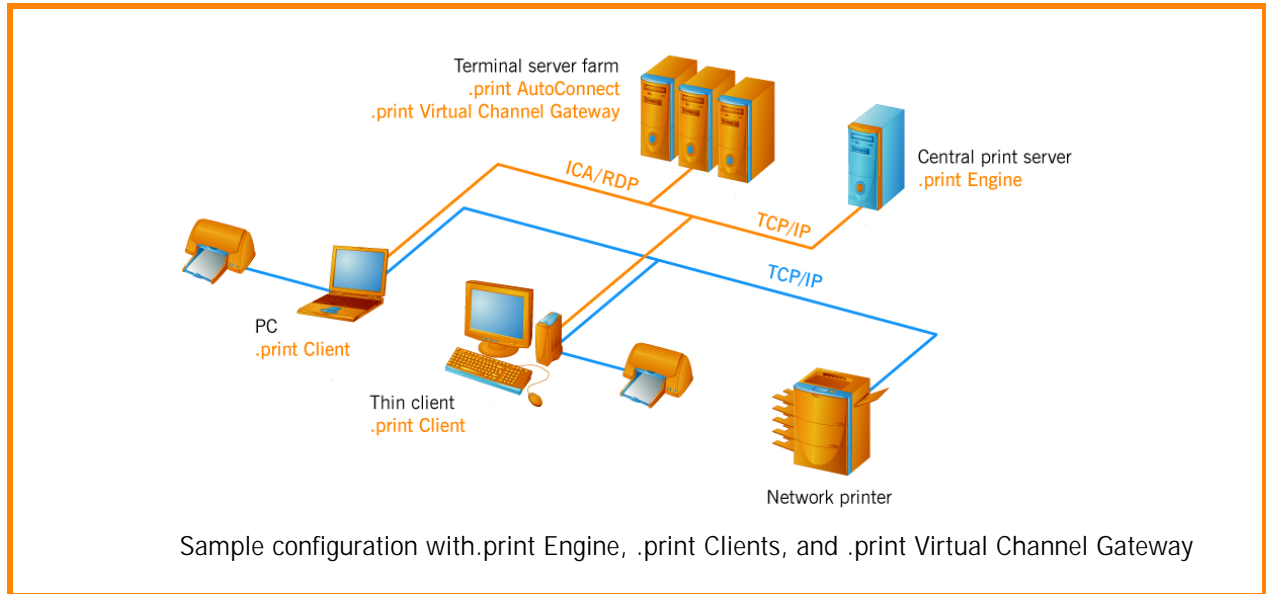


.print AutoConnect and .print Virtual Channel Gateway

Practice examples (.print version 7.6)



.print AutoConnect enables automatic creation of a client machine's printers in a terminal session or on a virtual desktop. This saves an enormous amount of administrative overhead in larger server or desktop farms. For .print AutoConnect, it is irrelevant whether the .print Engine is installed on each terminal server, each virtual desktop, or on a central print server. In the latter case, the .print Virtual Channel Gateway is also available for environments in which firewalls and/or masked networks prevent print data from being delivered via TCP/IP.

Two sample configurations show you step-by-step how to use .print AutoConnect when the .print Engines are installed, first, on terminal servers, or second, on central print servers. In the second sample configuration, the .print Virtual Channel Gateway also comes into play.

Why ThinPrint .print?

.print Virtual Channel Gateway at a glance

.print AutoConnect at a glance

- Templates
- Printer classes
- AutoConnect modes

Example configurations

- .print Engine with .print AutoConnect on terminal servers
- .print AutoConnect and .print Virtual Channel Gateway in with a central print server

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Why ThinPrint .print?

	General ThinPrint .print	.print AutoConnect	.print Virtual Channel Gateway
Use	<ul style="list-style-type: none"> Bandwidth control, encryption, and compression of print jobs (server based or virtual environments) Driver Free Printing 	<ul style="list-style-type: none"> No manual installation of printers on terminal servers/virtual desktops Control of printer drivers installed on terminal servers using templates Better overview of printer objects using templates, printer classes and name translation 	<ul style="list-style-type: none"> Printing with central dedicated print servers through the virtual channel of ICA or RDP becomes possible. Firewalls and Network Address Translation (NAT) present no difficulty
Function	.print Server component provides bandwidth control and print data compression, then sends print data to the .print Client component.	.print AutoConnect automatically creates printers of client machines on the terminal server (or on the virtual desktops) when the session is opened.	
.print components to be installed (for this configuration example)	<ul style="list-style-type: none"> .print Engine .print Client .print AutoConnect poss. .print Virtual Channel Gateway poss. .print Connection Service 	<ul style="list-style-type: none"> .print Engine on terminal servers or central print servers .print AutoConnect on terminal servers TCP/IP, ICA, or RDP type of .print Client on client machines 	<ul style="list-style-type: none"> .print Engine on central print servers .print Virtual Channel Gateway on terminal servers ICA or RDP type of .print Client on client machines
ThinPrint licenses			
<ul style="list-style-type: none"> server-based licensing 	.print Application Server Engine and/or .print Server Engine + Server Access licenses	<ul style="list-style-type: none"> Without central print servers: .print Application Server Engine on each terminal server With central print servers: .print Server Engine + Server Access licenses on each central print server 	
<ul style="list-style-type: none"> user-based licensing 	.print Application Server Basic Pack + user licenses or .print Printserver Basic Pack + user licenses	<ul style="list-style-type: none"> Without central print servers: .print Application Server Basic Pack + (Named) User licenses on each terminal server With central print servers: .print Printserver Basic Pack + (Named) User licenses on each central print server 	

Licensing

The .print components AutoConnect and Virtual Channel Gateway use the license of their respective .print Engine.

Without central print servers this applies the license .print Desktop Engine (for VDI environments) or .print Application Server Engine or .print Application Server Basic Pack + user licenses (for terminal server farms).

However the licensing with central print servers occurs is as follows:

Server-based licensing with central print servers

- .print Server Engine license per central print server + Server Access licenses for each Windows server (+ Host Access licenses for each Non-Windows server), which sends its print jobs via the central print server
- The Server Access and Host Access license keys have to be installed together with the .print Server Engine license key on the central print server.
- With more than one print server the license keys of Server Access and Host licenses are distributed among all print servers; a multiple installation of these license keys and hence activation (on each node) is allowed with clusters¹ only.

User-based licensing with central print servers

- .print Printserver Basic Pack license per central print server + licenses for users. The (Named) User licenses have to be installed together with the .print Printserver Basic Pack license on the central print server.
- With more than one print server the license keys of (Named) User licenses are distributed among all print servers; a multiple installation of these license keys and hence activation (on each node) is allowed with clusters¹ only – with the exception of licenses contained in .print Printserver Basic Pack.

In VMware View environments with central print servers, .print Engine for VMware View is licensed per virtual desktop.

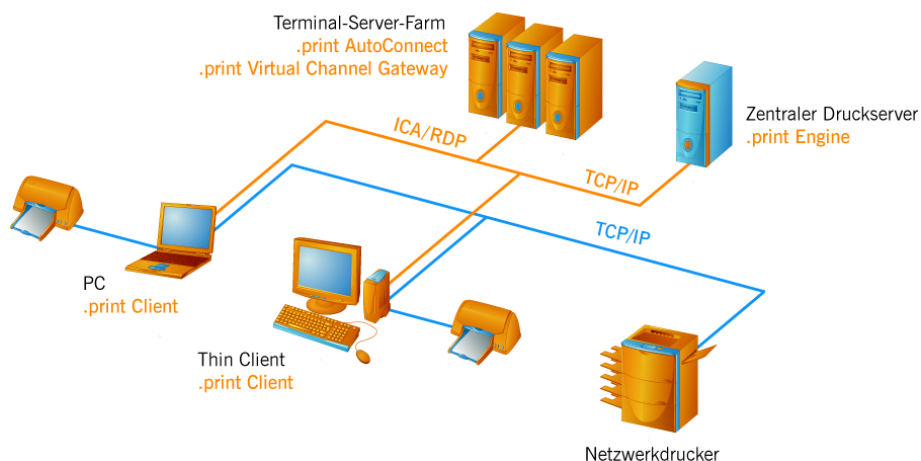
.print Virtual Channel Gateway at a glance

You need .print Virtual Channel Gateway when you are running a central dedicated print server and want to or need to send print data via the ICA or RDP session protocol.

This solution is good when the printers cannot be reached via TCP/IP because they are behind a firewall or Network Address Translation (NAT). In other words, the Virtual Channel Gateway is only necessary if .print Engine is installed on a dedicated print server and print data is to be sent with the ICA or RDP protocol.

Because the print server's network protocol (TCP/IP) is different than that of the terminal server farm or of the virtual desktops (ICA/RDP), .print Virtual Channel Gateway is installed on the servers or desktops and takes on the task of forwarding. This makes it possible to send print data coming from the print server via TCP/IP and feed it into the virtual channel of the ICA or RDP session.

¹ Based on Microsoft Cluster Services or Network Load Balancing



Illus. 1 .print Virtual Channel Gateway on terminal servers and .print Engine on a print server

Illus. 1 shows a typical scenario for .print Virtual Channel Gateway. .print Engine is installed on the print server; the other components, .print Virtual Channel Gateway and optionally .print AutoConnect and/or the ThinPrint Output Gateway virtual printer driver, are installed on the terminal servers.

Environment

- .print Engine installed on a print server
- Printing over ICA or RDP
- All environments for which .print Clients for ICA/RDP are available

Tip! The .print Connection Service can also be used for targeting printers in masked networks; it sends print data from the central dedicated print server via TCP/IP. Read the .print Connected Gateway manual ([Page 36](#)).

virtual environments

Note that there is a slight difference between the Virtual Channel Gateway for virtual desktops and for terminal servers. Please use the version dedicated to virtual environments (free download), and not the one delivered with .print Server Engine

Restrictions

- Print jobs are user specific, not client specific; that means, print jobs can only be sent to the user who opened the session (not directly to other client machines, like .print Client Gateway)
- .print AutoConnect cannot be used for creating printers on central print servers

.print AutoConnect at a glance

.print AutoConnect enables the automatic creation of printers of client machines on the terminal server or on the virtual desktop during a session. Both sample scenarios show you step-by-step how to configure and use .print AutoConnect.

