ is a multi-user Windows software product that extends the capabilities for PCs and thin clients in environments deploying Microsoft Windows Terminal Services. ThinPATH Plus V3 is specifically designed to fully support Windows 2003 SP1/R2 Releases.

ThinPATH Plus Version 2.11 is still available and fully supports older Windows Terminal Services environments, i.e. Windows 2000 Server and Windows NT 4.0 Terminal Server Edition. For full details on ThinPATH Plus Version 2.11, see the ThinPATH Plus Version 2.11 documentation at www.tp-sys.com.

Introduction to ThinPATH Plus V3

ThinPATH Plus extends Microsoft Terminal Services for users connecting to servers from PCs, PCs running ThinPATH PC, NCD ThinSTAR terminals, and Neoware thin clients. During a connection session, they run applications using either the Microsoft Terminal Server (RDP) client or Citrix ICA client.
With ThinPATH Plus V3, users can:

- Use serial and parallel desktop devices such as bar code readers and printers during RDP or ICA sessions.
- ThinPATH Plus printers can be shared by users at remote locations.

With ThinPATH Plus V3 administrators can:

- Create and manage all virtual port mappings between the Server PC and Client PCs or Thin Client devices.
- Create and manage all printers at the server for users through ThinPATH Plus V3.

Terminal Services and Remote Desktops

Microsoft Terminal Services is a network operating system that transmits its display to any compatible desktop. During a multi-user Terminal Services session, the application runs on the Windows-based server, wherever it is located. Only the display is on the desktop; no processing occurs there.
In traditional Windows systems, only the user at the console is logged onto the server. Other users can connect to a drive on the server and access files, but they run applications from their own computers.
In contrast, users in a multi-user Windows Terminal Services system connect to the Windows-based server and many sessions run on the server at the same time. Each user's computer is an input-display station with a keyboard, a mouse, and a monitor.

- The application running on the server sends a screen display over the network to the user's desktop.
- Information from the keyboard or mouse goes over the network to the application running on the server.

Desktops include Windows PCs, PCs running ThinPATH PC and other thin client computers. Application screens appear on these desktops, but no application processing occurs on the desktop during a multi-user session.

Server Applications

Environments deploying Windows Terminal Services require special access to the local devices hardware resource, while desktop users connecting to remote servers to run applications and store files remotely.

- Individual desktops can be PCs, PCs running ThinPATH PC, ThinSTAR thin client terminals or Neoware thin clients.
- Applications are Windows applications or applications available through optional NCD terminal emulation products.

- Windows-based servers are computers running the Microsoft Windows 2000/2003 operating system with Terminal Services enabled or Windows NT 4.0, Terminal Server Edition.

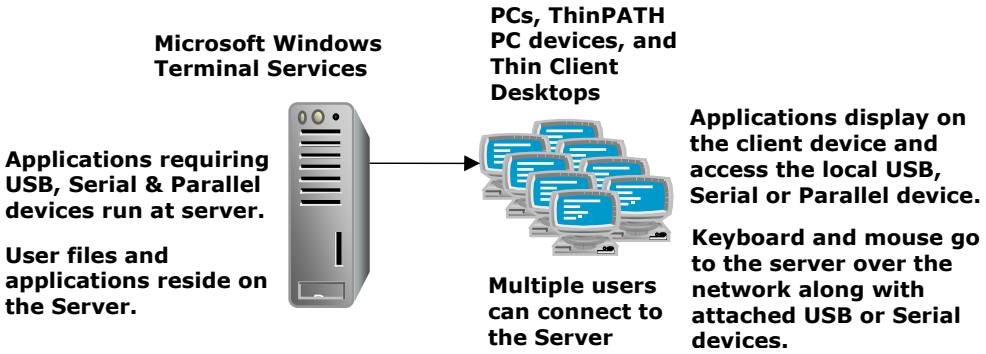


Figure 1 - Thin Client & Server Based Computing

Desktop Ports and Devices

ThinPATH Plus lets a server-based application or device driver transfer data transparently from a server's virtual port to a desktop port over the TCP/IP network. To support high demand USB and serial applications, this product includes complete bidirectional transfer for up to a 115K baud rate, as well as complete serial flow control. Devices include printers, bar code readers, personal digital assistants, digital cameras, and process control devices. They must use standard Windows drivers to work with ThinPATH Plus. The software cannot have timing assumptions such as an expected time of response.

Note USB connected devices require use of USB to Serial driver included with all Windows PCs, also known as the USB Communications Device Class (CDC). Information on the CDC driver can be found at www.usb.org. Many USB device manufactures offer USB to Serial Drivers, such as Metrologic. Bidirectional parallel devices such as scanners are not supported.

As part of setting up ThinPATH Plus, you associate a set of virtual server ports—both COM and LPT—with the serial/USB and parallel ports on PC desktops and Thin Client devices. USB attached devices using the USB to Serial driver are accessed as COM ports from the server.

- An NCD ThinSTAR and Neoware thin client devices have up to two serial ports and one parallel port.
- A PC or ThinPATH PC device support USB, serial and parallel ports as included in the configuration.

When a Terminal Services user wants to print from an application—or read from a device such as a bar code reader—the application on the server sends the request to a virtual port on the server. This virtual port represents a real desktop device.

