.print RDP Engine

Print management for Remote Desktop Connections
to Microsoft Terminal Servers (version 7.6.5)

Manual

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Safety warning

All ThinPrint products are pure software solutions. Please note the safety warnings in the technical documentation from your hardware vendor and from the manufacturer of each device and component. Before beginning installation, we recommend closing all windows and applications and deactivating any virus scanner.

How to use this manual

The following conventions are used throughout this manual to represent recurring actions and text types.

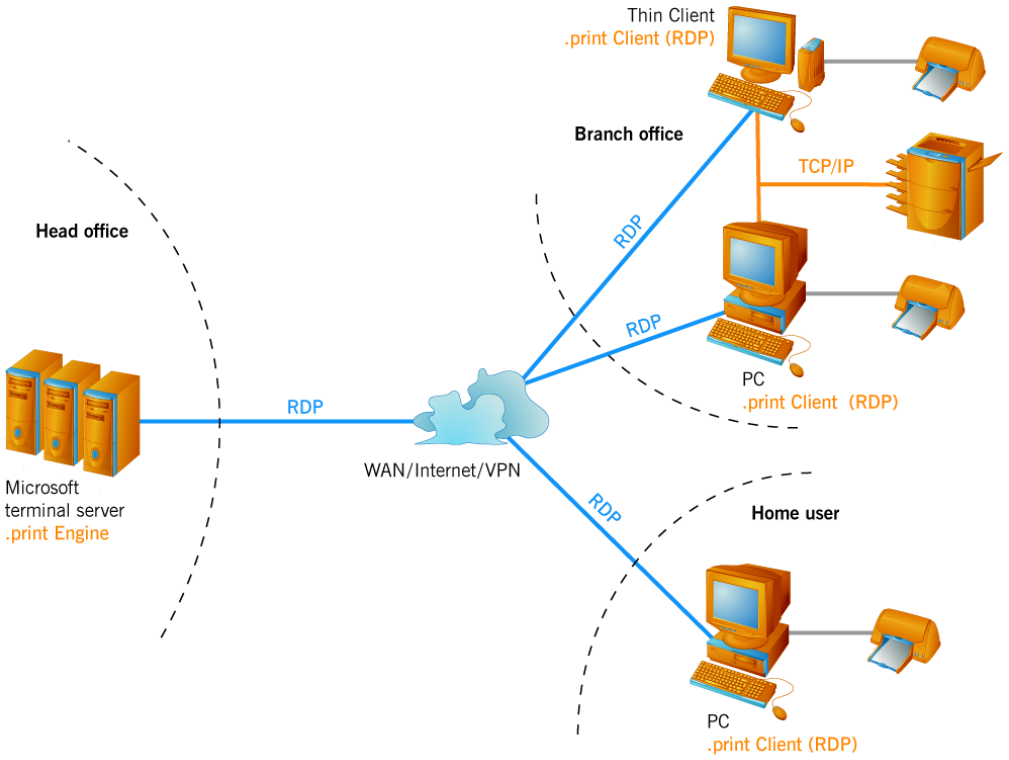
Conventions

Note!	Important tip, explanation, exception
SMALL CAPS	Menu, command, dialog panel, option
Italic “Name”	Proper name, emphasis, variable
`Courier`	Keyboard input
→	Consecutive menu or command
■	Enumeration, head note
Example	Example
– 1. 2.	Procedural steps
Page 5 www.cortado.com	Links

Introduction

What is ThinPrint .print?

ThinPrint .print optimizes printing in almost any environment. With the inexpensive .print RDP Engine, smaller businesses and even home workers can use .print technology on Microsoft terminal servers – with a minimum of effort for installation and administration. The .print RDP Engine enables printing via the Remote Desktop Protocol (RDP) as well as the patent pending **Driver Free Printing** process, with high compression of print data.



Illus. 1 Possible scenario for running ThinPrint .print

Driver Free Printing

Thanks to this technique, time-consuming server-side installation and administration of printer drivers is no longer necessary. Printer driver conflicts on terminal servers are also a thing of the past. This is enabled by a special component, the ThinPrint Output Gateway, which simulates a printer driver[1] and sends compressed print data to the client PCs[2] in a printer independent format.

The printer drivers are only installed on the client PCs. That means that any type of printer can be used on any printer port; e.g., multifunctional devices (printer, fax, copier, and scanner in one device) on a USB interface or a laser printer on a bidirectional interface.

1 See the MODEL column in the PRINTERS (AND FAXES) folder (Illus. 11)
2 Requirement: Windows 95 and higher

Advanced Adaptive Compression

Furthermore, .print Engine combines the efficient Driver Free Printing system with a completely new kind of compression, the **Advanced Adaptive Compression**. This method analyzes the individual components of a print job and compresses each with the respective best algorithm before transmitting the data.

.print Engine, .print AutoConnect, and .print Clients

On the server side, a .print Engine is installed on each terminal server. .print Engine is responsible for print data compression and Driver Free Printing. It then sends the print jobs to the .print Client.

The .print AutoConnect program automatically creates the necessary printers in the terminal sessions (Illus. 11); .print AutoConnect is a component of .print RDP Engine and is installed with it.

A .print Client is required on each client machine (PC or thin client). It receives the print jobs from the .print Engine, decompresses them and forwards them to the selected printer. The .print Client supports all available interfaces, including USB, infrared, and Bluetooth. Moreover, it enables printing with network printers – both with LPR/LPD printing and printing to Windows shares.

If a .print Client is installed on a Windows computer (Windows 95 or later), .print Engine automatically sends it print data using the methods of Driver Free Printing and Advanced Adaptive Compression. All other types of .print Clients (e.g., .print Client WinCE) receive completely rendered print jobs, which are also compressed, although not with Advanced Adaptive Compression.

Package contents

The .print RDP Engine product CD contains:

- This manual
- The installation program Setup.exe for .print Engine
  (under ...\Software\.print Engine or ...\Software\.print Engine x64)
- The installation program for the .print Client Windows
  (under ...\Software\.print Clients)

Other .print Clients – in particular embedded in thin clients – can be requested by e-mail at info@thinprint.com

In addition, you should have received a license key from your reseller or by e-mail from ThinPrint (license key type: TRDP-0388-1-xxxxxx-xxxx for 32-bit systems or TADP-0388-1-xxxxxx-xxxx for x64 systems).

Installation

Administrator permissions

Administrator permissions are required for all installation and configuration procedures. It is therefore best to log on under Windows as ADMINISTRATOR.
To manage printers on Windows Server 2008 machines as an administrator use START→ PROGRAMS→ .PRINT ENGINE→ PRINTERS and with Windows Server 2008 R2 use “Print Management” in the MMC.

Technical restrictions

Your architecture must meet certain requirements to run .print Engine. Please ensure that the following network, server and client requirements are met.

Network

ThinPrint .print works in a network architecture. One of the following must be installed:

- RDP network with at least one printer

IPv4 has to be enabled for all involved machines.

.print Engine

ThinPrint .print requires the following:

Supported server operating systems with .print RDP Engine v7.6.5

- Windows Server 2003 with Service Pack 1 or later
- Windows Server 2003 x64 with Service Pack 1 or later
- Windows Server 2008 with Service Pack 1 or later
- Windows Server 2008 x64 with Service Pack 1 or later
- Windows Server 2008 R2

Windows Server Cores are not supported.

Minimum hardware requirements

32 bit:	Intel Pentium/Celeron, AMD K6/Athlon/Duron or compatible processor with 733 MHz, 256 MB RAM, 3.5 MB of available hard disk space
x64:	AMD Opteron, AMD Athlon 64, Intel Xeon with Intel EM64T, Intel Pentium with Intel EM64T, system clock 1,4 GHz, 512 MB RAM, 10 MB of available hard disk space

.print Clients

- PCs: Windows 7, 7 x64, Vista, Vista x64, XP, XP x64, 2008, 2008 x64, 2003, 2003 x64[3];
  Minimum PC hardware requirements:
  Intel Pentium/Celeron, AMD K6/Athlon/Duron or compatible processor with 233 MHz, 128 MB RAM, 1.1 MB of available hard disk space, a network interface card and/or a modem and/or a ISDN interface card
- Thin clients: with embedded .print Client (RDP); see Page 31.

Installing .print Engine (per terminal server)

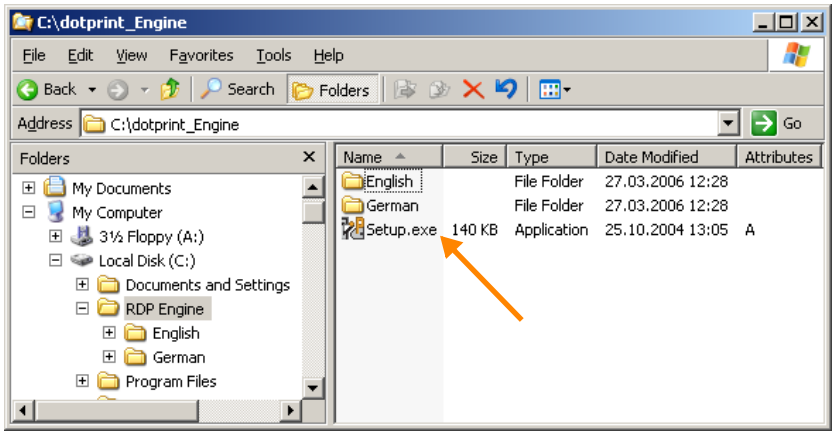
Update

For update installation, see “Updating .print Engine” (Page 29).

Installation with the .print Engine installation wizard

1. Copy the ThinPrint server software to the terminal server’s hard disk and start **Setup.exe** (Illus. 2).

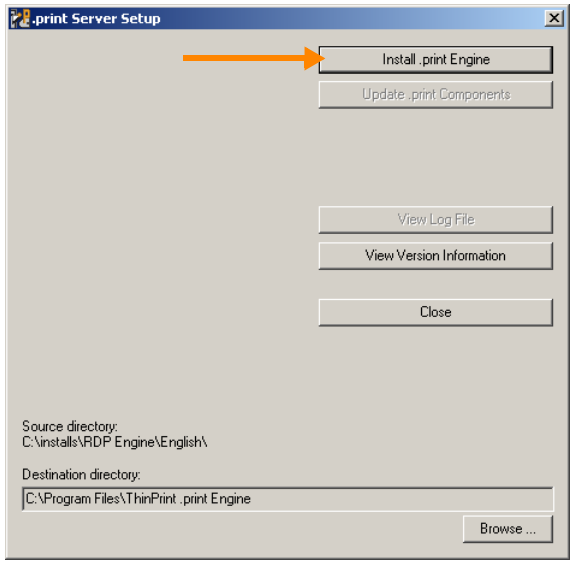
> **Note!** Before beginning installation, we recommend closing all windows and applications and deactivating any virus scanner. Also be aware that after installation .print Engine will only become functional after a Windows restart (Windows Server 2003 only).