.print AutoConnect features:

- Central administration of printers of remote client machines (= client printers)
- Connection and disconnection of client printers on a ThinPrint port (session dependent)
- Dynamic setup of printers according to client name or client IP address (TCP/IP) or user name (ICA or RDP)
- Support for the .print Connection Service

Installation .print AutoConnect is automatically installed as a service on terminal servers (Windows Server 2003/2008) or on virtual desktops (Windows XP, Vista, or 7) with the .print Engine. If you are running a central print server, please read the installation in Example 2 ([Page 23](#)).

Requirements Printers can be created automatically when one of the following requirements has been met:

- There is a template on a (terminal) server for each printer type (Example 1; [Page 12](#)).
- Shared printers can be used on central print servers (Example 2; [Page 23](#)).
- printing without template configuration: virtual desktops with .print Desktop Engine or VMware View.

Note! In VMware View environments you need to configure .print AutoConnect using the group policies – and not via MMC as described here. For AutoConnect configuration please refer to the *.print Engine for VMware View* manual.

Templates

What are templates? A printer template is a printer object in the server's Printers and Faxes folder from which printers in a (terminal) session inherit their properties. After installation of the .print Engine, the `_#ThinPrint Output Gateway` template appears in the server's printers folder. The underscore (`_`) marks the printer object as a template.

What properties are inherited from templates? Among other things, templates give the following properties to client printers automatically created in the printers folder by .print AutoConnect during a terminal server session:

- Printer properties (compression level, paper source, duplex, print preview on a PC, color, page format ...)
- (Original) printer driver or Driver Free Printing

- Printer port and therefore:
 - Bandwidth
 - Print protocol (TCP/IP, ICA, RDP)
 - Printing with or without SSL/TLS encryption
 - Printing with or without .print Connection Service
 - ThinPrint Port Pooling
 - Name convention for ThinPrint printers
(see also ".print Application Server Engine" manual, [Page 36](#))

Assigning permissions for templates

So that each user only sees her or his printers – and not all printers installed on the server –, the following permissions – and only these – must be given to the templates:

Administrators	<i>Print, Manage documents and printers</i>
System	<i>Print, Manage documents and printers</i>

Classifying printers

Printer classes

Templates can also be created for printer classes. These represent different types of printers that all use the same printer driver. Classes have the advantage that printers can be connected with the same template, even if they have different names. The syntax is: `_#class`. Class names are assigned in .print Client or by AutoConnect name translation.

Examples for "Auto-created printers"

Printers created by .print AutoConnect look like this:

```
printer_description#IP_address:printer_ID
printer_description#client_name:printer_ID or
IP_address:printer_ID#printer_description or
client_name:printer_ID#printer_description
```

With ICA or RDP, the resulting printer is given the user name instead of the IP address or client name:

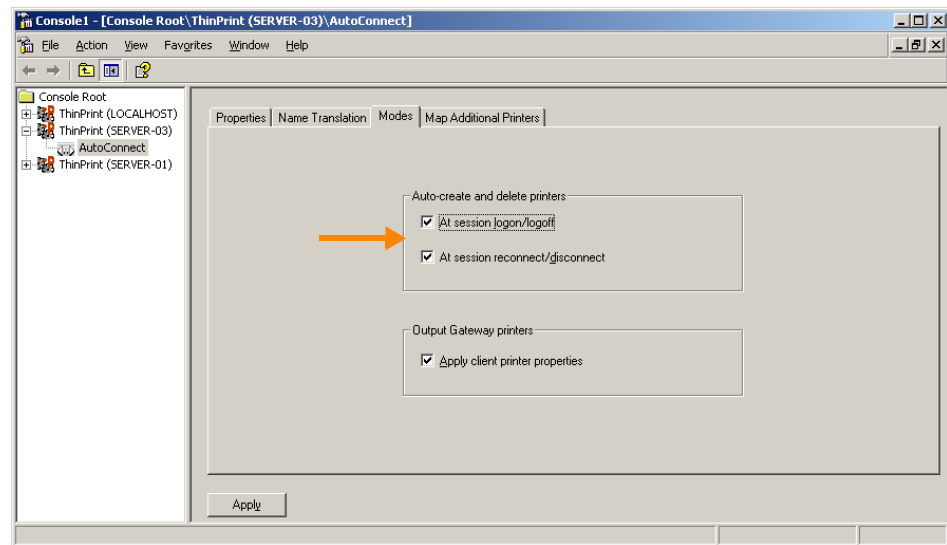
```
printer_description#user_name:printer_ID or
user_name:printer_ID#printer_description
```

Enabling .print AutoConnect

AutoConnect modes

You have two options for enabling .print AutoConnect:

1. You can configure AutoConnect to create the printers for all users automatically:
 - At each terminal session logon/logoff or virtual desktop logon/logoff *or*
 - When disconnecting and reconnecting such a session (Illus. 2)
2. If you want to create printers for certain user(s) only or printers of other machines – e.g., local print servers – (additionally), you can run .print AutoConnect by script or from the Command Prompt to do so. Furthermore all AutoConnect parameters can be used.



Illus. 2 Enabling/disabling auto mode (default: enabled)

AutoConnect can be run with the following parameters in script mode:

Parameter	Function
(none)	Connection of printers within a terminal session. Here, .print AutoConnect queries printers from the .print Client from which the terminal session was opened.
-v	(Verbose) Display messages; give detailed information at startup
-d	Delete the printer(s) for a specific session
-d all	Delete all printers created with templates (admins only)
-d <i>session_ID</i>	Delete all printer(s) of a specific session (admins only). The session ID can be found in the PRINTERS AND FAXES folder under LOCATION (Illus. 22 and 23)
-q	(Quiet) Error messages are not sent to the client machine's desktop
-r	(Repair) Compares saved session information at actually existing printers (admins only)
-p <i>port</i>	(Port) TCP/IP port number (if other than port 4000) Note: The TCP port numbers in ThinPrint Port, .print Auto-Connect, and .print Client must match.
-i <i>protocol</i>	(Interconnection) Select protocol for connection to the .print Clients; overwrites .print AutoConnect dialog settings; acceptable values: AUTO, TCP/IP, VC (for ICA/RDP); see Illus. 20
-I <i>printer_IDs</i>	Only printers with the given printer IDs will be connected; example: <code>tpautoconnect -I 1, 2, 3</code>

Parameter	Function
-a <i>address</i>	Specification of IP address or client name of the computer on which a .print Client or the .print Connection Service is running. For the .print Connection Service, the additional parameter -t is required.
-t <i>client_ID</i>	Selects the client ID of a .print Client.
-f	Shares printers (share name = printer name)
-L	List printers enabled in .print Client for .print AutoConnect; example: <code>tpautoconnect -a client1 -L</code>
-? or -h	Open help about parameters (help)

The most commonly used parameters are:

- -d for deleting session printers at session logoff or disconnect
- -q for suppressing messages on client computers
- -i for restriction to a specific print protocol (TCP/IP, ICA/RDP)
- -v for displaying AutoConnect messages in the terminal window
- -a for printer mapping from local print servers or from print servers of network printers (e.g. SEH ISD300 or TPG120, [Page 36](#)).

Virtual desktop environments

without print servers If you have a virtual desktop environment (e. g. Citrix Xen Desktop, Sun Secure Global Desktop, Microsoft Hyper-V or VMware VDI) without print servers, install .print Desktop Engine on all of the virtual desktops, or draw an image of that desktop on which the engine is previously installed. The printing protocols ICA/RDP and TCP/IP are supported. The .print Desktop Engine is a plug&play installation.

VMware View

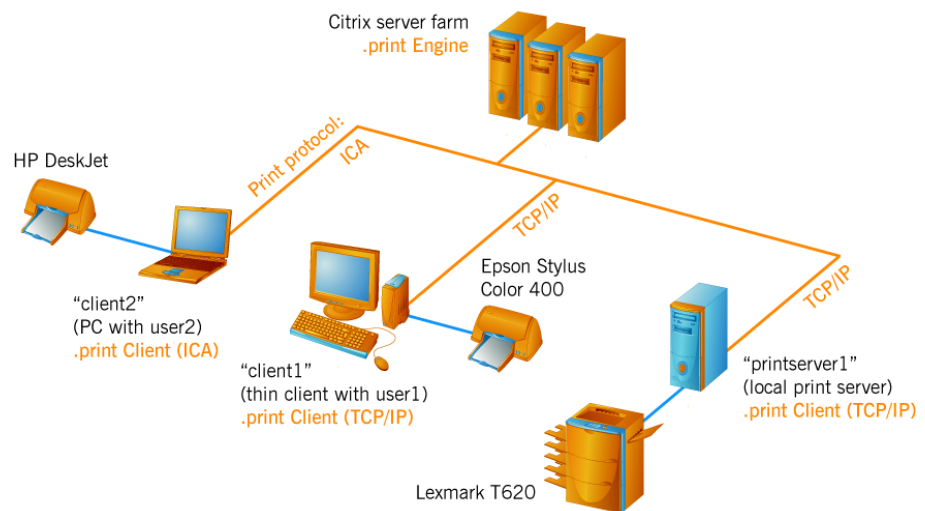
ThinPrint .print is excellently suited for use in VMware View environments. Here you have a perfect opportunity to enjoy the advantages of the OEM partnership between ThinPrint and VMware, as the components of ThinPrint technology are already integrated into VMware View, without the need for further purchase or installation. Default printing is with Driver Free Printing and you use AutoConnect to map your local printers into your virtual session.

with print servers If your virtual desktop environment has a central print server, you can use the economically priced .print Engine for VMware View. For all other VDI environments, use .print Server Engine (see Example 2: .print Engine on central print servers, [Page 23](#)).

Example 1: .print Engine on terminal servers

Sample scenario

The installation wizards for the **.print Engine** server component and the **.print Client Windows** client component are preprogrammed so that it is possible to print with no further configuration immediately after installation is complete – providing you chose the same protocol when installing .print Engine and .print Client (TCP/IP, ICA, or RDP). This plug-and-play installation applies for the PC in Illus. 1; obviously, it cannot be used in every environment, among other things because a Windows PC is necessary. So the main configuration options are illustrated here using a sample scenario as example. The following descriptions refer to the sample scenario below.



Illus. 3 Sample scenario with client and user names

Our scenario attempts to combine a couple of typical client and connection types in a terminal server environment. Clients are a PC and a thin client as well as a local print server.

The following table describes the print environment necessary in the sample configuration (Illus. 3).