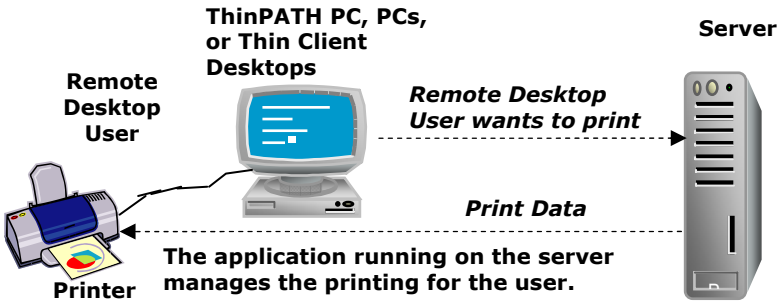


Figure 2 - ThinPATH Plus Printing with Virtual Ports

In ThinPATH Plus Configuration, the **Virtual COM/LPT Ports** tab lists virtual ports for the server. Nine serial (COM) ports and nine parallel (LPT) ports are provided at installation. You can assign these and create others as needed, then set properties through ThinPATH Plus Configuration. For a printer, you also add the printer in Windows NT.

Documentation

This guide and the release notes are provided as PDF files (**StartupGuide.pdf and ReleaseNotes.pdf**) installed in the destination directory. The default is:

C:\Program Files\ThinPATHPlus

You can also download these documents from the ThinPATH Systems website:

http://www.tp-sys.com/

Software Installation

This section explains how to install software on Windows Terminal servers, PCs, PC running ThinPATH PC, NCD ThinSTARs, and Neoware Thin Clients. Subsequent sections describe implementation options and explain how to configure the software and use the services.

Software for ThinPATH Plus is installed on the following systems:

- Windows servers with Terminal Services enabled that provide ThinPATH Plus software services to user client sessions.
- ThinPATH Portal server or Thin STAR Management Server, which is the Windows server running the ThinSTAR Management Service (TMS).
- PCs that use the ThinPATH Plus software services when connecting to Windows-based servers.

Software is installed as follows.

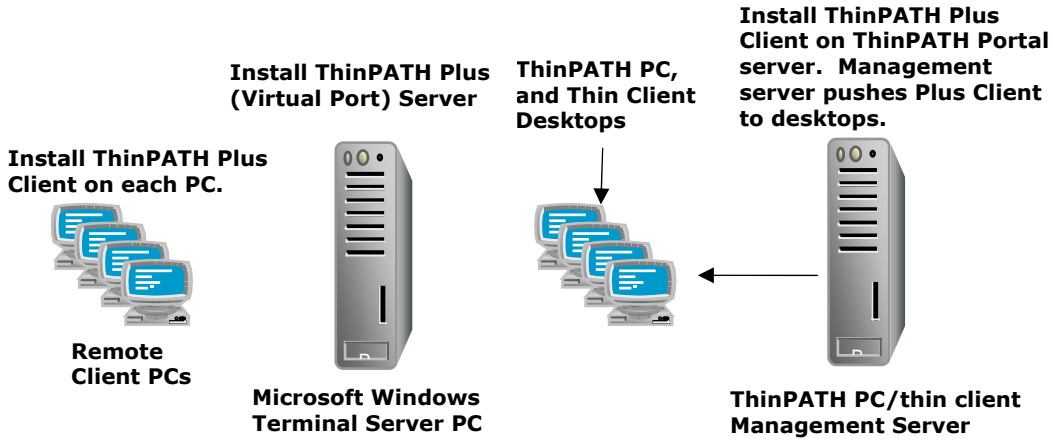


Figure 3 - Client and Server Software Installation Locations

Installing ThinPATH Plus for Terminal Services

You must install the ThinPATH Plus software on every Windows-based server that is to provide ThinPATH Plus functionality.

To install software on the server, you need:

- Microsoft Windows 2003 Server or Advanced Server, can include SP1 or Release 2 (R2).
- Administrative rights to install or configure the software

To install NCD ThinPATH Plus software:

1. Download the software from the ThinPATH Systems website http://www.tp-sys.com.
2. Run **ThinPATHPlusV3 to unpack the files and run the installation**.
3. Select a destination, then click **Next**.

   The default is **C:\Program Files\ThinPATHPlus**.
4. Select components, then click **Next**.

5. Enter the license key that came on the certificate of purchase in the product package.
6. Review your selections and go back, if necessary, to make changes.

To add additional license keys:

1. Log onto the server as the administrator.
2. Select **Start > Programs > NCD Tools > NCD License Manager**.
3. Enter the new license keys.

Installing Client Software on PCs

To install ThinPATH Plus on a PC, you must have:

- A PC with Windows 95, Windows 98, Windows NT 4.0, Windows 2000 Professional, or Windows XP Professional
- An RDP or ICA client installed on the PC

To install the software:

1. Login in as the local administrator on the local PC. Download the software from the ThinPATH Systems website http://www.tp-sys.com.
2. Run **ThinPATHPlusV3.exe to unpack the files and run the installation**.
3. Select a destination, then click **Next**.