Illus. 2 Starting installation program Setup.exe (example for Windows Server 2003)

2. Choose a language and click OK to confirm.
3. Read the license agreement and ACCEPT it. The menu in Illus. 3 will open.
4. If desired, select the destination directory of the program files (BROWSE button).
5. Select INSTALL .PRINT ENGINE.

3 For older client operating systems use .print Client 7.0.

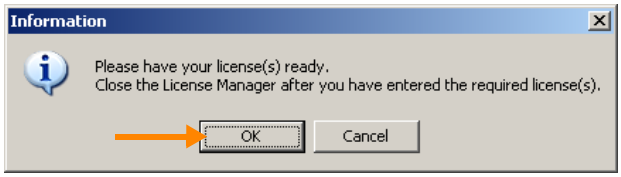


Illus. 3 .print Engine installation menu: Click INSTALL .PRINT ENGINE

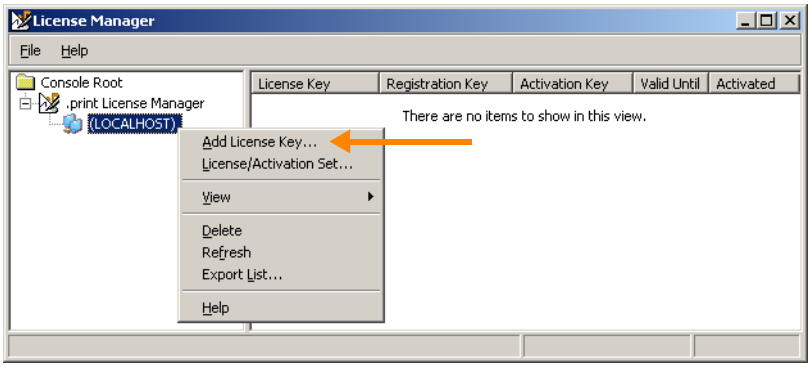
License Manager

Entering license keys

6. The prompt shown in Illus. 4 reminds you to have the .print RDP Engine (demo) license key ready. Click OK, and the License Manager will open (Illus. 5).

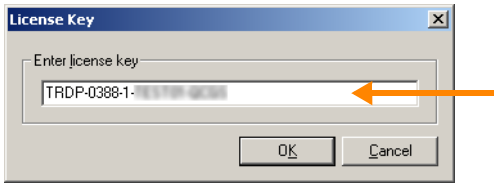


Illus. 4 Tip: Have (demo) license key ready (example for Windows Server 2003)



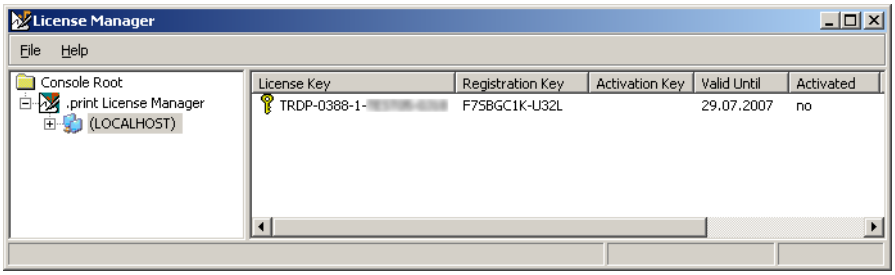
Illus. 5 License Manager: select ADD LICENSE KEY

7. Select ADD LICENSE KEY in the context menu of the LOCALHOST server node (Illus. 5) and enter a license key for the .print RDP Engine. (If you do not have license keys, contact your reseller.)



Illus. 6 Enter license key (example for Windows Server 2003)

8. Click OK to confirm (Illus. 6). The license key now appears under LICENSE KEY (Illus. 7).



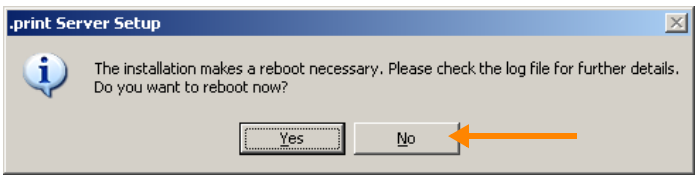
Illus. 7 License key entered (example for a 32-bit system)

9. Close the License Manager to continue with the installation.

Note! Once a license key has been entered, it is valid without activation for 30 days. See Page 26 for information about activating licenses.

10. To complete installation the server needs to be restarted (Windows Server 2003 only). You can do this immediately (YES in Illus. 8). Or if you choose NO the ThinPrint software will become operational next time the server is restarted.

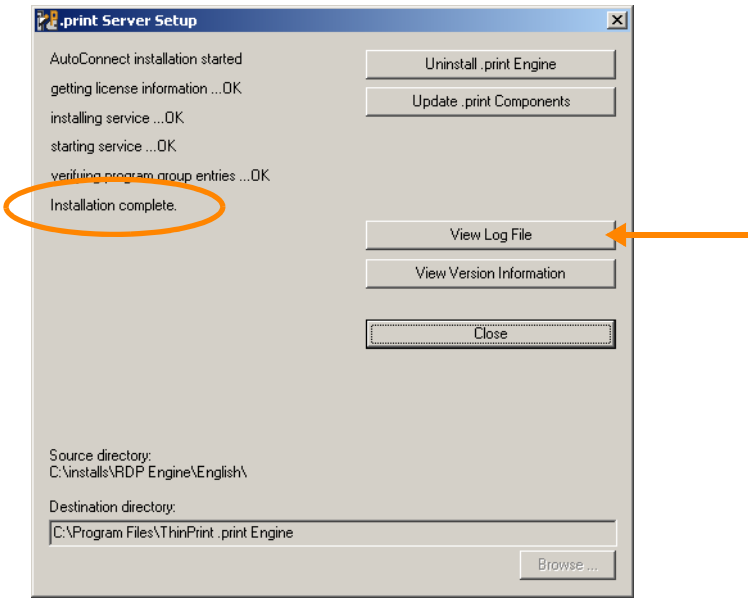
Caution! Before you restart the server make sure that no data will be lost. Ensure that all applications are closed, no terminal sessions are open, and no print jobs active. Selecting YES will **Restart immediately**. If in doubt, select **No** (see arrow in Illus. 8).



Illus. 8 Restart the server: Now or later? (Windows Server 2003 only)

If you selected NO, .print Engine installation has been completed successfully when the statement “Installation complete” in the installation menu appears (Illus. 9). (Note: Enter the installation window via START→ PROGRAMS→ .PRINT ENGINE→ SETUP.)

11. To view or copy the installation protocol click VIEW LOG FILE (recommended, arrow in Illus. 9).
12. CLOSE the .print Engine installation menu (Illus. 9).
13. Confirm all open windows of the Windows control panel with NEXT, FINISH, or CLOSE.



Illus. 9 Closing the .print Engine installation menu

Version numbers and update log

The .print Engine installation program offers two further useful options (Illus. 41):

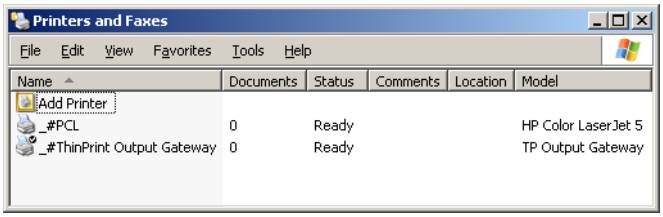
- VIEW VERSION INFORMATION displays which files are installed where on your system and allows you to save this information to a file.
- VIEW LOGFILE is used to monitor the installation as well as to save this information to a file. **This button is only available immediately after installation and cannot be used afterwards**; Illus. 9.

Templates

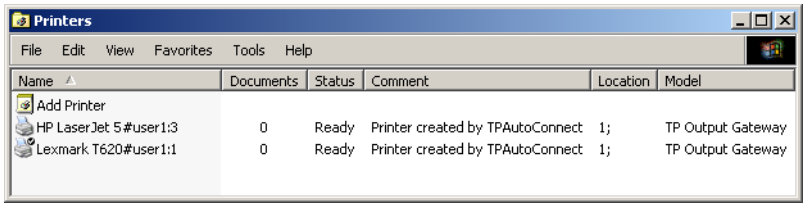
After installation, two new printers are found in the PRINTERS (AND FAXES) folder. Open this folder as follows:

- Windows Server 2003: START→ SETTINGS→ PRINTERS AND FAXES; Illus. 10
- Windows Server 2008: START→ PROGRAMS→ .PRINT ENGINE→ PRINTERS
- Windows Server 2008 R2 use “Print Management” in the Microsoft Management Console (MMC)

These printers are templates for .print AutoConnect. In other words, when a user establishes a connection to the terminal server, local printers (installed on the workstation) are created for her/him in the RDP session; these session printers inherit the printer driver from one of the two templates (see MODEL column in Illus. 10 and 11).



Illus. 10 Two printer templates in the server's PRINTERS (AND FAXES) folder



Illus. 11 Printers automatically created in a terminal session – using the _#ThinPrint Output Gateway template (example)

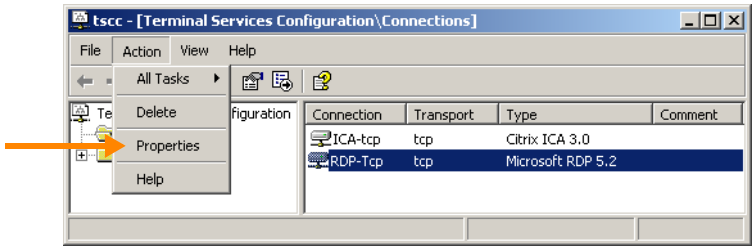
Configuration options for ThinPrint Output Gateway are described on Page 17.