Machine name	User name	Printer	Connection to Server	.print Client type	Print mode
client1	user1	Epson Stylus Color 400	DSL (768 kbit/s)	TCP/IP type of .print Client WinCE	with native printer driver
printserver1	—	Lexmark T620	DSL (768 kbit/s)	.print Client Service Windows (TCP/IP)	Driver Free Printing
client2	user2	HP DeskJet	ISDN (64 kbit/s)	ICA type of .print Client Windows	Driver Free Printing

The RDP protocol can also be used instead of ICA. In this case, all ICA specific installations and configurations must be made for RDP.

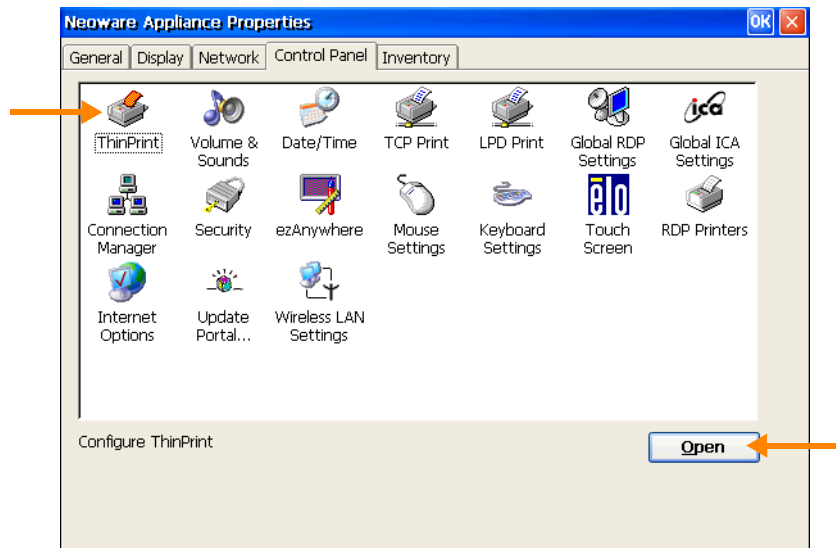
Installing and configuring .print Clients

Safety warning

All ThinPrint products are pure software solutions. For safety warnings for your hardware, please consult the technical documentation provided by the respective manufacturer of each hardware device and component.

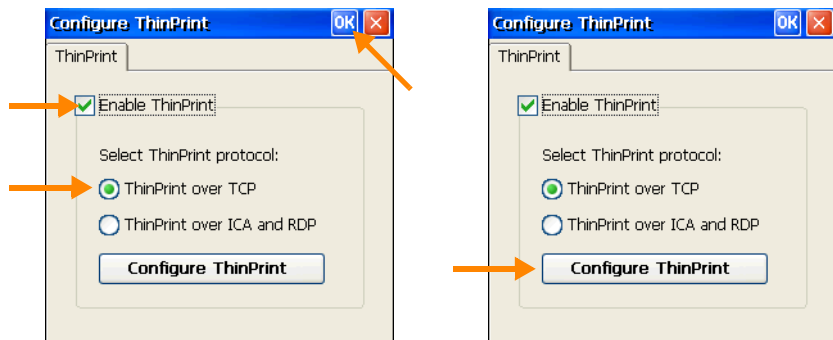
client1: .print Client WinCE (TCP/IP) on a thin client

1. For this sample scenario, choose a thin client with embedded .print Client. A list of these devices can be found at www.thinprint.com/ → PRODUCTS → OVERVIEW → .PRINT SERVER ENGINE → SUPPORTED ENVIRONMENTS → SUPPORTED DEVICES .
2. Open the control panel on the thin client and select THINPRINT (click OPEN, Illus. 4).



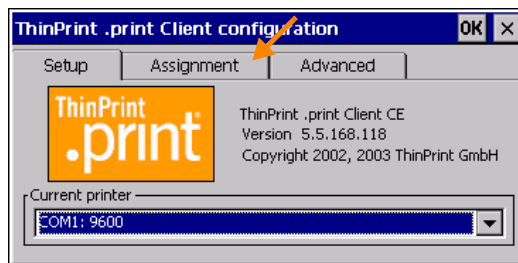
Illus. 4 .print Client WinCE in the control panel (example for Neoware terminals)

3. Enable the .print Client (ENABLE THINPRINT; Illus. 5 left).
4. Select the protocol you will select for the template `_#Epson Stylus COLOR 400` on the server (THINPRINT OVER TCP or TCP/IP, Illus. 18), and click OK (Illus. 5 left).
5. Open the .print Client configuration menu (CONFIGURE THINPRINT; Illus. 5 right).



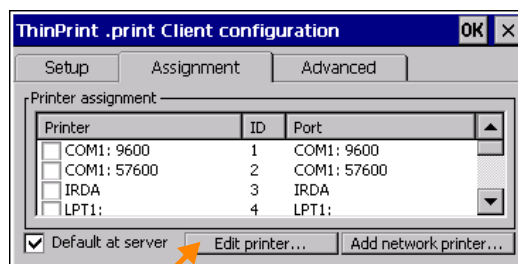
Illus. 5 Selecting and enabling .print Client WinCE and opening configuration menu (example for Neoware terminals)

6. Click ASSIGNMENT (Illus. 6).

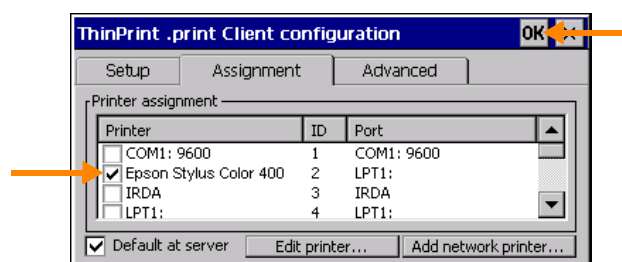


Illus. 6 Configuring .print Client WinCE

7. Select a printer, e.g., LPT1:, and enter a printer name under EDIT PRINTER (in the sample scenario, Epson Stylus Color 400; Illus. 7).
8. Enable .print AutoConnect for this printer by marking the checkbox to the left of the printer name (Illus. 8).
9. Finish configuration by clicking OK.
10. Close the thin client's control panel.



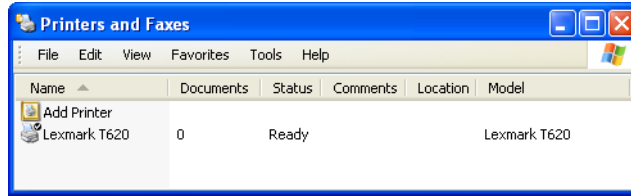
Illus. 7 Assignment menu: select printer and click EDIT PRINTER



Illus. 8 client1: enabling .print AutoConnect for a printer

printserver1: .print Client Service Windows on a local print server

1. For the sample scenario, install a Lexmark T620 printer (Illus. 9).
2. Install .print Client Service Windows; please refer to the “.print Client Service Windows” user manual ([Page 36](#)).

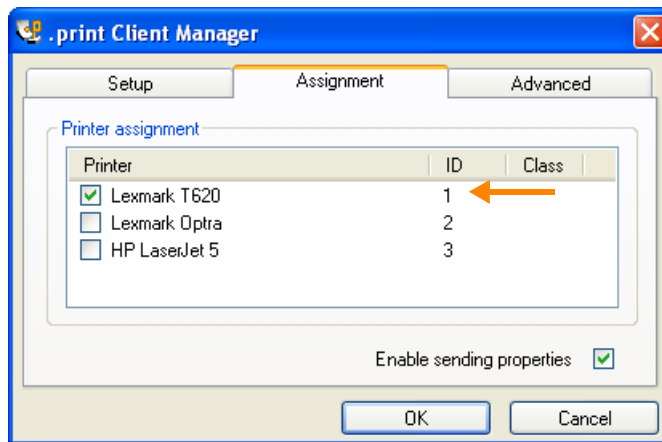


Illus. 9 Local printer installed on printserver1



Illus. 10 .print Client in the task bar

3. Once installation is complete, .print Client Service Windows will be started and its icon appears in the task bar of the local Windows installation (Illus. 10). It does not need to be configured for the sample installation.
4. Open the .print Client Manager by double clicking the icon in the taskbar (Illus. 10). Find out the Lexmark T620 printer ID from the ASSIGNMENT tab (Illus. 11).

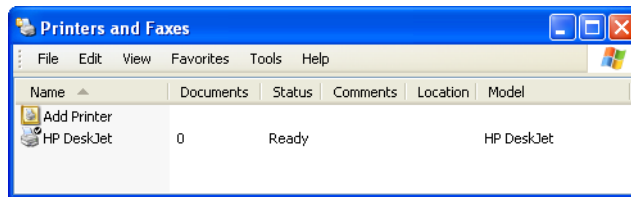


Illus. 11 Printer ID of the Lexmark T620 (here: 1)

client2: ICA type of .print Client Windows on a PC

Requirement: A Citrix ICA client is installed. The scenario in Illus. 3 ([Page 12](#)) applies.

1. For the sample scenario, install a HP DeskJet printer (Illus. 12).
2. Install .print Client Windows and select .PRINT CLIENT WINDOWS ICA during the installation; please refer to the “.print Client Windows” user manual ([Page 36](#)). .print Client is started automatically with the ICA session. It does not need to be configured for the sample installation.



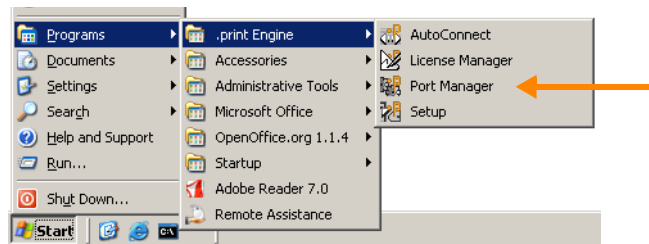
Illus. 12 Printer installed locally on client2

Server configuration

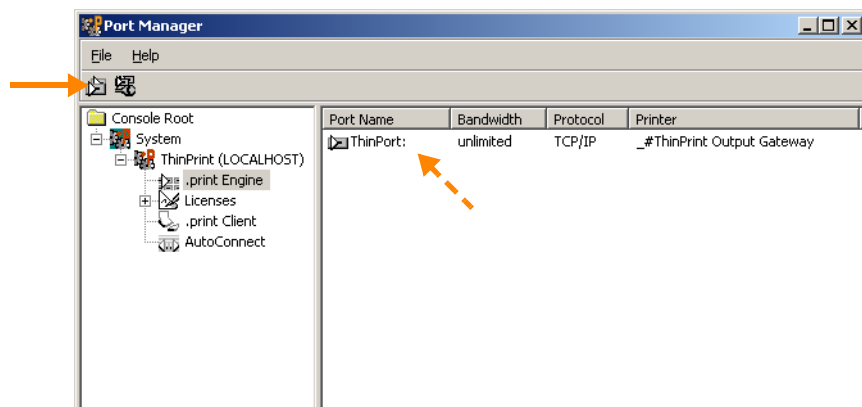
Requirement: .print Engine has already been installed (see the “Quick installation” manual of .print Application Server Engine). The scenario in Illus. 3 (Page 12) applies. All settings made for server configuration must be performed on each terminal server in a server farm.