   The default is **C:\Program Files\ThinPATHPlus**.
4. Select components, then click **Next**.
5. Review your selections and go back, if necessary, to make changes.

When you have completed the installation:

1. Select **Start > Settings > Control Panel > Plus Controls** and enable LPT/COM port services.
2. Set options for COM/LPT ports.

Installing Client Software on ThinPATH PC Devices

ThinPATH Plus for PCs running the ThinPATH PC software is installed through ThinPATH Portal management server. PCs running the ThinPATH PC software will automatically contact the ThinPATH Portal server and download the ThinPATH Plus client software. Installation of the ThinPATH Plus software should not be manually installed, but deployed through the ThinPATH Portal software distribution model.

Note For more information about ThinPATH Portal, see the ThinPATH Portal's Startup & Installation Guide.

To install ThinPATH Plus for a ThinPATH PC device, you must have:

- ThinPATH Portal Version 4.1 or greater running on Windows 2003.
- The PC must be running ThinPATH PC and setup to be managed by the ThinPATH Portal server PC.

To install the software:

1. Login in as the local administrator on the ThinPATH Portal Server PC. Download the software from the ThinPATH Systems website http://www.tp-sys.com.
2. Run **ThinPATHPlusV3.exe** to unpack the files and run the installation**.**
3. Select a destination, then click **Next**.

   The default is **C:\Program Files\ThinPATHPlus**.
4. Select components, and then click **Next**.
5. Review your selections and go back, if necessary, to make changes.

6. From the ThinPATH Portal Explorer GUI, right click on one or more managed ThinPATH PC devices and select restart. This will force them to restart and perform an automatic upgrade or installation of the ThinPATH Plus client software. The restart utility allows devices to be restarted or at a later time.

When you have completed the installation:

1. Open the Terminal Properties windows and enable LPT/COM port services. See the ThinPATH Portal Installation and Startup guide for details on configuring and managing this setting automatically for all ThinPATH PC devices.

Installing Client Software on Thin Client devices

ThinPATH Plus is installed on NCD ThinSTAR terminals through ThinPATH Portal management server or using the NCD ThinSTAR Management Service (TMS). TMS is part of the NCD ThinSTAR Operating Software/ThinPATH Manager software . Both software management products and be used free to install the ThinPATH Plus client software on ThinSTAR thin client devices.

Note For more information about TMS, see the NCD ThinSTAR System Administrator's Guide.

ThinPATH Plus is installed on Neoware CE based thin clients through the ThinPATH Portal management server only. The ThinPATH Portal software can be used free for this purpose only. Follow the section on **Installing the client software on ThinPATH PC devices** when installing the ThinPATH Plus client software on Neoware CE devices. The ThinPATH Plus Client will automatically start on Neoware thin clients once installed.

To install ThinPATH Plus on NCD ThinSTAR devices you must determine which management software server you will use. If you choose the ThinPATH Portal management server to install the ThinPATH Plus client software, no NCD ThinSTAR device, follow the procedure in the section above **Installing the client software on ThinPATH PC devices**. If you have chosen to use NCD ThinSTAR Management Service (TMS), follow the procedure below.

To install NCD ThinPATH Plus for a ThinSTAR device using NCD ThinSTAR Management Service (TMS), you must have:

- NCD ThinSTAR terminals should have a minimum of 16 MB RAM.

- NCD ThinSTAR Operating Software (which includes TMS) version 2.30 or higher, installed on a server running Microsoft Windows NT 4.00 or later version of Windows

To install the software:

1. Login in as the local administrator on the PC running NCD ThinSTAR Operating Software (TMS)/ThinPATH Manager software. Download the software from the ThinPATH Systems website http://www.tp-sys.com.
2. Run **ThinPATHPlusV3.exe** to unpack the files and run the installation**.**
3. Select a destination, and click **Next**.

   The default is **C:\Program Files\ThinPATHPlus**.
4. Select components, and click **Next**.
5. Review your selections and go back, if necessary, to make changes.
6. Restart the NCD ThinSTAR terminal to upgrade its software.

Desktop Port Options and Procedures

On the server, you use ThinPATH Plus Configuration to map virtual COM and LPT ports on a Windows-based server to physical USB, serial and parallel ports on desktops. You do not configure the port at the client PC device.

ThinPATH Plus makes serial, USB and parallel peripheral devices available to users during RDP and ICA sessions where:

- People need to use a specific device. For example, several people may need to share a device attached to one desktop or an individual may require a personal device.
- Multiple people who need to use devices attached to their desktops.

Setting up Device Access for a Terminal Services Session

With ThinPATH Plus, it is possible to map a specific device. For example, if a printer is physically attached to one PC desktop, ThinPATH PC device, NCD ThinSTAR or Neoware thin clients, you can map its parallel port to a virtual LPT port allowing several Terminal Services session users to share the printer same printer. ThinPATH Plus Virtual port sharing is allowed even if the device with the attached printer is not in an active Terminal Services session.