Disabling Windows printer mapping

By default, .print RDP Engine automatically creates client printers in every terminal session. When printing these printers use the ThinPrint features *compression* and *Driver Free Printing*. To prevent a simultaneous creation of printers which don't use the ThinPrint features – thus to simplify the selection of a .print printer within a session –, the Windows automatic printer mapping function should be disabled within and outside of the session. To do so:

Disabling client printer mapping

1. In Windows Control Panel, select ADMINISTRATIVE TOOLS(→ TERMINAL SERVICES)→ TERMINAL SERVICES CONFIGURATION.
2. Click on the RDP-TCP connection and select ACTION→ PROPERTIES (Illus. 12)



Illus. 12 Opening RDP configuration

3. Disable the mapping functions (arrows in Illus. 13). Confirm with OK.

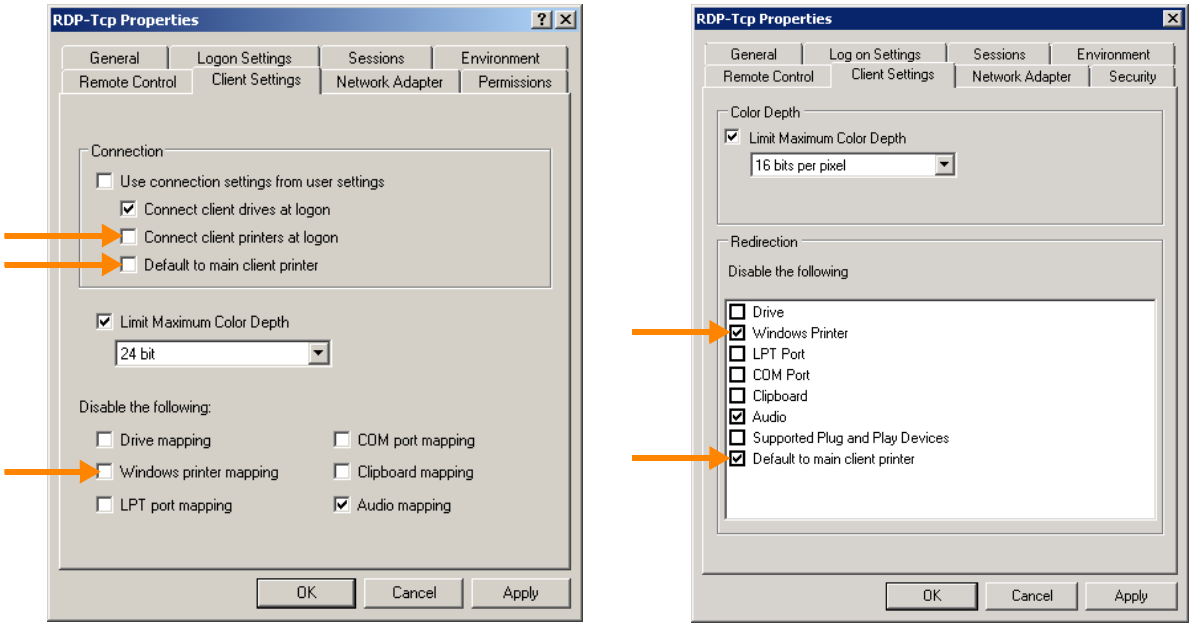
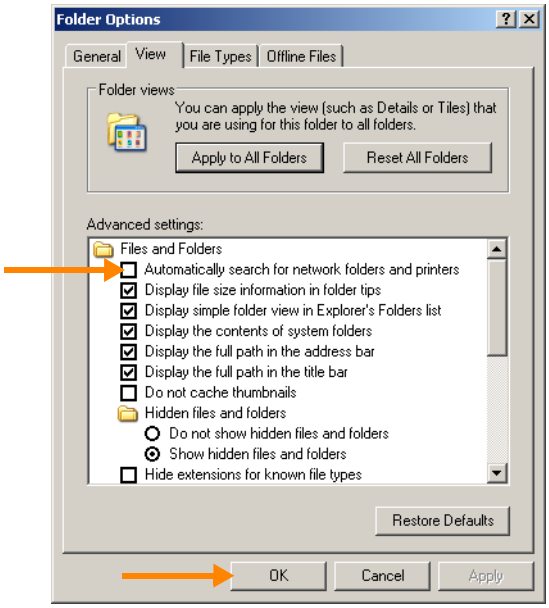


Bild 13 Terminal session settings for printer mapping (Windows Server 2003 and 2008)

Disabling printer share mapping

Windows Server 2003 only:

1. In Windows Explorer, select TOOLS→ FOLDER OPTIONS→ VIEW.
2. Disable the AUTOMATICALLY SEARCH FOR NETWORK FOLDERS AND PRINTERS function (Illus. 14). Confirm with OK.



Illus. 14 Explorer settings for printer mapping

Installing .print Client Windows (RDP; per client machine)

The RDP version of .print Client must be installed on the client machines to receive *.print* print data. You can use a thin client with integrated .print Client, or install the .print Client onto a PC or a thin client.

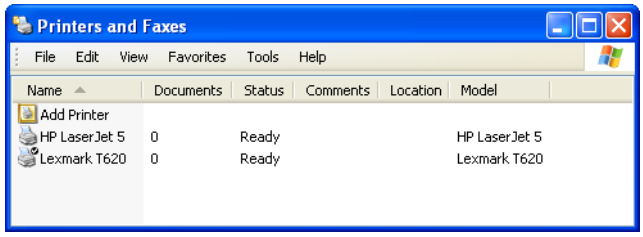
...on a Windows PC

Below is a description of installing the accompanying .print Client Windows (RDP).

1. Copy TPRDP_x86_enu.msi or TPRDP_x64_enu.msi from the client directory on the product CD or from ThinPrint's website onto the relevant workplace PC.

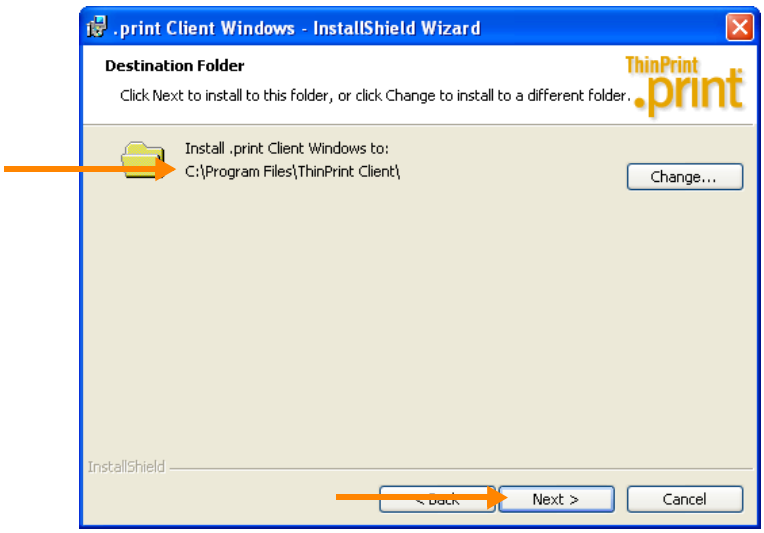
Install .print Client Windows (RDP) as follows:

2. Before beginning installation of .print Client, install at least one local printer (Illus. 15). (Additional printers can be installed later at any time.)



Illus. 15 Locally installed printers;
Windows default printer: Lexmark T620 (example)

3. On Windows 7, XP and 2003 run **TPRDP_x86_enu.msi** and on all x64 machines run **TPRDP_x64_deu.msi**.
4. Following select NEXT.
5. Read the license agreement and accept its terms with NEXT.
6. Select the installation path (Illus. 16) and click NEXT.
7. Following select INSTALL.
8. Click FINISH to complete the installation.



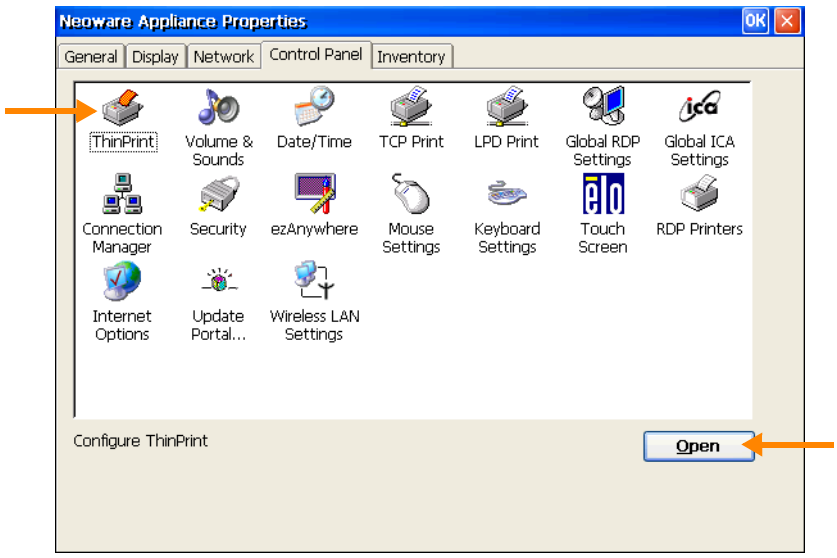
Illus. 16 Installing .print Client Windows (RDP): path selection

Illus. 17 .print Client in the task bar

Once installation is complete, .print Client Windows (RDP) will be started when a RDP session is begun; its icon appears in the task bar on the local Windows machine (Illus. 17).

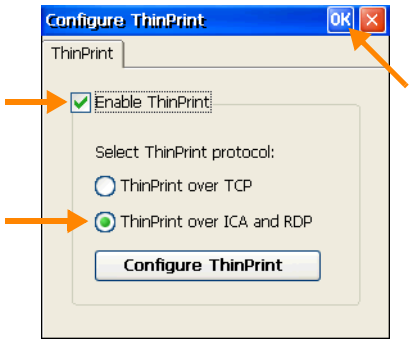
...on a thin client

- Load .print Client into your CE device (tpcce.exe and tpcce.dll version 5.5.230 or later), if it is not already integrated in your device. Instructions can be found in the manual for your CE device.
- Change to the device setup (control panel) for your thin client (Illus. 18; with thin clients, this is often in the start menu with the F2 key)[4].