ThinPrint Ports

1. Open the ThinPrint Port configuration in the Microsoft Management Console (MMC) with START → PROGRAMS → .PRINT ENGINE → PORT MANAGER (Illus. 33).



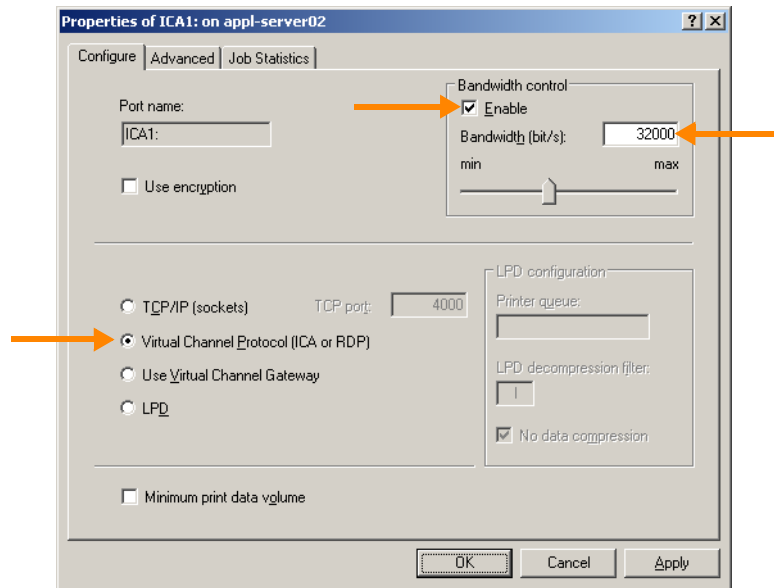
Illus. 13 Starting Port Manager



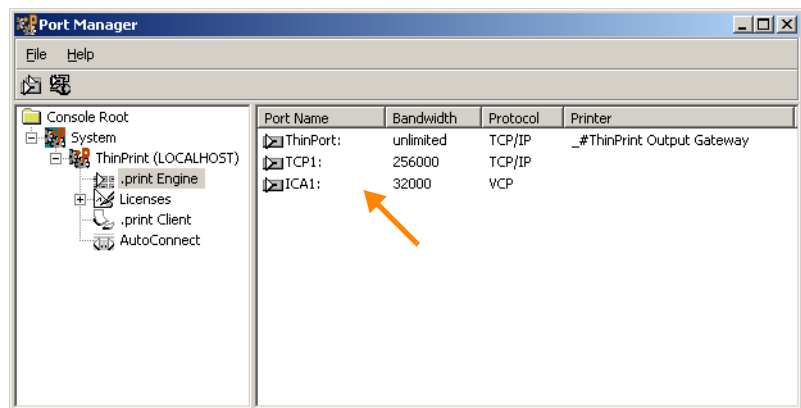
Illus. 14 ThinPrint Port in Port Manager

2. Create the following ThinPrint Ports by clicking the NEW THINPRINT PORT icon (left arrow in Illus. 14) and set bandwidth and protocol (Illus. 15 and 23):

Port name	Port type (protocol)	Bandwidth
TCP1:	TCP/IP (sockets)	256 kbit/s
ICA1:	VCP = VIRTUAL CHANNEL PRO- TOCOL (ICA OR RDP)	32 kbit/s



Illus. 15 Selecting port type and bandwidth for port "ICA1:"; click APPLY



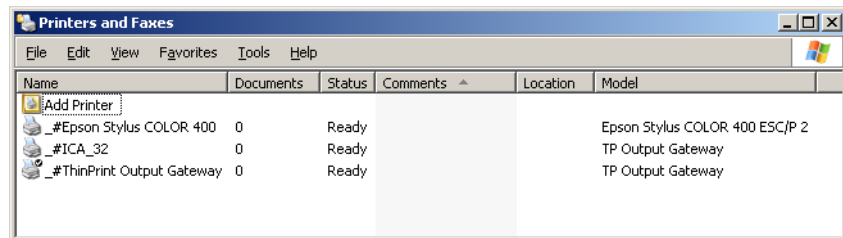
Illus. 16 Two new ThinPrint Ports

Note! It is possible to create multiple ports each for the ThinPrint Ports **ThinPort:**, **TCP1:** and **ICA1:** and group these in printer pools. For more information, see the "ThinPrint Ports" white paper ([Page 36](#)).

- To enable AutoConnect to create a corresponding printer in a terminal session for each client printer and so that the printer can also print across different connections, create the following printer templates (Illus. 17) in the server's PRINTERS AND FAXES folder:

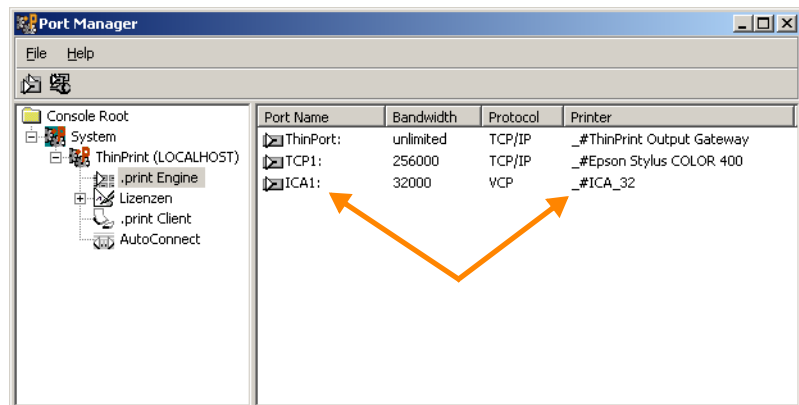
Printer name	ThinPrint Port	Printer driver
_#Epson Stylus Color 400	TCP1:	Epson Stylus Color 400 Esc/P2
_#ICA_32	ICA1:	TP Output Gateway

- Under SECURITY, assign permissions to the two printer templates, **_#Epson Stylus Color 400** and **_#ICA_32**:
 - Delete all users and groups except for **administrators**.
 - Add SYSTEM and allow **full control**.



Illus. 17 Two new printers as templates

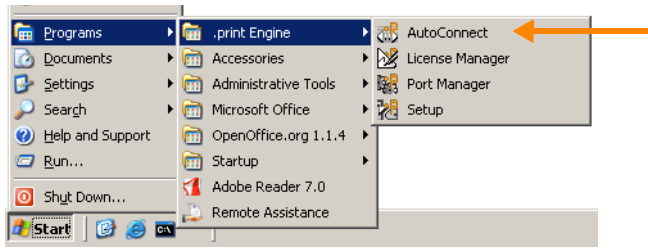
- Change to the port configuration in the MMC and check that the new printers have been assigned correctly to the ThinPrint Ports (Illus. 18; if necessary, press F5 to refresh).



Illus. 18 The new templates assigned to the ThinPrint Ports

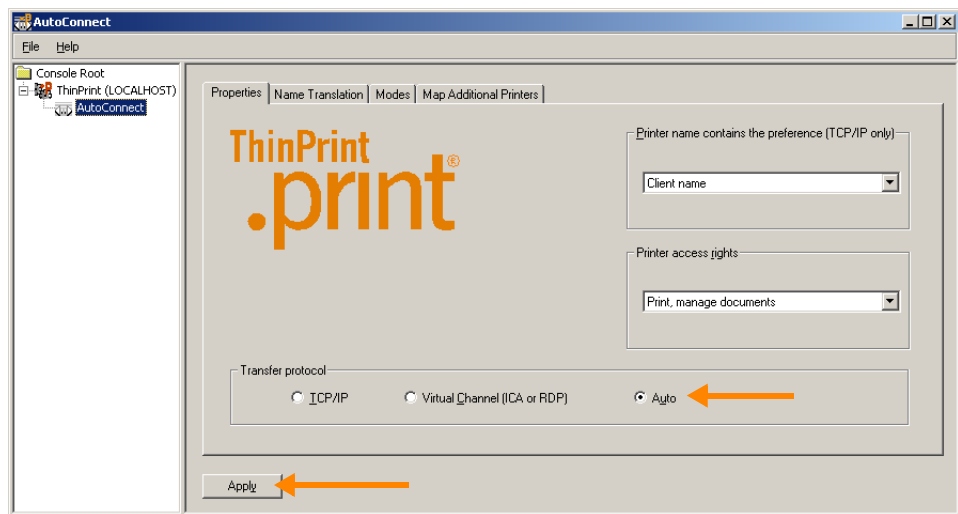
.print AutoConnect

- Open the AutoConnect configuration in the MMC with START → PROGRAMS → .PRINT ENGINE → AUTOCONNECT (Illus. 39).



Illus. 19 Starting AutoConnect configuration

2. To ensure that AutoConnect can create printers both for ICA and for TCP/IP printing, select AUTO under TRANSFER PROTOCOL (Illus. 20).