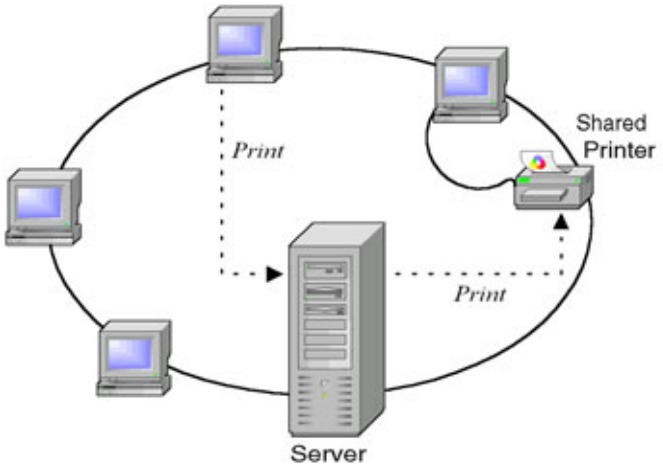


Figure 4 - Using ThinPATH Plus to share the same Printer

Where privacy is essential or use of a device is limited, an individual may have a personal device, as shown in this example.

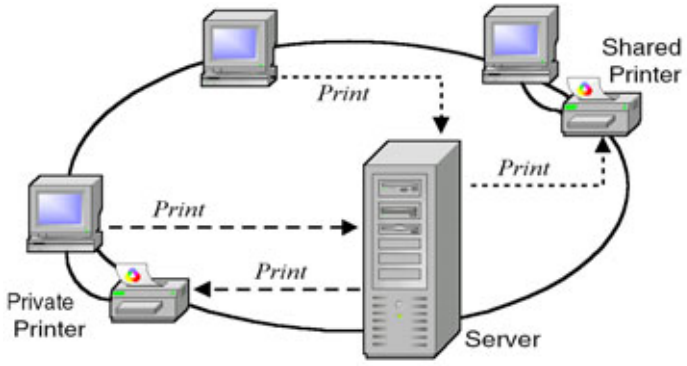


Figure 5 - Use ThinPATH Plus to Map Specific Printers

You map the physical desktop port to one virtual port on the server just as you map a port for a shared device. By setting access permissions you can restrict access to the device.

When you map a virtual port to a port on a specific physical desktop, you select the **Use Specified Client Hostname** option, then

identify the desktop when you edit port properties.

To map a specific device:

1. Select **Start > Programs > ThinPATH Plus > ThinPATH Plus Configuration.**
2. Select a Terminal Server port (COM 3-9, LPT 2-9, or a virtual port that you have added).

   Note We recommend that you reserve LPT1, COM1, and COM2 for actual devices attached to the server. The word "Hardware" shows that a device is reserved.

   If you map a physical hardware port on the server as a virtual port, you cannot use the physical port on the server.
3. Click **Edit Port**, then select **Use Specified Client Hostname** to map the port.

   This maps a virtual port to the client device that you identify by host name or IP address. Click **Next**. For example, you would use this to map a port to a specific printer.
4. Select the desktop port to associate with the virtual port.
   - For a parallel port, click **Finish**.
   - For a serial port, click **Next**, then select default settings (baud rate, data bits, parity, stop bits, and flow control) for the connection and click **Finish**. Most applications override these, but serial printers often rely on them.
   - For USB devices select the serial n device corresponding to the local COM port being mapped by the USB to Serial drive. For example if the remote PC has 2 serial ports and one attached USB device using the USB to Serial driver, it will be mapped on the local PC as COM3. Select **serial 3** when creating the virtual port on the server. Ignore serial port parameter settings and click **Finish**.
5. Click **Apply** to save the settings.

Mapping Multiple Stations

In some environments, multiple stations have desktops with attached devices.

For example, in the following retail environment, a person can go to any station and use the bar code reader attached to the desktop.

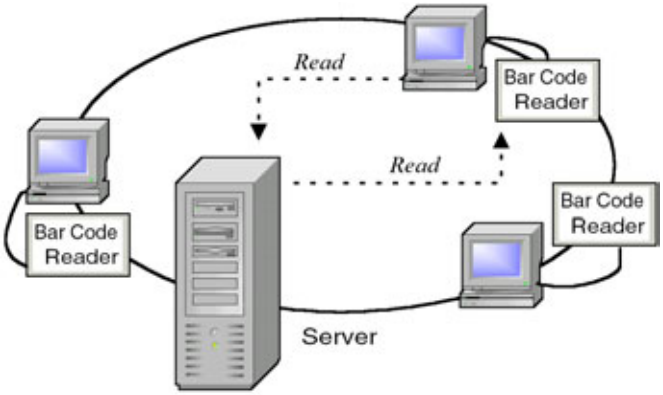


Figure 6 - ThinPATH Plus enables sharing of Virtual Ports

Likewise, in the following implementation, users can print to label printers attached to their own desktops.

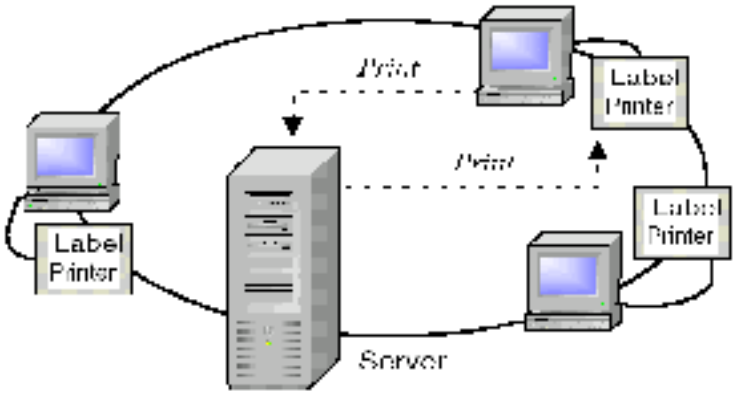


Figure 7 - Plus accesses USB, Serial & Parallel devices.