Illus. 18 .print Client WinCE in the control panel (example for Neoware terminals)

- Open the control panel on the thin client and select THINPRINT (click OPEN, Illus. 18).
- Enable .print Client (ENABLE THINPRINT in Illus. 19).
- Select the print protocol ICA/RDP and confirm with OK.



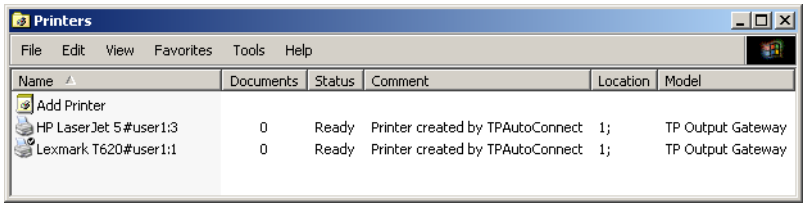
Illus. 19 Selecting and enabling .print Client WinCE (example for Neoware terminals)

4 If you cannot find .print Client or ThinPrint Client in the device setup, please check whether ThinPrint .print is supported by your device (Page 31).

Printing

Print process

– Establish a remote desktop connection[5] from a PC or thin client to the terminal server and log on (in this example, as “user1”). The printers on the PC or thin client appear in the session‘s PRINTERS (AND FAXES) folder (Illus. 20).
– Open an application and print using these printers.



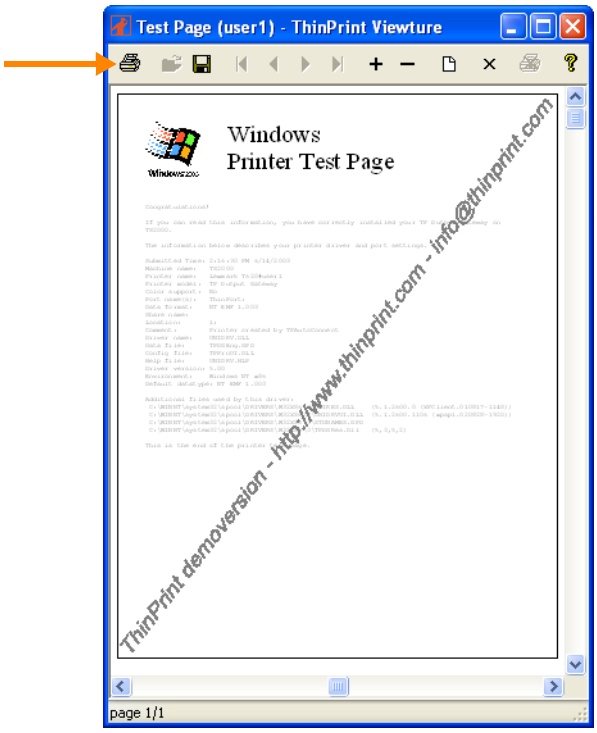
Illus. 20 Printers from “user1” automatically created in a terminal session (example)

Printing with preview

Once the print preview is enabled (Illus. 31) the print job appears in the .print viewer (= ThinPrint Viewture; Illus. 21). Here you can:

- Print to any local printer
- Navigate in documents with more than one page
- Zoom
- Cancel print job reception
- Save print jobs in .tpf format[6]

5 Also: RDP session, terminal session, or connection as terminal services client
6 The ThinPrint Viewture program is needed for reloading a saved print job; see Page 31.



Illus. 21 Preview with ThinPrint Viewture on the client computer (water mark = demo version)

Configuration (optional)

All .print RDP Engine server and client components can be used immediately after installation. The following configuration options are available for adjusting the individual features to your specific requirements.

Template presettings on the server (administrators only)

The following settings for the **_#PCL** and **_#ThinPrint Output Gateway** templates can be made in the server's PRINTERS (AND FAXES) folder. They will then apply to all printers that are created in a terminal session using the respective template. The _#ThinPrint Output Gateway template is used for all Windows computers (Windows 95 or later) – the _#PCL template is used for all other clients.

Note! To manage printers on Windows Server 2008 machines as an administrator use START→ PROGRAMS→ .PRINT ENGINE→ PRINTERS and with Windows Server 2008 R2 use "Print Management" in the MMC.

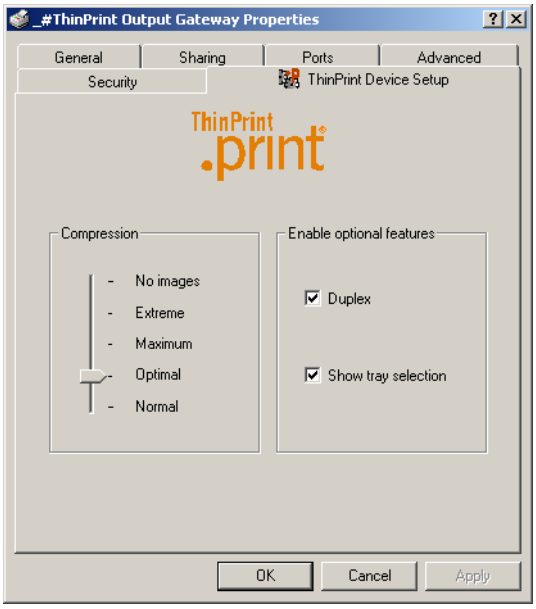
_#ThinPrint Output Gateway

– Select FILE→ PROPERTIES→ THINPRINT DEVICE SETUP for the _#ThinPrint Output Gateway template in the server's PRINTERS (AND FAXES) folder.

There are five options available for print data **compression** (Illus. 22):

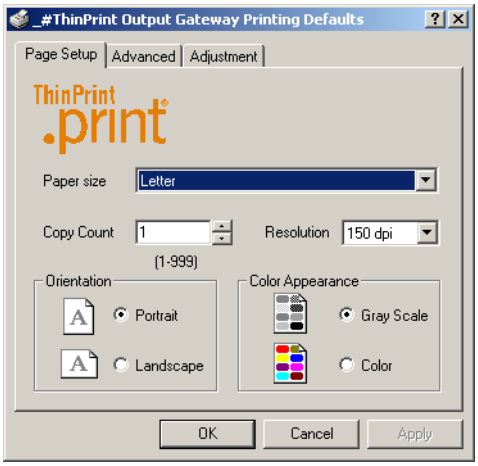
- Normal — Lossless
- Optimal — Lossy but with good image quality
- Maximum — Lossy, with average image quality
- Extreme — Greatest possible compression without regard to image quality
- No images — Lossless, but only text will be printed

The additional options DUPLEX and PAPER SOURCES can also be enabled for users.



Illus. 22 Printer properties of the _#ThinPrint Output Gateway template: compression level set and tray selection enabled

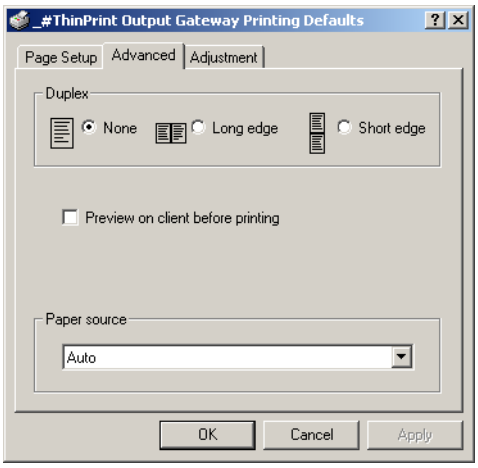
– Select: ADVANCED→ PRINTING DEFAULTS.
Here, you can edit page and color settings (Illus. 23), including RESOLUTION and COLOR or GRAY SCALE.



Illus. 23 ThinPrint Output Gateway: presetting paper format, resolution, color, etc., on the server

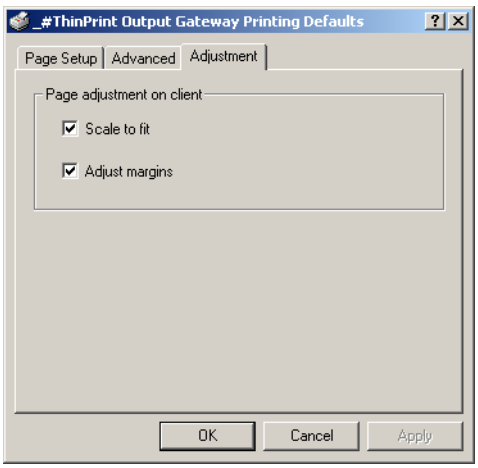
If the printer installed on the client has these options[7], you can edit the following settings for double-sided printing under ADVANCED (Illus. 24): LONG EDGE or SHORT EDGE (= turn over edge).

If the user is to have a printable preview of each printout, enable PREVIEW ON CLIENT BEFORE PRINTING. From this preview any client printer option can be selected.



Illus. 24 ThinPrint Output Gateway: presetting preview, duplex option and paper tray on the server

ADJUSTMENT offers options for the default procedure if the printable area of the document and of the printer driver's paper format don't match. The option SCALE TO FIT changes the size of the printout, ADJUST MARGINS moves the zero point (Illus. 25). It is recommended to leave the template settings enabled (Page 23).



Illus. 25 ThinPrint Output Gateway: presetting scaling and margin adjustment on the server

_#PCL

There are a few settings in the PRINTERS (AND FAXES) folder that can be also preset for the printers to be created with the _#PCL template (Illus. 26). To manage printers on Windows Server 2008 machines as an administrator use START→ PROGRAMS → .PRINT ENGINE→ PRINTERS and with Windows Server 2008 R2 use "Print Management" in the MMC.