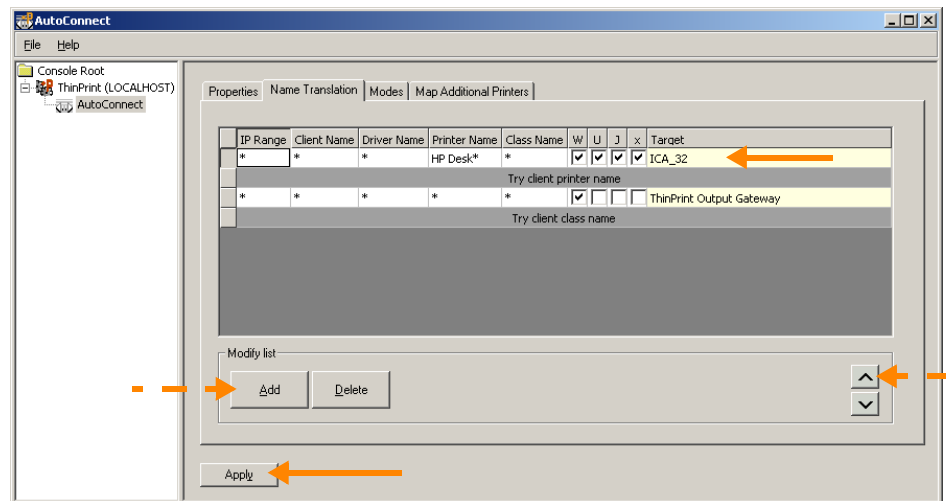


Illus. 20 .print AutoConnect in MMC: selecting AUTO

3. Now select NAME TRANSLATION (Illus. 21). So that AutoConnect can create the HP DeskJet printer (from client2), add the following entry to the first line²:

PRINTER NAME:	HP Desk*	(for all HP DeskJets)
TARGET:	ICA_32	(for the _#ICA_32 template)

² Click ADD, edit the lines, click the left box on the line, and move upward with the arrow button



Illus. 21 .print AutoConnect in MMC: name translation table

Creating one printer manually

- Create the printer from Illus. 11 in the PRINTERS AND FAXES folder as:

Lexmark T620#printserver1:1

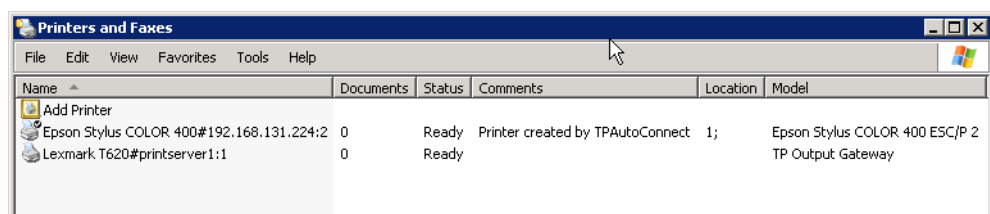
Connect the printer to the TCP1: printer port.

Under PROPERTIES→ SECURITY, assign permissions to the printer:

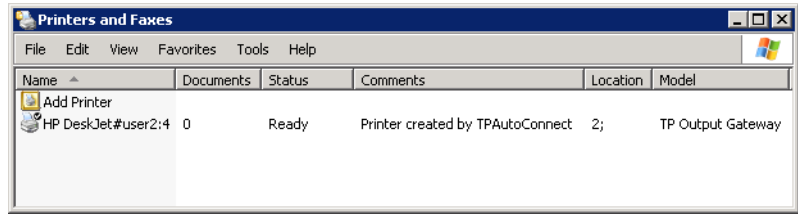
- Delete user group **everyone**.
- Add "user1" and allow **print**.

Printing

- Establish an ICA connection from each client machine to the Citrix server farm; as in our example, log on as "user1" and "user2", respectively. The printers in Illus. 22 and 23 appear in the PRINTERS AND FAXES folder in the two sessions.
- Open an application and print with each of these printers.



Illus. 22 Printers from "user1" in an ICA session as in the example



Illus. 23 Printer from "user2" in an ICA session as in the example

Print jobs will be received from the .print Clients and forwarded to the printers as follows:

Client	Protocol	addressed printer ID	Target printer
client1	TCP/IP	2	Printer with ID 2
printserver1	TCP/IP	1	Printer with ID 1
client2	ICA	4	Printer with ID 4

If you still can't print • Checklist

If .print AutoConnect does not create the desired printers or printing itself does not work properly, please check the following before contacting ThinPrint support ([Page 36](#)).

- Is the same protocol selected for the .print Client, the ThinPrint Port, and .print AutoConnect? In detail:
 - Is the ICA type of the .print Client installed on the PC (client2)? ([Page 15](#))
 - Is the printer template `_#ICA_32` connected to the ICA1: printer port? For this port VIRTUAL CHANNEL PROTOCOL (ICA OR RDP; Illus. 15) must be enabled in the port configuration (MMC).
 - For .print AutoConnect, AUTO must be set as connection protocol (Illus. 20).
 - Is TP AUTOCONNECT SERVICE (Windows service) running on each terminal server?
- Is the TCP/IP print protocol configured properly for the Lexmark and the Epson printer? In detail:
 - Are the TCP port numbers (4000) the same on server and client (see port configuration in MMC and .print Client Manager)?
 - Are you sure that the TCP port number is not being blocked by the firewall or by another program (e.g., .print Virtual Channel Gateway)?
 - Did you disable IPv6?
 - Is the client in a masked network (NAT)?
- Check the name convention of the ThinPrint Port for the manual created printer "Lexmark T620#printserver1" (see port configuration in MMC).
- Make sure that the option USE ENCRYPTION is disabled on the server (see port configuration in MMC).

- Are the correct templates used when .print AutoConnect starts (see Illus. 17)? For each template, there must be an appropriate printer name, printer class, or entry in the name translation table (see .print AutoConnect in MMC and .print Client Manager). Check .print AutoConnect working by starting it manually: Open the command prompt in a terminal session and enter the following to create the session printers:

```
TPAutoConnect -v
```

And to delete them:

```
TPAutoConnect -d
```

If the session printers can be created manually by entering TPAutoConnect in the command line but are not automatically created when the terminal session is started, check all .print AutoConnect settings in MMC (Illus. 20 and 21).

- Testing the TCP/IP connection: For printing via TCP/IP, a TCP/IP connection must exist between server and client which allows direct communication to the .print Client and its TCP port. Masked client networks (NAT) in this case can often cause difficulties. Test to see if the connection exists by trying a **telnet** from the server to the client's TCP port. To do this, enter the following at the server's command prompt:

```
telnet IP port (blank space between IP address and TCP port number)
```

IP is the client machine's IP address; *port* is the TCP port the .print Client is using. (See also the .print Client user manuals; [Page 36](#).)

Example 1: `telnet 192.168.131.224 4000`

After executing this command, a telnet window should open **without error message**. If so, the connection is OK.

- If using Driver Free Printing and although the printers "HP DeskJet#user2:4" or "Lexmark T620#printserver1:1" are created in the terminal session of user1 or user2 with AutoConnect but printer options such as paper formats and sources are unavailable, check whether the following functions have been enabled:
 - ENABLE SENDING PROPERTIES in the .print Client Manager (see Illus. 11 on [Page 15](#))
 - APPLY CLIENT PRINTER PROPERTIES in the AutoConnect configuration (in MMC)

Example 2: .print Engine on central print servers

Sample scenario

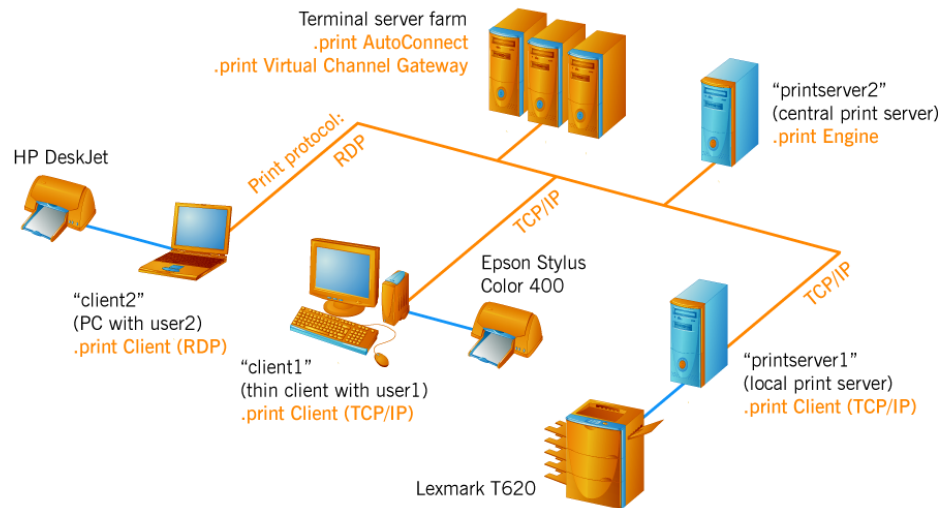
This section describes how .print Server Engine can be run on a central, dedicated print server. Here too, it is necessary to install .print components on the Windows terminal servers or on the virtual desktops:

- ThinPrint Output Gateway
- .print AutoConnect
- .print Virtual Channel Gateway

Note that there is a slight difference between the Virtual Channel Gateway for virtual desktops and for terminal servers³. Please use the version dedicated to virtual environments (free download at www.thinprint.com), and not the one delivered with .print Server Engine).

Tip! If your virtual desktop environment has a central print server, you can use the economically priced **.print Engine for VMware View**.

The main configuration options are illustrated here using a sample terminal server scenario (Illus. 3). The following descriptions refer to the sample scenario below.



Illus. 24 Sample scenario with client and user names

Our scenario attempts to combine a couple of typical client and connection types in a terminal server environment. Client types are a PC and a thin client as well as a local print server.

³ When using the Virtual Channel Gateway on terminal servers, you need to enter the IP address of the print server, but this is not required in virtual environments. Please note also, that because the virtual desktop version cannot handle multiple user sessions, it cannot be used on terminal servers.

The following table describes the print environment necessary in the sample configuration (Illus. 3).

Machine name	User name	Printer	Connection to Server	.print Client type	Print mode
client1	user1	Epson Stylus Color 400	DSL (768 kbit/s)	TCP/IP type of .print Client WinCE	With native printer driver
printserver1 (local print server)	—	Lexmark T620	DSL (768 kbit/s)	.print Client Service Windows (TCP/IP)	Driver Free Printing
client2	user2	HP DeskJet	ISDN (64 kbit/s)	RDP type of .print Client Windows	Driver Free Printing
printserver2 (central print server)	—	—	LAN (1 Gbit/s)	—	With native printer driver and Driver Free Printing

The ICA protocol can also be used instead of RDP. In this case, all RDP specific installations and configurations must be made for ICA.