In both of these cases, a serial, USB or parallel device port is

mapped to a virtual port on the server using the **Use Client Service** option (rather than the **Use Specified Client Hostname** option). The following example shows a completed port assignment for label printers.

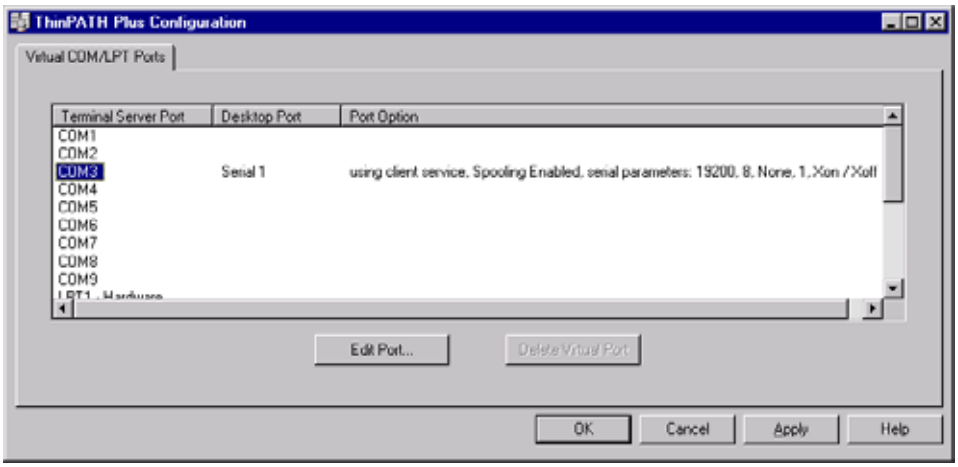


Figure 8 - ThinPATH Plus Configuration GUI

These port options, set by clicking **Edit Port**, are as follows.

The **Use Client Service** option lets users print to the device attached to the specified port on their desktops.

Here, each user can print to the device attached to the serial 1 port on the desktop.

Since the desktop port is **Serial 1**, the label printer can be attached to an NCD ThinSTAR. The 200 model has one serial port; the 300 and 400 models have two serial ports.

The default baud rate is 9600.

Most applications override these settings, but serial printers often rely on them and the settings should reflect the recommendations for the serial device.

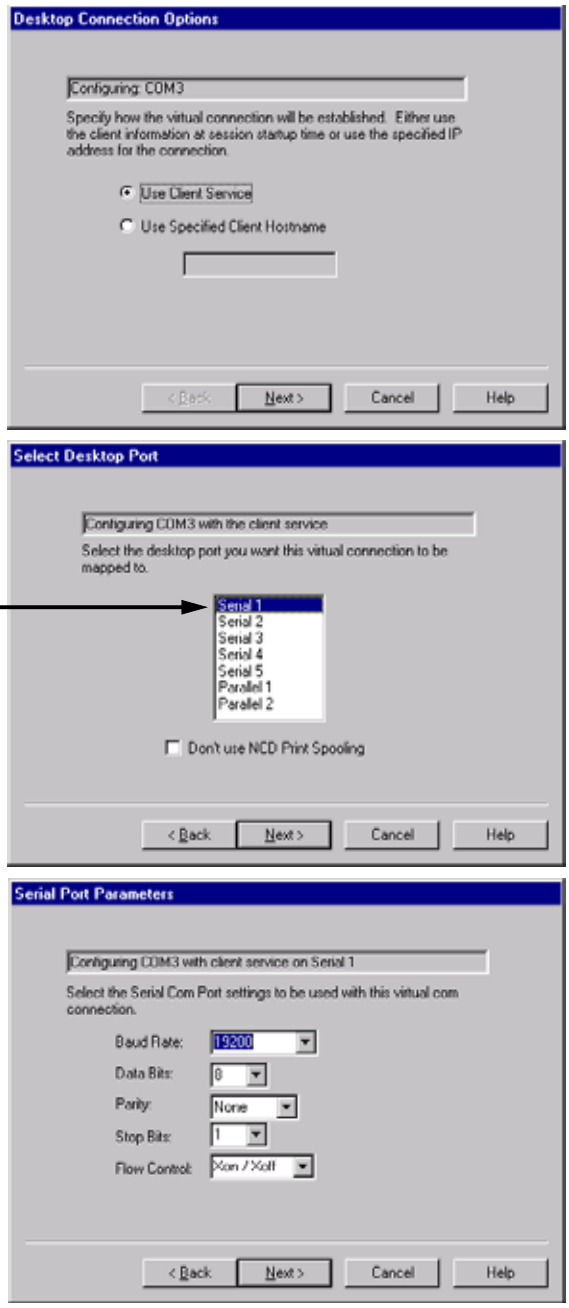


Figure 9 – Virtual port options, set by clicking Edit Port button

Defining Device Connections

To map a virtual COM or LPT port on the server to a specified serial, USB or parallel port on multiple devices:

1. Select **Start > Programs > ThinPATH Plus > ThinPATH Plus Configuration.**
2. Select a Terminal Server port (COM 3-9, LPT 2-9, or a virtual port that you have added).