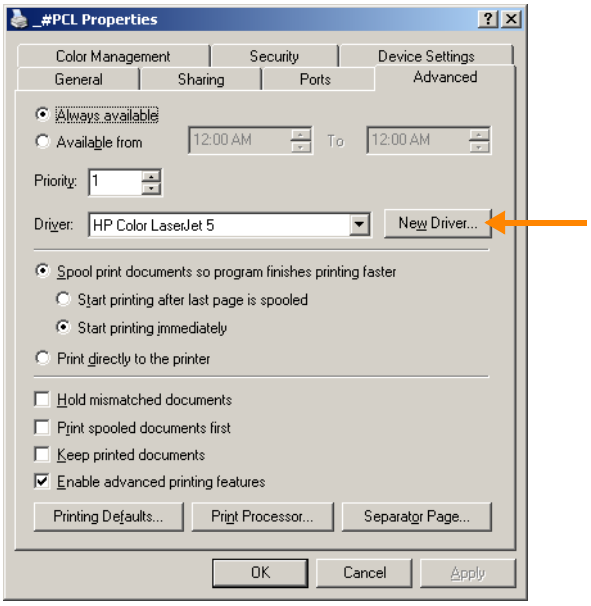
7 Otherwise these settings have no effect.

Mark the template and then proceed as follows:

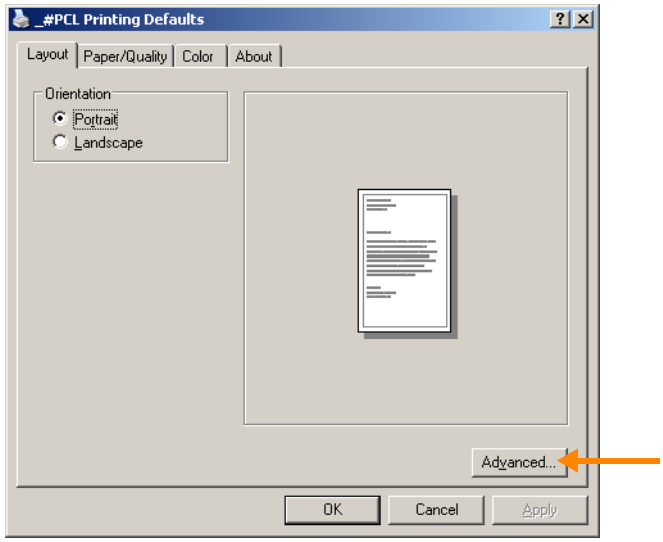
– Select FILE→ PROPERTIES→ ADVANCED.
  If needed, you can specify a different printer driver here for printing to non-Windows client (Illus. 26).
  By default, the following printer drivers will be installed with the _#PCL template printer (by the .print RDP Engine installer):
  • Windows Server 2003: HP Color LaserJet 5
  • Windows Server 2008: HP Color LaserJet Family Driver PCL5
  • Windows Server 2008 R2: HP Color LaserJet 2700 Series PCL6

Caution! If you change the printer driver you have to select a matching print processor too.

– Next, select: ADVANCED→ PRINTING DEFAULTS.
  Here, you can preset all printer properties for the selected printer driver (Illus. 27).



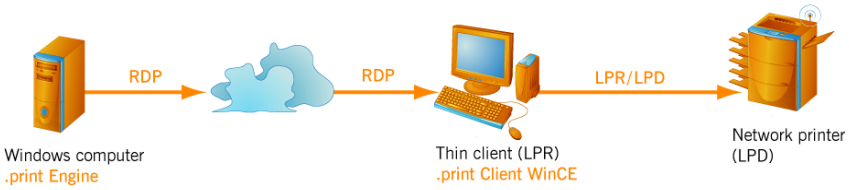
Illus. 26 Printer properties of the _#PCL template



Illus. 27 Presetting printer properties of the _#PCL template

LPR/LPD printing with Windows CE or Linux thin clients

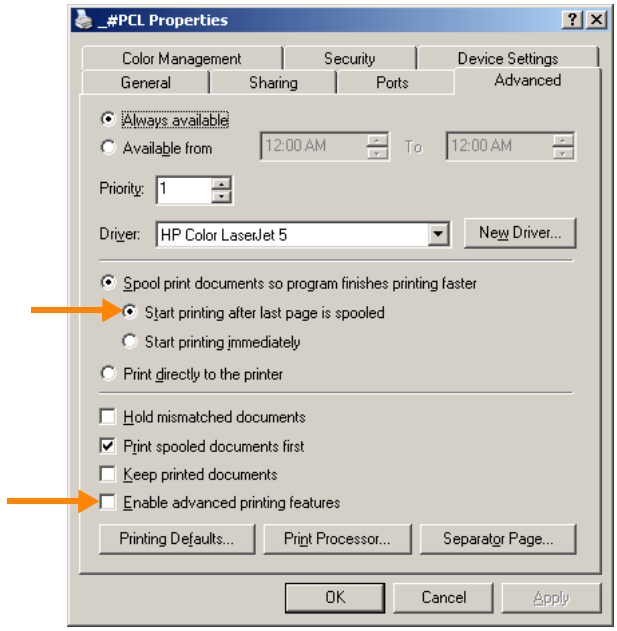
Windows CE and Linux thin clients are capable of forwarding print jobs to LPD devices. The .print Client WinCE (RDP) is installed on a thin client and can then receive *.print* print jobs and send them directly to internal or external print servers of network printers (Illus. 28). All .print Clients WinCE in version 5.5 and later support LPR/LPD printing. For Linux use the HP Compaq t5125 Thin Client.



Illus. 28 LPR/LPD printing via Windows CE or Linux thin clients

Preparations on the server

- Make sure that the printers completely spool the print data on the hard drive before sending on the machine the .print Engine is installed on. To do so, select GENERAL under PRINTER PROPERTIES (Illus. 29).
- Select START PRINTING AFTER LAST PAGE IS SPOOLED.
- Disable the ADVANCED PRINTING FEATURES.

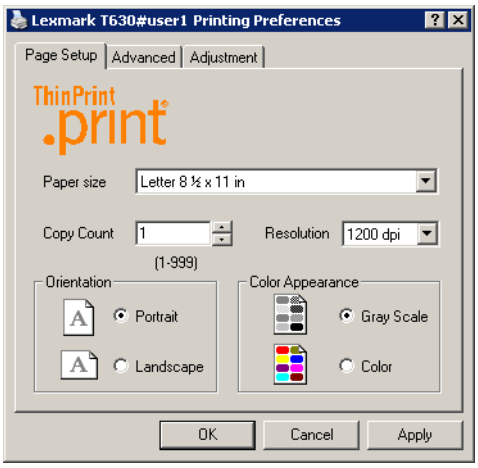


Illus. 29 Preferences for client-side LPD printing on the server

Printer settings in a terminal session just before printing

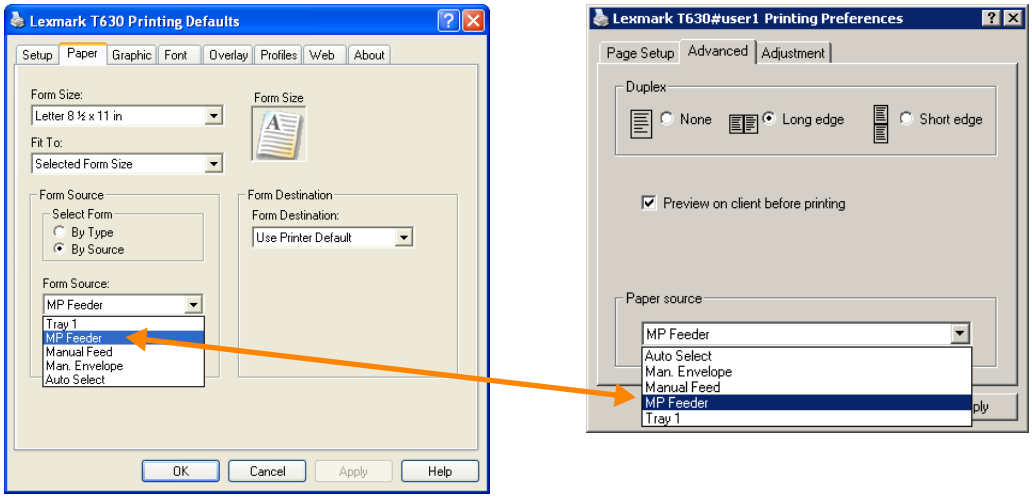
It is possible for users (in a session) to change some printer settings before printing. Users with Windows clients can edit the page and color settings below. Windows users can select the following for ThinPrint Output Gateway:

The following settings can be edited under GENERAL→ PRINTING DEFAULTS (Illus. 30): PAPER SIZE, COPY COUNT, PRINT RESOLUTION, PORTRAIT or LANDSCAPE, and COLOR or GRAY SCALE.



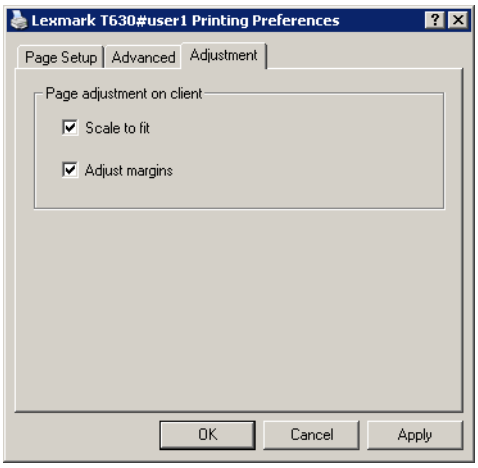
Illus. 30 Specifying paper size, print resolution, color, etc., in a terminal session

If the printer supports it, there are settings for double-sided printing under ADVANCED (see Illus. 31, right; LONG EDGE or SHORT EDGE) as well as paper tray or PAPER SOURCE. If you want a printable page preview (Illus. 21), select PREVIEW ON CLIENT BEFORE PRINTING.