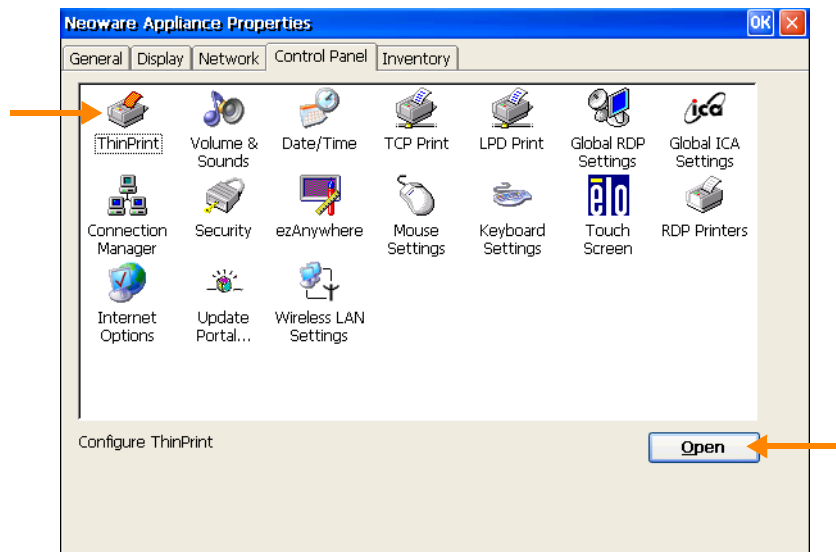
Installing and configuring .print Clients

Safety warning

All ThinPrint products are pure software solutions. For safety warnings for your hardware, please consult the technical documentation provided by the respective manufacturer of each hardware device and component.

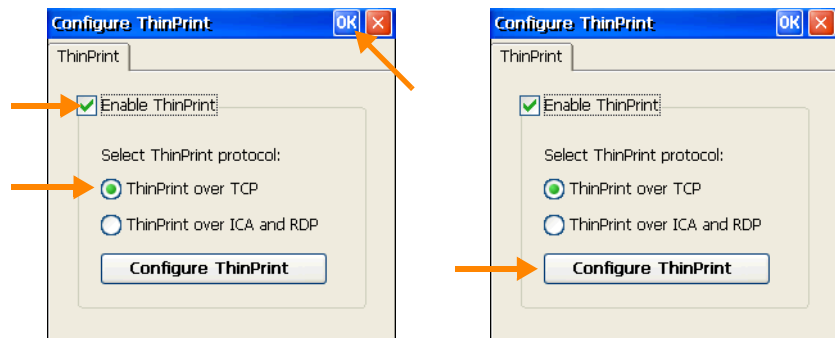
client1: .print Client WinCE (TCP/IP) on a thin client

1. For this sample scenario, choose a thin client with embedded .print Client. A list of these devices can be found at www.thinprint.com/ → PRODUCTS → OVERVIEW → .PRINT SERVER ENGINE → SUPPORTED ENVIRONMENTS → SUPPORTED DEVICES
2. Open the control panel on the thin client and select THINPRINT (click OPEN, Illus. 4).



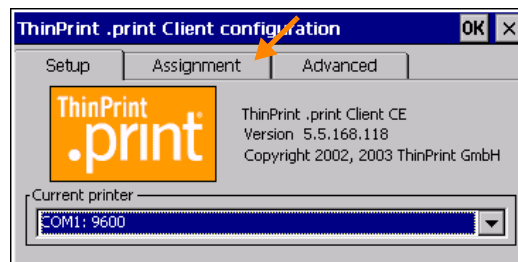
Illus. 25 .print Client WinCE in the control panel (example for Neoware terminals)

3. Enable the .print Client (ENABLE THINPRINT; Illus. 5 left).
4. Select the protocol you will select for the share **Epson** on the central print server (THINPRINT OVER TCP or TCP/IP, [Page 29](#)), and click OK (Illus. 5 left).
5. Open the .print Client configuration menu (CONFIGURE THINPRINT; Illus. 5 right).



Illus. 26 Selecting and enabling .print Client WinCE and opening configuration menu (example for Neoware terminals)

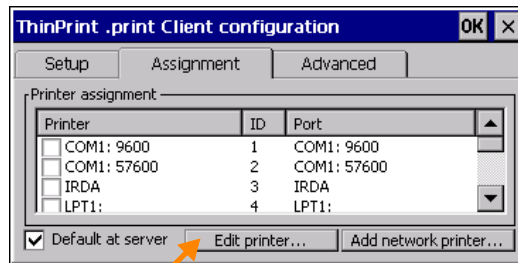
6. Click ASSIGNMENT (Illus. 6).



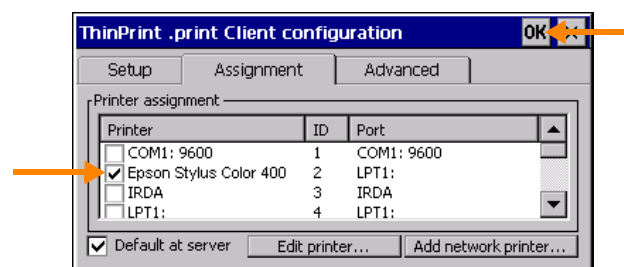
Illus. 27 Configuring .print Client WinCE

7. Select a printer, e.g., LPT1:, and enter a printer name under EDIT PRINTER (in the sample scenario, Epson Stylus Color 400; Illus. 7).

8. Enable .print AutoConnect for this printer by marking the checkbox to the left of the printer name (Illus. 8).
9. Finish configuration by clicking OK.
10. Close the thin client's control panel.



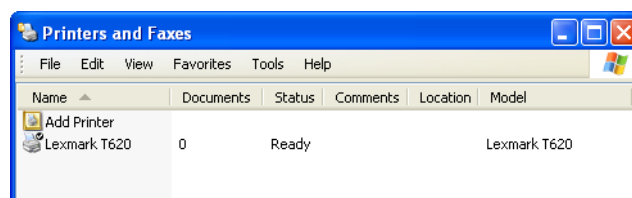
Illus. 28 Assignment menu: select printer and click EDIT PRINTER



Illus. 29 client1: enabling .print AutoConnect for a printer

printserver1: .print Client Service Windows on a local print server

1. For the sample scenario, install a Lexmark T620 printer (Illus. 9).
2. Install .print Client Service Windows; please refer to the ".print Client Service Windows" user manual ([Page 36](#)).



Illus. 30 Local printer installed on printserver1



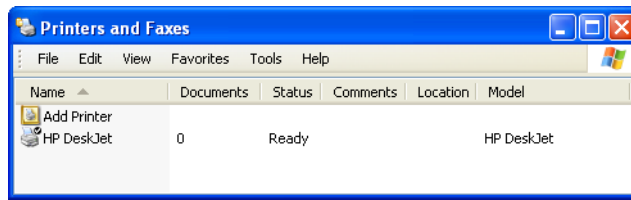
Illus. 31 .print Client in the task bar

3. Once installation is complete, .print Client Service Windows will be started and its icon appears in the task bar of the local Windows installation (Illus. 10). It does not need to be configured for the sample installation.

client2: RDP type of .print Client Windows on a PC

Requirement: An RDP client is installed (= Remote Desktop Connection) – default with Windows XP and later. The scenario in Illus. 3 ([Page 12](#)) applies.

1. For the sample scenario, install a HP DeskJet printer (Illus. 12).
2. Install .print Client Windows and select .PRINT CLIENT WINDOWS RDP during the installation; please refer to the ".print Client Windows" user manual ([Page 36](#)). .print Client is started automatically with a Remote Desktop Connection. It does not need to be configured for the sample installation.



Illus. 32 Printer installed locally on client2

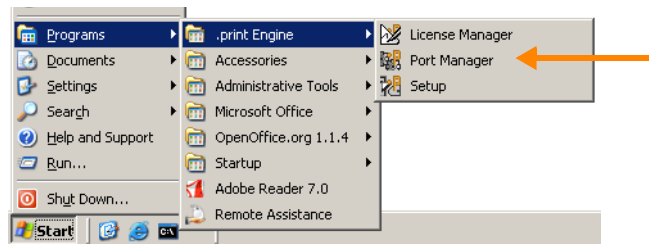
Server configuration

printserver2: central print server

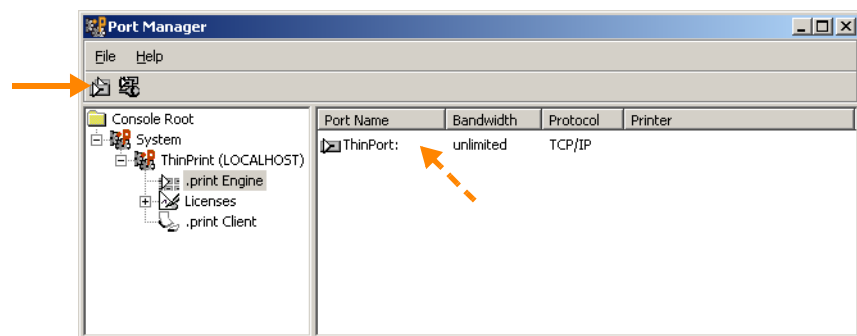
Requirement: .print Engine has already been installed (see the "Quick installation" manual of .print Server Engine). The scenario in Illus. 3 (Page 12) applies.

Creating ThinPrint Ports

1. Open the ThinPrint Port configuration (in the MMC) with START → PROGRAMS → .PRINT ENGINE → PORT MANAGER (Illus. 33).
Advice: The *ThinPort*: printer port shown in Illus. 14 (right arrow) including the printer *ThinPrint Output Gateway* will not be used in the sample scenario.