   Note We recommend that you reserve LPT1, COM1, and COM2 for actual devices attached to the server. The word "Hardware" shows that a device is reserved.

   If you map a physical hardware port on the server as a virtual port, you cannot use the physical port on the server.
3. Click **Edit Port**, then map the port with **Use Client Service**.

   This maps a virtual port to the specified port of each client that logs into the server.
4. Select the desktop port to associate with the virtual port.
   - For a parallel port, click **Finish**.
   - For a serial port, click **Next**, then select default settings (baud rate, data bits, parity, stop bits, and flow control) for the connection and click **Finish**. Most applications override these, but serial printers often rely on them.
   - For USB devices select the serial n device corresponding to the local COM port being mapped by the USB to Serial drive. For example if the remote PC has 2 serial ports and one attached USB device using the USB to Serial driver, it will be mapped on the local PC as COM3. Select serial **3** when creating the virtual port on the server. Ignore serial port parameter settings and click **Finish**.
5. Click **Apply** to save the settings.

Verifying Device Connections

When data travels over a TCP/IP network, it may be delayed or interrupted. If software expects data to arrive within a certain time, it may time out while waiting and may conclude there is a hardware error.

We encourage you to test each device during client installation to determine whether there are any server timing issues when the device is attached to a desktop. Serial devices may not work properly, for example, if they use their own timeouts instead of the operating system's timeouts.

Adding Virtual Ports

Eighteen virtual ports are defined during installation, nine for LPT devices and nine for COM ports.

If you need more virtual ports, you can add them as needed, using ThinPATH Plus Configuration. You can also specify the maximum number of client ports. For example:

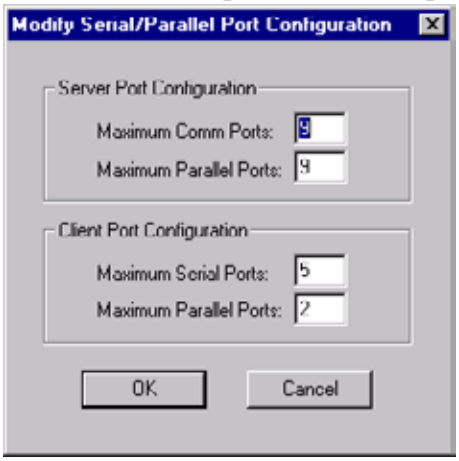


Figure 10 - Creating Additional Virtual Ports beyond the 10 default

To add virtual COM/LPT ports:

1. Select **Start > Programs > ThinPATH Plus > ThinPATH Plus Configuration.**
2. Right click on the **ThinPATH Plus Configuration** title bar.
3. Select **Modify Serial/Parallel Configuration**.
4. Set the maximum number of ports as needed and click **OK**.

   You can increase the maximum number of serial (COM) and parallel (LPT) ports on the server and on clients.
5. Restart the system so that it recognizes the new virtual ports.
6. Select **ThinPATH Plus Configuration** and configure the new virtual ports as needed.

Adding a Printer That Uses a Virtual Port

After you configure a virtual port for a printer, you can add the printer through Windows **Start > Settings > Printer** and associate the printer with an NCD virtual port.

Note You cannot use the printer from applications running on the server and from applications running on your local system. If you print from your local system, the printer port opens and remains open; as a result, the virtual port cannot access the port.

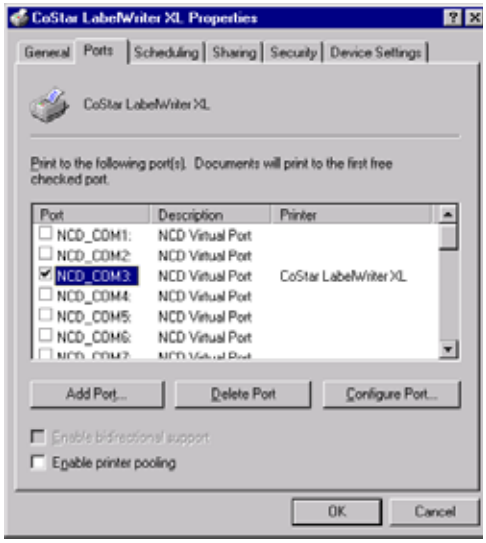
After you assign the device to a virtual port and edit the port, you add the printer. The following example shows how a label printer is configured in Windows 2003.

Adding a Printer

In Windows NT, you select **Start > Settings > Printers** and add the printer.

Here, the label printer has been added and named CoStar LabelWriter XL.

Setting Printer Properties



You do not use these buttons when printing through the server with NCD ThinPATH Plus.

When you add the printer, a wizard prompts for information, and stores the entries as printer properties.

One of the properties is the port, which must be one of the speciall defined NCD virtual ports. Here, the label printer has been associated with NCD_COM3.