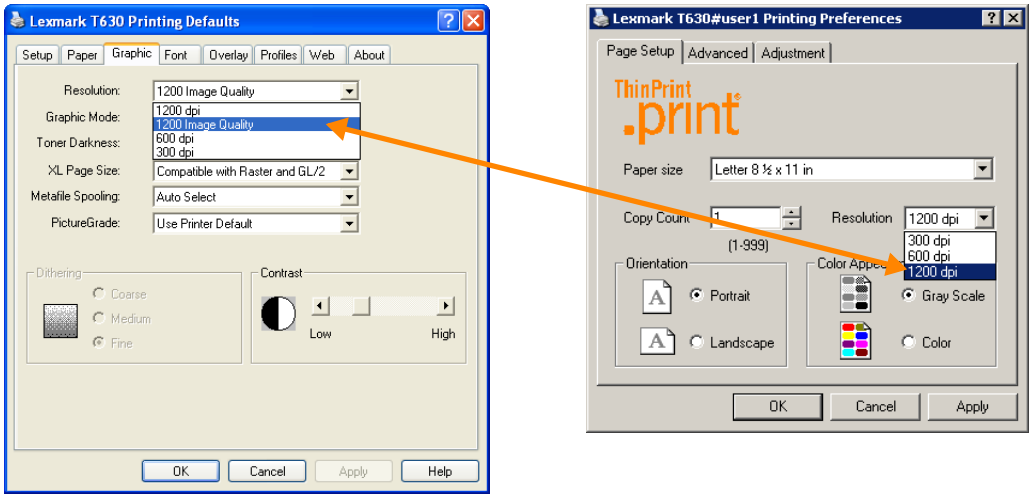
Illus. 31 Display of paper sources on the client (left) and in a terminal session (right)

ADJUSTMENT offers options if the printable area of the document and of the printer driver's paper format don't match. The option SCALE TO FIT changes the size of the printout, ADJUST MARGINS moves the zero point (Illus. 32).

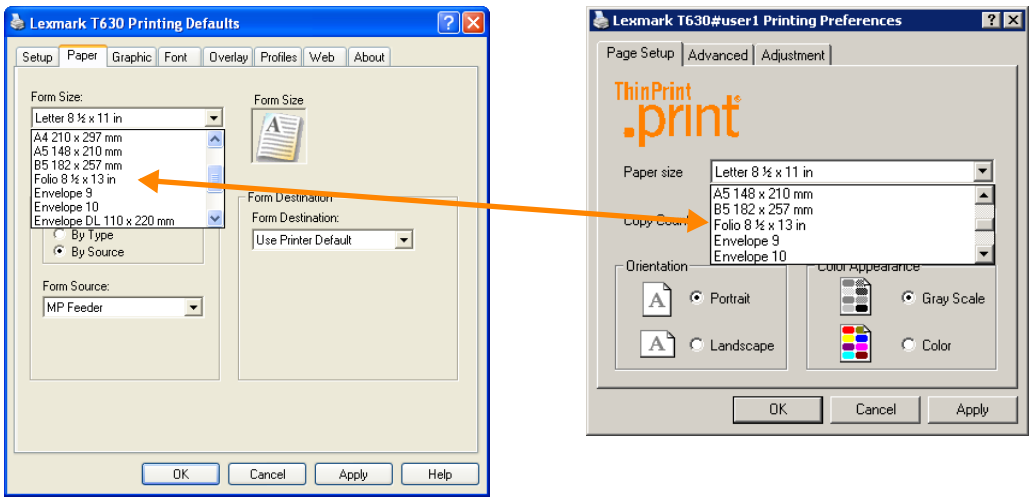


Illus. 32 Modifying scaling and margin adjustment in a terminal session

Illus. 33 and 34 depict the selection of other options, such as *resolution* and *paper formats*. The illustrations show the print menu both on the client machine (left) and in the terminal session (right).



Illus. 33 Display of print resolution on the client (left) and in a terminal session (right)



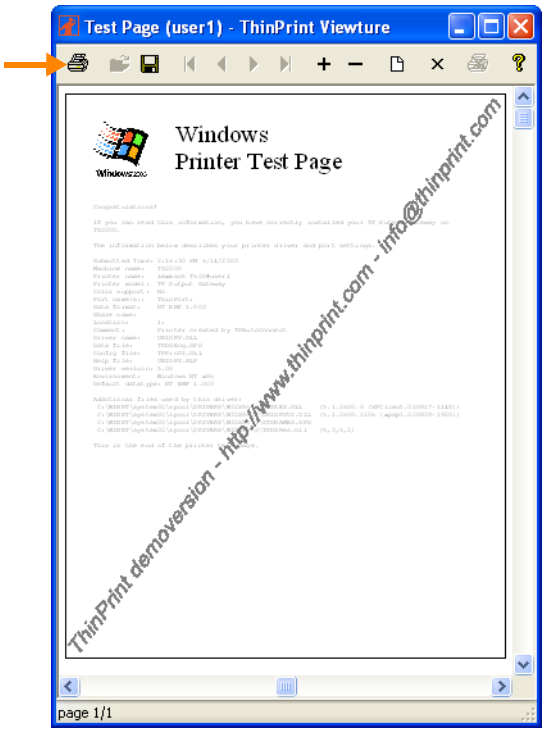
Illus. 34 Display of paper sizes on the client (left) and in a terminal session (right)

Printing with preview

Once the print preview is enabled (Illus. 31: checkmark on PREVIEW ON CLIENT BEFORE PRINTING) the print job appears in the .print viewer (= ThinPrint Viewture; Illus. 21). Here you can:

- Print to any printer that is connected to the client computer or can be reached from it
- Select any of the print options available with the printer driver on the client, even if they cannot be uploaded to the server in the terminal session
- Navigate in documents with more than one page
- Zoom
- Cancel print job reception
- Save print job[8]

8 File extension: .tpf (compressed EMF data); the ThinPrint Viewture program (= TPView.exe) is needed for reloading a saved print job; see Page 31.



Illus. 35 Preview with ThinPrint Viewture on the client computer (water mark = demo version)

When printing with preview, the print options appear in the terminal session in an Output Gateway design (on the right in Illus. 31, 33, and 34, respectively). Once the client machine receives the print job, the print job is displayed in a preview window (Illus. 21). The print options now appear in the design of the original printer driver (on the left in Illus. 31, 33, and 34, respectively).

– Confirm all settings by clicking OK.

Appendix

Customer service and technical support

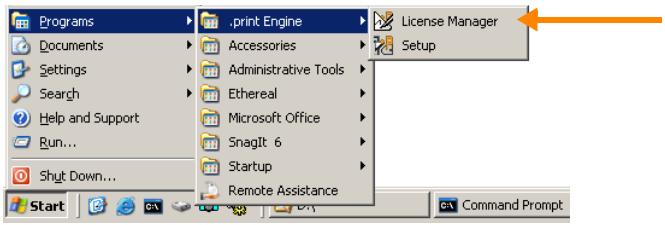
Customer Service www.thinprint.com/→ SUPPORT
support@thinprint.com

Entering and activating licenses

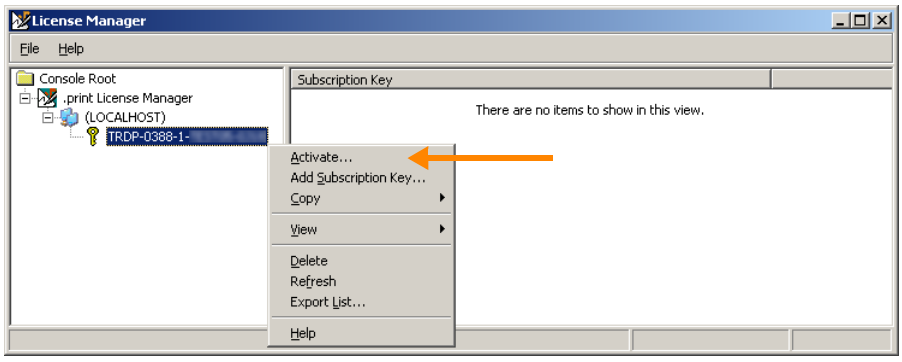
Note! Activating a .print license
All license keys are **valid for 30 days** after they have been entered. They **must be activated within this time** to continue printing. Demo license keys cannot be activated. A license key's expiration date can be found in License Manager under VALID UNTIL (Illus. 7).

Once you have successfully installed and tested the .print Engine, you can purchase a full license. You will receive a new license key, which is then entered in the License Manager and activated. To activate the license, select SUPPORT & SERVICES→ SOFTWARE ACTIVATION at the ThinPrint website and follow the instructions. Once your information has been verified, you will receive an **activation key** by e-mail.

1. Open the License Manager from START→ PROGRAMS→ .PRINT ENGINE→ LICENSE MANAGER to enter license keys, check registration keys (for activation), and activate licenses (Illus. 36).
2. The window depicted in Illus. 37 opens; select the desired function: enter a NEW key, COPY a registration key, or ACTIVATE a license.



Illus. 36 Starting License Manager (example for Windows Server 2003)

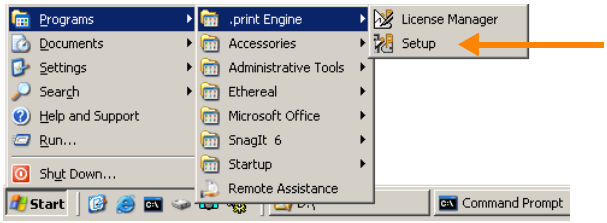


Illus. 37 Activating a license

Uninstalling .print Engine

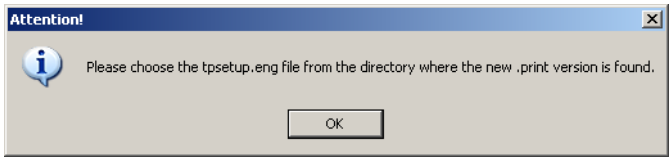
Preliminary notes

For the uninstallation of .print Engine including AutoConnect or for viewing version information, start the .print Engine installation program with START→ PROGRAMS→ .PRINT ENGINE→ SETUP (Illus. 38). The menu in Illus. 41 opens.

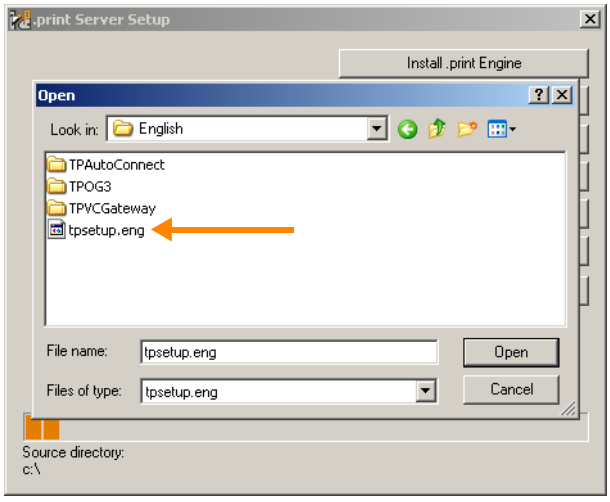


Illus. 38 Starting .print installation routine (example for Windows Server 2003)

Note! Have any .print files been moved or deleted after first installation, the message in Illus. 39 will open. Click OK and select the new path (Illus. 40).



Illus. 39 .print installation path not found



Illus. 40 Assigning new installation path

Note! If individual files cannot be deleted during uninstallation of a .print component, they will be deleted automatically the next time the computer is rebooted. For this reason, the computer might have to be rebooted before the next installation of a .print component.

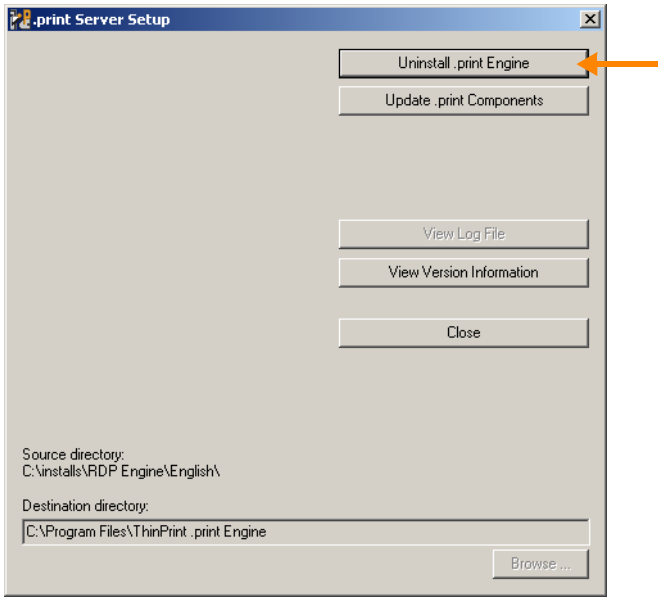
Procedure

1. To release locked files restart Windows.
2. Before uninstallation delete _#PCL and _#ThinPrint Output Gateway template in the PRINTERS (AND FAXES) folder.
   To manage printers on Windows Server 2008 machines as an administrator use START→ PROGRAMS→ .PRINT ENGINE→ PRINTERS and with Windows Server 2008 R2 use “Print Management” in the MMC.
3. Run **Setup** (Illus. 38).
4. Select a language. This opens the menu shown in Illus. 41. Select ...:

... to add	**... to delete**
INSTALL .PRINT ENGINE	UNINSTALL .PRINT ENGINE

With the installation of .print Engine, .print AutoConnect will also be installed. The same happens if you uninstall .print Engine: .print AutoConnect will be also uninstalled.

Note! The SERVICES configuration must be closed to uninstall a Windows service (here: TP AUTOCONNECT SERVICE).



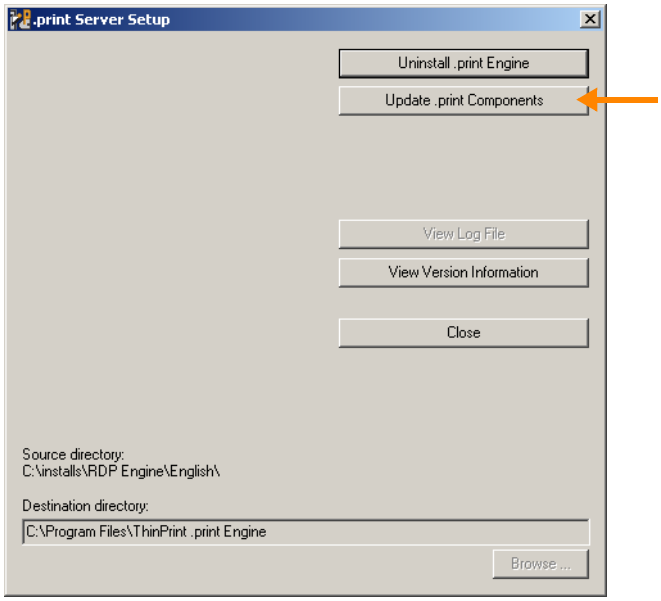
Illus. 41 .print Engine installation menu

Updating .print Engine

For updates of older .print versions use the **Setup.exe from the new .print version.** The menu in Illus. 42 opens.

Note! Updating the software might require a server reboot.

1. To release locked files restart Windows.
2. Run the Setup.exe from the new .print version.
3. Select a language. This opens the menu shown in Illus. 42.
4. Select UPDATE .PRINT COMPONENTS.
   (.print Engine and .print AutoConnect will be updated as well)



Illus. 42 Updating .print components

Updating or uninstalling .print Client on the client machine

Updating .print Client Windows

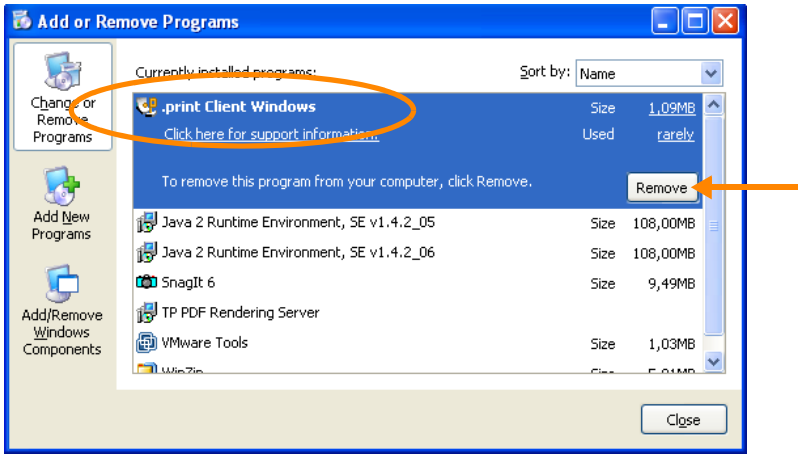
Please note that previous settings are still valid when updating or installing .print Client on a machine where it was installed before.

1. Uninstall the present .print Client (see next chapter).
2. Install the new one (Page 13).

Uninstalling .print Client Windows

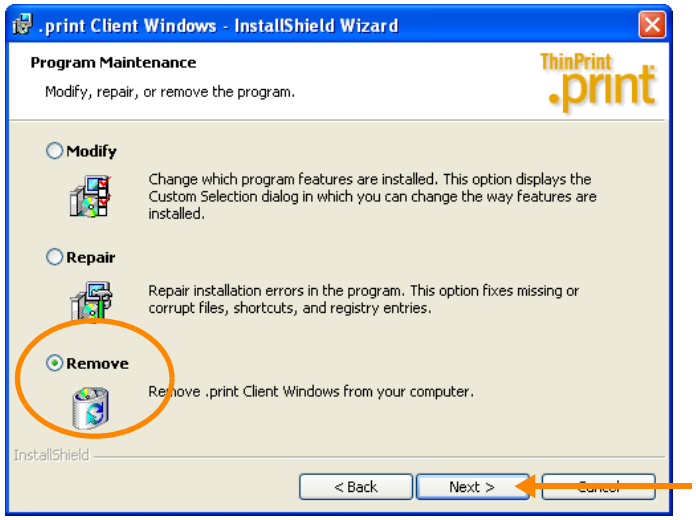
1. Select CONTROL PANEL→ADD OR REMOVE PROGRAMS, select .PRINT CLIENT WINDOWS[9], and click REMOVE (Illus. 43).

9 formerly ThinPrint Client



Illus. 43 Removing .print Client Windows (Example for Windows XP)

2. The menu in Illus. 44 appears. Select REMOVE and then NEXT.
3. Confirm the following windows with REMOVE and FINISH.



Illus. 44 Deleting .print Client Windows

Repairing .print Client Windows

Should .print Client Windows ever quit functioning, you don't have to reinstall it – you can repair it. .print Client Windows are repaired exactly as described above, except that REPAIR is selected instead of REMOVE (Illus. 44).

Distributing .print Client

The “Preconfiguration and unattended installation of .print Client Windows” white paper can be used for distributing .msi versions of .print Client Windows.

Additional sources

Further information about ThinPrint .print can be downloaded from our website.

Manuals

The following manuals (amongst others) are available at www.thinprint.com/→ PRODUCTS→ OVERVIEW→ .PRINT RDP ENGINE.

- .print Client Windows (for ICA, RDP, and TCP/IP)
- .print Client WinCE

White papers

The following white papers (amongst others) are available at www.thinprint.com/ → PRODUCTS→ OVERVIEW→ <product name> or ...→ SUPPORT→ WHITE PAPER DOWNLOAD.

- .print Clients (overview)
- Licensing
- Preconfiguration and unattended installation of .print Client Windows
- Adaption of Output Gateway options

Thin clients

- At www.thinprint.com/Products/Overview/Supportedthinclients.aspx you will find terminals with embedded ICA/RDP type of .print Client.

Downloads

- Download the .print Engine: www.thinprint.com/→ PRODUCTS → OVERVIEW→ .PRINT RDP ENGINE→ DEMO VERSION
- Download the .print Client Windows: www.thinprint.com/→ SUPPORT→ THINPRINT .PRINT CLIENTS & TOOLS

Glossary

Activation key

Entering the activation key in License Manager enables unlimited application of the .print software. An activation key is obtained by submitting license and registration keys to ThinPrint AG.

Autocreated printers

.print AutoConnect is the name of the .print tool for auto-created printers. It can be run on any Windows Server. .print AutoConnect automatically creates client printers on the server.

Bandwidth

The capacity of a network or data connection for digital transmission, usually measured in bit/second (bit/s, bits/sec, or bps) or in Kilo-bit/ second (kbit/s, kbits/sec, or kbps).

Client

The term client signifies a device which connects to, requests data from, and/or starts an application on, a server. It receives, for example, print data from the server and forwards it to a printer. Typical clients are: desktop PCs, notebooks, thin clients, PDAs, and mobile telephones.

COM

Component Object Model; fundamental communication model for icon communication under Windows NT.

Current printer — Setting in .print Client Manager: A document is printed with the current printer if a client has only *one* printer, or if the printer can't be determined by *ID*. Current printer can also be used to set the default printer at the server when using .print Auto-Connect (with the option DEFAULT AT SERVER).