Figure 11 - Creating ThinPATH Plus Printers for Users

To attach a printer to an PC, ThinPATH PC device, NCD ThinSTAR or Neoware thin client that is running the ThinPATH Plus client:

1. From the Windows Desktop, select **Start > Printers & Faxes**.
2. Double click **Add Printer**.
3. Select **Next** and choose **local printer** and click **Next** again.
4. Click to open the drop-down box labled **Ues the following local Port**.
5. Select the NCD virtual port you have configured for this device (you must click the port box to select it) and click **Next**.

   Note: Do not use **Create a new Port** here; do all NCD port

configuration through ThinPATH Plus Configuration.

6. Select the printer to associate with the NCD Virtual port.
7. Continue to set up the printer as you would for any Windows printer. Share this printer if you are going to be requireing DOS printing support for your users.

Using ThinPATH Plus Print Monitor

The Print Monitor provides queuing of multiple print jobs when multiple users are using the same printer definition. For example, if three users with their own desktop printers use the same printer definition and one user's print job fails and, as a result, that desktop printer goes offline, the other two user's print jobs are queued individually to their desktop printer and are not held up in the queue by the one failed print job.

The ThinPATH Print Monitor allows you to:

- Check on the status of a print job
- Pause a print job
- Cancel print jobs

Note By default, the virtual port is set to use the Print Monitor.

Turning Off the Print Monitor

To turn off NCD Print Monitor:

1. Select **Start > ThinPATH Plus > ThinPATH Plus Configuration**.
2. Select a Terminal Service Port and click Edit port.
3. Select how the virtual connection will be established and click Next.
4. Select **Don't use NCD Print Spooling**.

The change takes place immediately.

Checking Print Job Status

To check on the status of a print job:

From the Windows Desktop, select **Start > Programs > ThinPATH Plus > ThinPATH Print Monitor**.

The NCD Print Monitor window displays. If you are logged on as the administrator, the window titles indicates that you are in administrator mode.

Pausing Print Jobs

To pause a print job:

1. From the Windows Desktop, select **Start > ThinPATH Plus > ThinPATH Print Monitor**.
2. Select the print job you want to pause.
3. From the NCD Print Monitor dialog, select Document **> Pause.**

To send the job to the printer just select Resume.

Deleting Print Jobs

To delete a print job:

1. From the Windows Desktop, select **Start > Programs > ThinPATH Plus > ThinPATH Print Monitor**.
2. Select the print job you want to delete.
3. From the Print Monitor dialog, select Document **> Delete.**

To delete all the selected jobs, just select Delete All.

Print Monitor Functions For Administrators

As an administrator you can:

- Determine where temporary print job files are placed on the disk.
- Set a limit on the disk space that a print job can occupy.
- Delete print jobs that exceed the maximum temporary disk space.
- Set the print monitor to inform users when their print job has been deleted.
- Delete print jobs by category (by session ID, client printer or all outstanding print jobs for a server)

Configuring the Print Monitor

To configure the Print Monitor:

1. From the Windows Desktop, select **Start > Programs > ThinPATH Plus > ThinPATH Print Monitor**.
2. Select Admin > Configuration.
3. In the Print Monitor Configuration dialogue, enter:
   - the maximum temp disk space
   - the temporary file path
4. Check the box to delete print jobs that exceed the temporary disk space and inform the user that the job has been deleted, if desired.

Deleting Print Jobs by Category

You can delete print jobs by category (session, individual client printer or all outstanding jobs on a server) rather than delete individual print jobs. To delete print jobs by category:

1. From the Windows Desktop, select **Start > Programs > ThinPATH Plus > ThinPATH Print Monitor**.
2. Select Admin > Delete Jobs by Categories.
3. In the Delete Jobs by Category dialog, select one of the following:
   - Session ID
   - Client Printer
   - All outstanding jobs on this server
4. In the appropriate dialog, select your session ID, printer, or all print jobs for a specific server to be deleted.
5. Click OK or yes to delete your print jobs.

Printing from DOS Applications

ThinPATH Plus provides the ability to print from DOS application that can only print to LPT when the application is running on a remote connection to Windows Terminal Services.

Set up ThinPATH Plus to support printing from an older DOS application that can only print to a local LPT device:

1. Select **Start > Programs > ThinPATH Plus > ThinPATH Plus Configuration**
2. Select LPT3 and click on **Edit**.
3. Set the following values.
    1. **Use Client Services** is checked.
    2. Map LPT5 to Hardware port Parallel port 1
    3. NCD Print Spooler enabled
4. Create a local Printer using local port NCD-LPT3 logged in as Administrator on the console and set printer for sharing. The share name will be used in the next step.
5. Login in as a the normal user through on the Terminal Services session and map DOS device LPT to printer share name;

    NET USE /PER LPT: \\servername\printerShareName

    This will map LPT to the printer created in step 4 and only needs to be done once.
6. Test from a DOS window by typing; **type somefile.txt > lpt**

This will send the file “somefile.txt” to the DOS LPT device

and then to the print spooler defined above. The Print spooler will send it to the Virtual port NCD-LPT3 which will direct it to the IP address defined by the Windows session environment variable **CLIENTADDRESS**. The ThinPATH Plus establishes a TCP/IP network socket Port 6464 connection to the local PC and the local PCs ThinPATH Plus client sends it to the local parallel port 1.