Data type — Several types are usually supported for printing under Windows. The two most commonly used, expanded metafile (EMF) and print-ready (RAW), affect performance on both client and print server machines differently.

Device — Here: thin client, print server, printer (print device), print appliance or print server (print box)

Driver Free Printing — To avoid printer driver conflicts on Windows servers, .print delivers a virtual printer driver. Called *ThinPrint Output Gateway*, this driver delegates print job rendering to Windows 32-bit clients, so that no conventional printer drivers have to be installed on the server (Driver Free Printing). A positive side effect is that server load is drastically reduced during print job rendering.

EMF — EMF (enhanced metafile) is default data type for most Windows NT/2000/XP/2003 programs. Unlike RAW format, printed documents in EMF are converted to metafile format.

EMF files are usually smaller than RAW files containing the same print job. In server-based computing, only the first half of a print job is generated on the Terminal Server (in consideration of system performance). The main work is performed by the client machine, which improves the Terminal Server's performance.

Encryption — see *SSL*

Fat client — see *Rich Client*

License key — All .print software requires a license key. The key has the format: TRDP-xxxx-x-xxxxxx-xxxx (32 bit) or TADP-xxxx-x-xxxxxx-xxxx (x64). License Manager uses the license key to generate a registration key according to system configuration. Both license key and registration key are required to request the activation key.

Local resources — *Local* in this sense means available to or installed upon the selected computer. Client operating systems always search first for a local printer driver. When printing on the client side, then, the printer driver is first sought on the client computer, and only if necessary is a driver downloaded from the server.

Output Gateway — ThinPrint's virtual printer driver

.print AutoConnect — We also offer auto-create printers (aka auto-connect, auto-mapping). And to do so, we support printer classes: For example, all HP printers can use the same HP driver, so you can group them into a class. You write a template where all HP printers are sent to this one driver. The software even allows a wild card in the printer name – we're the only system in the world who let's you do that! So you can use HP* as your

printer name, and any printer starting with HP will be sent to the HP driver. This drastically reduces the number of drivers on your server.

> **Note!** For printing using ThinPrint Ports the Windows service **TP AutoConnect Service** has to be run together with the **.print Engine**.

.print Client — On the client side, *.print Client* is generally responsible for receiving print data, decompressing it, and sending it to the print device. Many .print Clients are available for different end devices and areas of deployment: for all Windows versions incl. Windows CE and Mobile.

.print Engine — The server component .print Engine is the actual core of the ThinPrint .print framework. It provides complete printer driver management including Driver Free Printing. .print Engine performs two main functions:

- Print job compressing and streaming
- Provision of the virtual printer driver ThinPrint Output Gateway (enables a radical reduction of printer drivers on printing computers = Driver Free Printing).

.print Monitor — .print Monitor is a component of the .print Engine software used for setting up ThinPrint Ports.

Print device — Contrary to popular nomenclature, hardware which produces printed material is called a print device and NOT a printer. Print resolution is measured in DPI (Dots Per Inch). The higher the DPI value, the better the resolution.

Printer — The point of interface between operating system and print device is called the printer. In Windows NT architecture alone, many possible terms exist: logical printer, printer software, or printer object. Printer settings include, among others, the designation of a connection (i.e., LPT1 or ThinPort), the printer driver (this is normally included by the manufacturer), authorization of share names, etc. In Windows, every printer is represented in the PRINTERS (AND FAXES) folder by an icon with an obvious name.

There is generally not a one-to-one relationship between printer and print devices. Several printers for a single print device, for example, signify that either the print device is connected to several computers, or that many printers with different parameters for the same print device have been set up on a computer.

Printer driver — Printer drivers are programs which enable communication between client applications and print devices. Each print device requires unambiguous commands which are specific to that device, to employ such print functions as color, margin, format, etc. An operating system comprehends these individual commands for specific print devices through the printer driver.

Printer (object) — Under Windows: a printer created over START→ SETTINGS→ PRINTERS; it appears with its name in the PRINTERS (AND FAXES) folder.

Printer queue — The number of documents which are to be printed from a particular print device and/or are already waiting for processing is referred to in NT terminology as the

printer queue. Under NetWare and OS/2, the term *printer queue* is synonymous for *printer*.

Printer software — Printer software is the commonly used name for *logical printer* or *printer*.

Print job — Print jobs are composed of a source code in the language of the relevant printer. This source code contains both print data, such as a text or picture, and print device commands such as form feed or page format.

Queue — see *Printer queue*

RDP — Remote Desktop Protocol; communication protocol between multiuser NT (4.0, 2000, XP, or 2003) servers and clients under a MS Windows operating system. The name of the NT service is *Terminal Services*, and the connection type under Windows XP is named *Remote Desktop Connection*.

Remote Desktop Connection — see RDP

Rendering — A printer driver is used to translate a print job into printer-specific format.

Rich client — Computer with high performance hardware, Win32 operating system (= PC). Applications can be locally installed and run.

Server based Computing — A server-centric basis for enabling user access to applications, with application logic being run on the server and only user interface transmitted through the network.

Spooler — Print spooler describes the number of those programs or DLLs (Dynamic Link Libraries) which receive, process, temporarily save, chronologically sort, and distribute queued print jobs.

With network printers, the spooler has a client component and a server component. The client component is normally found where the application is being run. The server component is generally where the print device is installed, at the print server, for example.

Spooling — Print jobs are temporarily stored as files on a hard disk. This procedure is known as spooling and is only one of the several functions of the spooler. Unspooling is the process of reading this file and sending it to the print device.

SSL — To establish a secure connection with SSL, the communication partners must first agree on the cryptographic methods and parameters to be used. Basically, SSL offers the options of key exchange, systematic encryption, and the calculation of a cryptographic proof sum. There are various methods that can be used with each of these options.

Template — Printer used as a “model” to enable automatic client printer connection to .print Engine over .print AutoConnect.

Terminal Server — a server with Microsoft Terminal Services

Terminal Services a Windows 2000 service under Windows 2000 Server, Windows XP Professional, or Windows Server 2003

Thin client a minimum performance computer with only very elementary hard- and software components (no hard drive)

In a server/client architecture, a client system on which no application programs are run. Instead, all applications are processed at the server.

ThinPrint Output Gateway ThinPrint's virtual printer driver

ThinPrint Port To print with .print, printers are associated with ThinPrint Ports on the machine that creates the print jobs.

(ThinPrint) Viewture Program for the client-side print preview with Output Gateway. Viewture consists of the components *TPView.dll* and *TPView.exe* with the following functions and features:

	TPView.dll	**TPView.exe**
page preview	×	
zoom	×	×
leaf	×	×
save in .tpf file format	×	
open .tpf file format		×
print	×	×
installation with .print Client	×	
can be downloaded from www.thinprint.com (Page 31)		×

x64 Identifies all 64-bit processors from Advanced Micro Devices (AMD) as well as Intel processors with an AMD compatible 64-bit extension (e.g. Xeon and Pentium with EM64T). In contrast **ia64** identifies the 64-bit processor Itanium from HP and Intel.

Abbreviations

DLL	Dynamic Link Library
EMF	Enhanced Metafile
ID	Identification (number)
ISDN	Integrated Services Digital Network
LAN	Local Area Network
LPD	Line Printer Daemon
LPR	Line Printer Remote
LPT	Windows Line printer Port
MMC	Microsoft Management Console
Modem	Modulator/Demodulator
Output Gateway	ThinPrint Output Gateway
PCL	Printer Command Language
RAW	Standard Print Data Type
RDP	Remote Desktop Protocol (Microsoft)
(.print) RDP Engine	.print Remote Desktop Printing Engine (ThinPrint)
TCP/IP	Transport Control Protocol/Internet Protocol
TP	ThinPrint
TPOG	ThinPrint Output Gateway
ULA	see EULA
Win32	Windows 9x, ME, NT 4, 2000, XP, 2003, Vista, and 2008
WinCE	Windows CE
WinNT	Windows NT 4, 2000, XP, 2003, Vista, 7 and 2008

.print Engine feature comparison

	.print Application Server Engine	.print RDP Engine	.print Server Engine	V-Layer Basic	.print Engine for VMware View	.print Desktop Engine
Recommended server environments						
• Terminal servers with Windows Server 2003/2008/2008 R2 with/without Citrix XenApp	●	●	–	–	–	–
• Other Windows servers (2003/2008/ • 2008 R2 including Cluster Services) as well as environments with central dedicated print servers	–	–	●	●	●[a]	–
• Windows Server 2008 R2 Server Core	–	–	●	–	–	–
• Virtual or real desktops with Windows 7, Vista or XP (x64)	–	–	–	–	–	●
Supported client environments						
• Windows 7, 7 x64, Vista, Vista x64, XP, XP x64, 2003, 2003 x64, 2000, NT 4, ME, 9x	●	●	●	●	●	●
• Linux, Java, Windows CE, 3.x, MS-DOS	●	●[b]	●	●	●	●
Plug-and-play installation	●	●	–	●	–	●
Unattended installation	●	●	●	●	●	●
User-based licensing	●	–	●	●	–	–
MMC configuration	●	–	●	●	●	●
AutoConnect configuration using Group Policies	●	–	●	●	●	●
SSL/TLS encryption	●	●[c]	●	–	–	●
Driver Free Printing	●	●	●	–	●	●
Native printing	●	●	●	–	●	●
Multiple printers per user	●	●	●	●	●	●
Bandwidth control	●	–	●	–	●	●
Network protocols						
• TCP/IP (sockets)	●	–	●	–	●	●
• ICA	●	–	●[d]	–	–	●
• RDP	●	●	●[d]	–	●[d]	●
• LPR/LPD	●	–	●	–	●	–
Supported .print components						
• AutoConnect	●	●	●	●	●	●
• Virtual Channel Gateway	–	–	●	–	●	–
• V-Layer	–	–	●	●	●	–
• Tracking Service	●	–	●	–	–	–
• Desktop Extension	●	●	●	–	●	●
• Connected Gateway	●	–	●	–	–	●
• Queue Manager	●	–	●	–	–	–
• Host Integration Service	●	–	–	–	–	–

a Central print servers in VMware View environments only
b Linux and Windows CE only
c Per encryption of RDP connection only
d Via .print Virtual Channel Gateway