ThinPATH Plus through the Internet

Getting ThinPATH Plus to communicate through the Internet usually means you must be familiar with Firewalls and Network Address Translation (NAT). ThinPATH Plus can work in this environment if you understand how ThinPATH Plus communications are established and have a basic understanding of NAT and Firewalls.

These problems can easily be eliminated when running a VPN between the Client device and Windows Terminal Services server. The VPN network will make the Client device and Windows Terminal Services server appear as if they are on the same local area network. If a VPN is being used the considerations and requirement described below will not be necessary.

ThinPATH Plus Client Server TCP/IP Communications

ThinPATH Plus initiates a TCP/IP connection from the Windows Terminal Services server to the remote client device. This requires the **client side network** connection to not be running a firewall or open the necessary TCP incoming ports required for ThinPATH Plus.

How ThinPATH Plus establishes a connection while in a Windows Terminal Services user session:

1. A print job is sent to a printer on the server configured to use a ThinPATH Plus Virtual port while logged into a Terminal Services session (RDP or ICA) from the remote client device.
2. The Terminal Server's Print spooler sends the print job to the Virtual port, say NCD-LPT3. The ThinPATH Plus server establishes a temporary TCP connection from the server to the

remote client device and sends the print data.

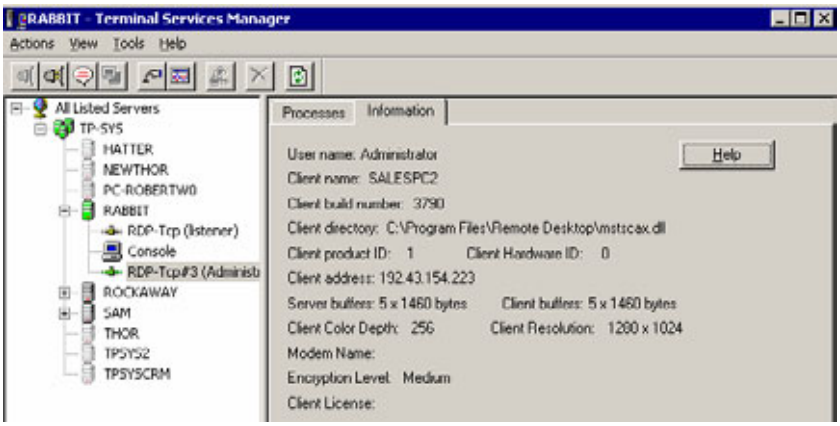
3. However, before making a TCP connection to the remote client device the ThinPATH Plus server must determine the correct IP or host name. When the ThinPATH Plus virtual port was created, if the specific IP address or host name was entered **Use Client Services** not checked then this vale is used to open a TCP/IP connection. When the Virtual port was created with **Use Client Services** checked see discussion below on the ThinPATH Plus Server can automatically get the IP address from the active Terminal Server session.

Determining the Remote Clients IP Address

ThinPATH plus can automatically determine the remote client device's IP address. This is controlled by the setting, **Use Client Services** check box when creating the ThinPATH Plus virtual port. When this box is check the IP address is derived from one of two environment variable created when the RDP or ICA session is established, **CLIENTNAME** or **CLIENTADDRESS**.

To view these values:

1. From your Terminal Servers session, open the **Terminal Services Manager window**, and select the **session name** associated with your Terminal Server session on the left.
2. On the right side of the window select the **Information Tab**.



3. There will be a list of environment variables assigned to this user's session, look for **CLIENTNAME** and **CLIENTADDRESS.** If Client Address is defined this value will be used, otherwise it will use the Client name value.

ThinPATH Plus server uses this IP address or host name to automatically determine which host to connect to. If there is an IP address in "Client address", that address must be reachable through the network between the ThinPATH Plus server and the ThinPATH Plus client on the remote client device. If there is only a "Client name" value established the name must be resolvable by the Terminal server host.

When using NAT

When using NAT (Network Address Translation), the IP address defined by the **CLIENTADDRESS** environment variable is many times the Network Router connected to client device and not the actual PCs IP address. Normally the routers IP address is a known Internet IP address and the remote client device is using a local NAT type address which is not visible to the Terminal Services server.

The ThinPATH Plus server needs to make contact to ThinPATH Plus client service running on the remote client device. There needs to be a one to one mapping of real Internet IP address to internal NAT address so the **CLIENTADDRESS** value truly represents the IP of the client device.

On the Net work Router connected to the client device requires a port forward be established to route IP traffic for TCP port 6464 directed to the local client device.

TCP/IP Port Usage

ThinPATH Plus uses TCP/IP client server technology to communicate between the Windows 2003 Terminal Services server PC and Windows Client PCs or supported Thin Client devices. Here is a list of TCP/IP port numbers used by the ThinPATH Plus software. If using a firewall at the client device the TCP ports must be opened on the firewall.

Phisical Port on client device	Port Number
Serial 1	TCP 6461
Serial 2	TCP 6462
Serial 3	TCP 6463
Parallel 1	TCP 6464

Figure 12 - TCP/IP Port Usage

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