Illus. 33 Starting Port Manager

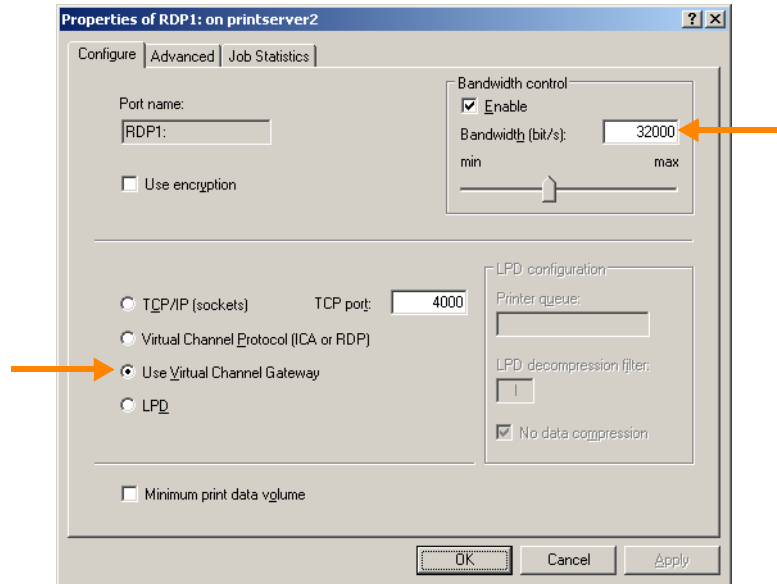


Illus. 34 ThinPrint Port in Port Manager

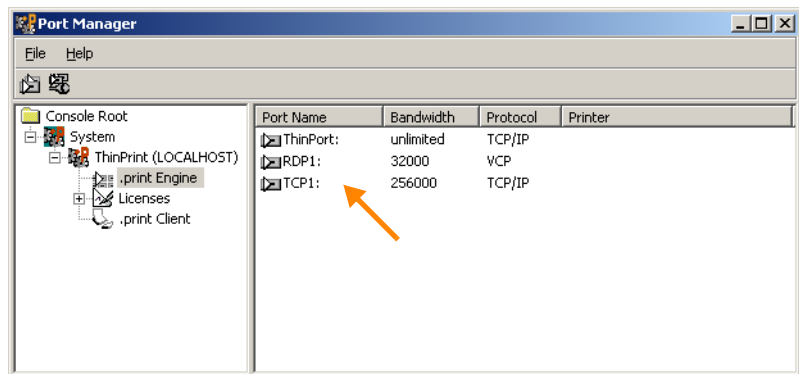
2. Create the following ThinPrint Ports by clicking the NEW THINPRINT PORT icon (left arrow in Illus. 14) and set bandwidth and protocol (Illus. 15 and 16):

Port name	Port type (protocol)	Bandwidth
TCP1:	TCP/IP (sockets)	256 kbit/s

Port name	Port type (protocol)	Bandwidth
RDP1:	USE VIRTUAL CHANNEL GATEWAY	32 kbit/s



Illus. 35 Selecting port type and bandwidth for port "RDP1:."; click APPLY



Illus. 36 Two new ThinPrint Ports

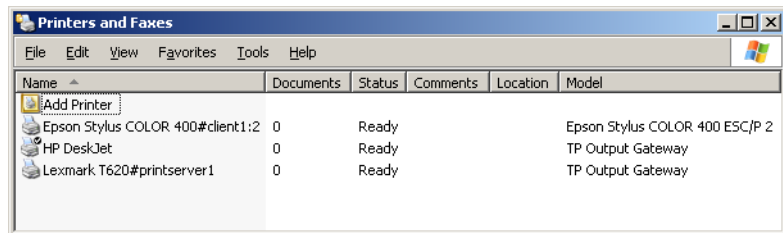
Note! It is possible to create multiple ports each for the ThinPrint Ports **TCP1:** and **RDP1:** and group these in printer pools. For more information, see the "ThinPrint Ports" white paper ([Page 36](#)).

Creating printers

3. In the server's PRINTERS AND FAXES folder, create the following printer(s) and share them (Illus. 17):

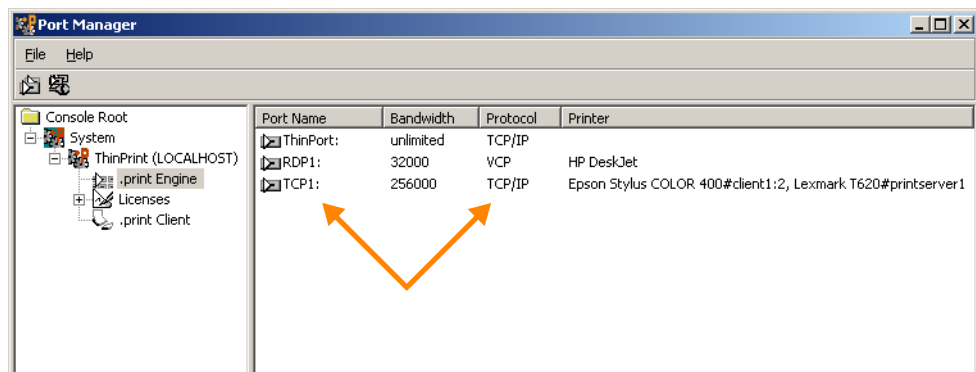
Printer name	ThinPrint Port	Printer driver	Share name
Epson Stylus Color 400#client1:2	TCP1:	Epson Stylus Color 400 Esc/P2	Epson
Lexmark T620#printserver1	TCP1:	TP Output Gateway	Lexmark
HP DeskJet	RDP1:	TP Output Gateway	DeskJet

Note! In larger environments you can also automate printer setup using .print AutoConnect. Refer to the ".print Server Engine" manual ([Page 36](#)).



Illus. 37 Three new printers

4. Change to the port configuration (in the MMC) and check that the new printers have been assigned correctly to the ThinPrint Ports (Illus. 18; if necessary, press F5 to refresh).



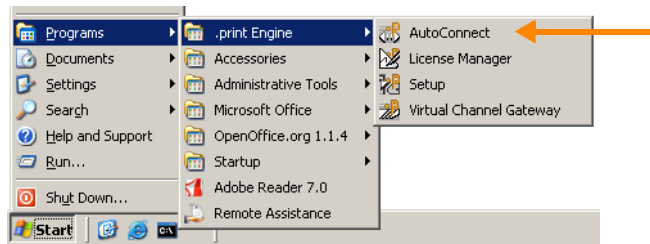
Illus. 38 The new printers assigned to the ThinPrint Ports

Terminal server farm

Requirement: .print AutoConnect, .print Virtual Channel Gateway, and ThinPrint Output Gateway have already been installed (see the “Quick installation” manual of .print Server Engine). All settings must be performed on each terminal server in a server farm.

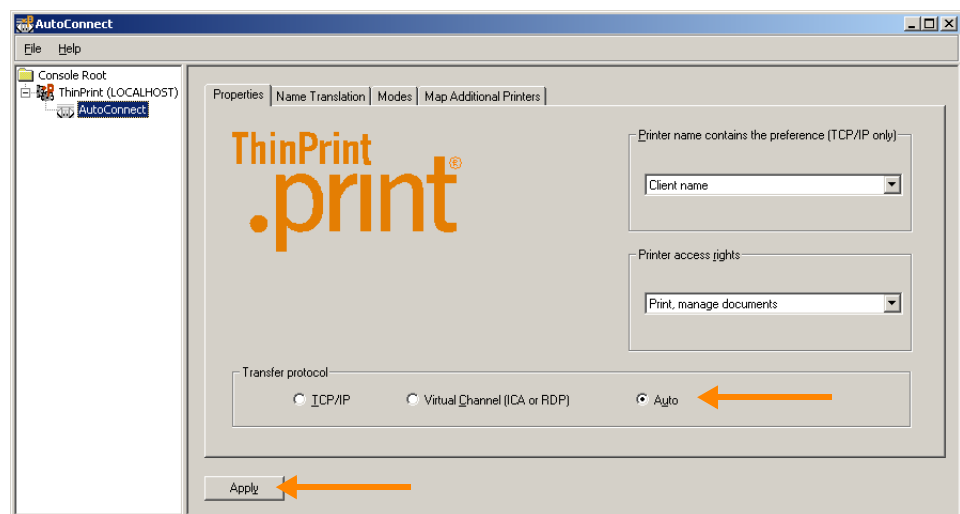
.print AutoConnect

1. Open the AutoConnect configuration in the MMC with START → PROGRAMS → .PRINT ENGINE → AUTOCONNECT (Illus. 39).



Illus. 39 Starting AutoConnect configuration

2. To ensure that AutoConnect can create printers both for RDP and for TCP/IP printing, select AUTO under TRANSFER PROTOCOL (Illus. 20). Click APPLY.

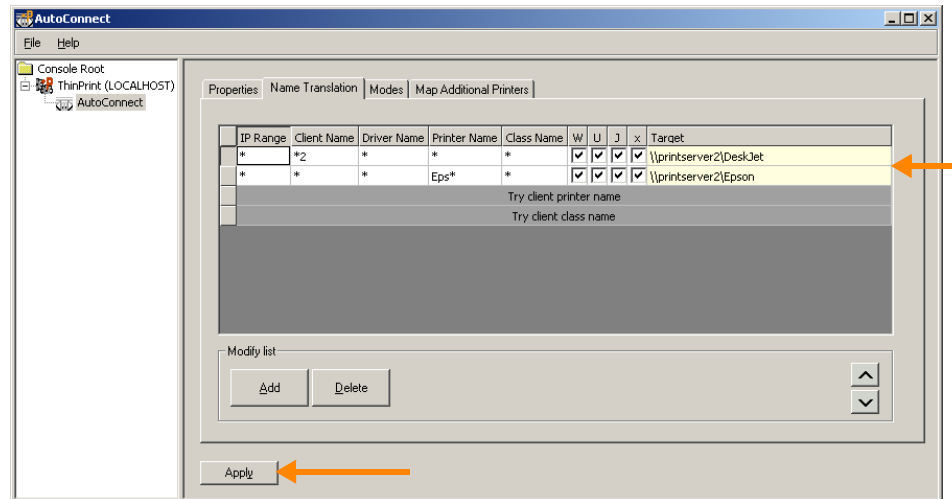


Illus. 40 .print AutoConnect in the MMC: select AUTO

3. Click the NAME TRANSLATION tab. To enable AutoConnect to create the printers from client1 and client2 for the sessions of user1 and user2, add the following entries to the first two lines:

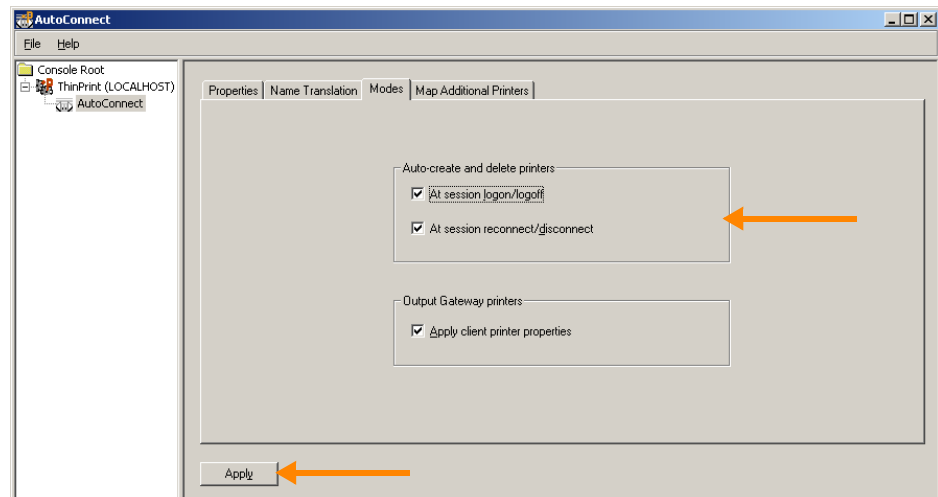
IP Range	Client Name	Printer Name	Target
*	*2	*	\\printserver2\DeskJet
*	*	Eps*	\\printserver2\Epson

4. Click APPLY.



Illus. 41 .print AutoConnect: name translation table

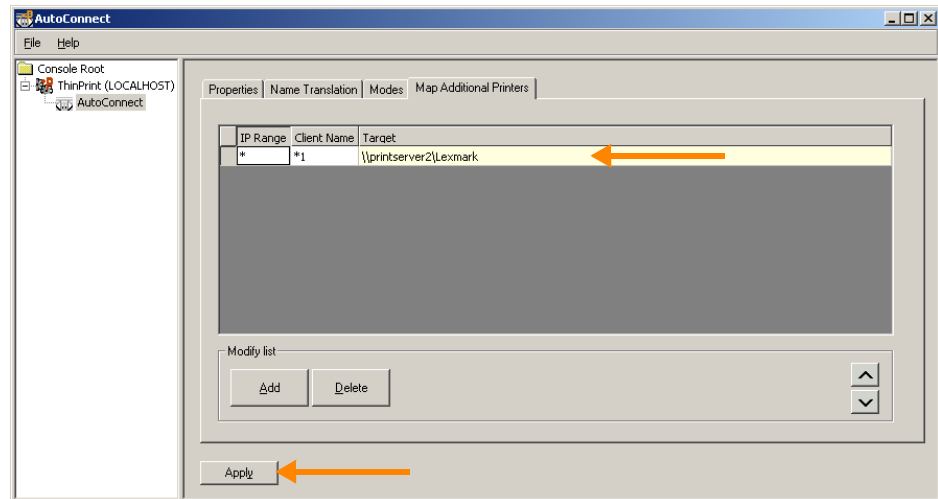
5. Enable the AUTO-CREATE AND DELETE PRINTERS function on the AUTO-CREATE PRINTERS tab (Illus. 42). Click APPLY.



Illus. 42 Enabling .print AutoConnect auto mode

6. Select the MAP ADDITIONAL PRINTERS (Illus. 43). To enable AutoConnect to create the printers from printserver1 for the session from user1, add the following lines:

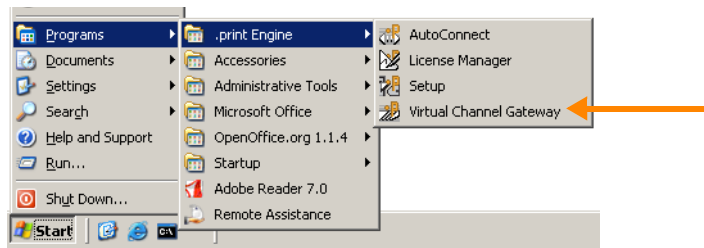
IP Range	Client Name	Target
*	*1	\\printserver2\Lexmark



Illus. 43 .print AutoConnect: enter additional printers

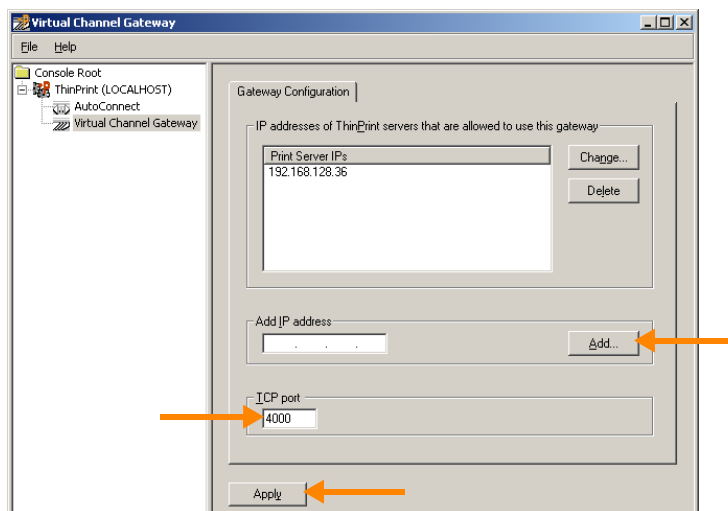
.print Virtual Channel Gateway

1. Open Virtual Channel Gateway configuration in the MMC with START→ PROGRAMS→ .PRINT ENGINE→ VIRTUAL CHANNEL GATEWAY (Illus. 44) (on terminal servers only).



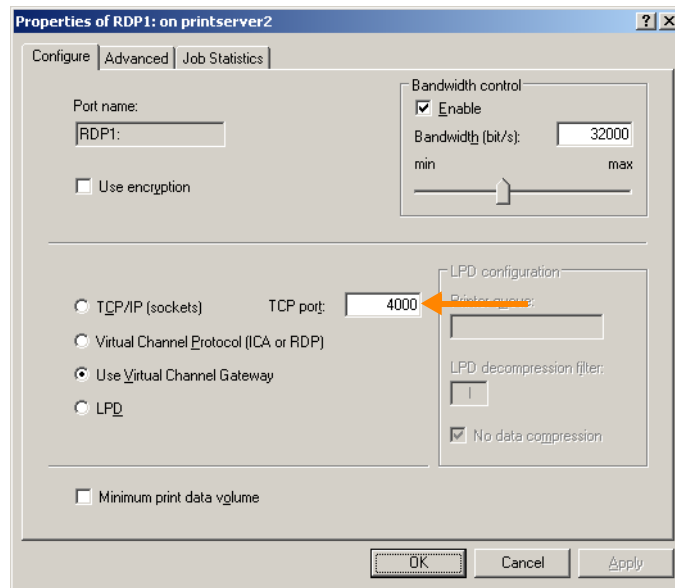
Illus. 44 Starting Virtual Channel Gateway configuration

2. Click ADD to enter the central print server's IP address (Illus. 45).



Illus. 45 .print Virtual Channel Gateway: Entering .print Engine IP address(es) and checking TCP port number (example; see also Illus. 46)

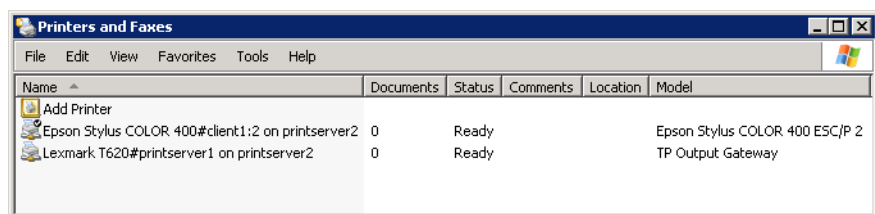
3. Check the TCP port number; it must match with the ThinPrint Port number on the central print server (Illus. 46). Click APPLY.



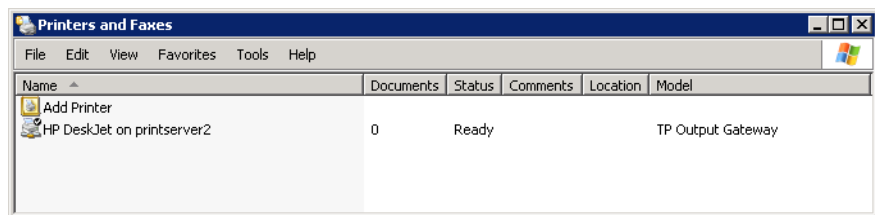
Illus. 46 TCP port number for ThinPrint Port "RDP1:" (see also Illus. 45)

Printing

- Establish a Remote Desktop Connection (or an RDP connection) from each client machine to the terminal server farm; as in our example, log on as "user1" and "user2", respectively. The printers in Illus. 22 and 23 appear in the PRINTERS AND FAXES folder in the two terminal sessions.
- Open an application and print with each of these printers.



Illus. 47 Printers from "user1" in an RDP session as in the example



Illus. 48 Printer from "user2" in an RDP session as in the example

Print jobs will be received from the .print Clients and forwarded to the printers as follows:

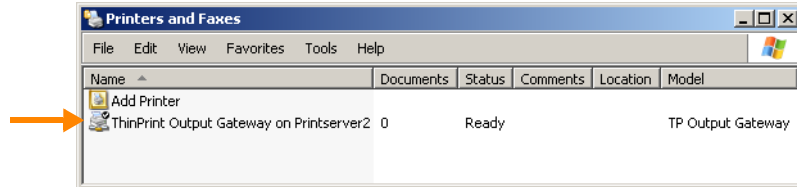
Client name	Protocol	Addressed printer ID	Target printer
client1	TCP/IP	2	Printer with ID 2
printserver1	TCP/IP	no	.print Client's "Current Printer"
client2	RDP	no	.print Client's "Current Printer"

If you still can't print • Checklist

If .print AutoConnect does not create the desired printers or printing itself does not work properly, please check the following before contacting ThinPrint support ([Page 36](#)).

- Is the same protocol selected for the .print Client, the ThinPrint Port, and .print AutoConnect? In detail:
 - Is the RDP type of the .print Client installed on the PC (client2)? ([Page 15](#))
 - Is the printer "HP DeskJet" connected to the RDP1: printer port? For this port USE VIRTUAL CHANNEL GATEWAY must be enabled in the port configuration (MMC) on the central print server (Illus. 15).
 - For .print AutoConnect, AUTO must be set as connection protocol on the terminal server (Illus. 20).
 - Is TP AUTOCONNECT SERVICE (Windows service) running on each terminal server or virtual desktop?
- Are the printers shared on the central print server.
- For .print Virtual Channel Gateway check the following:
 - Is/are the IP address(es) of the central print server(s) entered in the .print Virtual Channel Gateway configuration on the terminal servers (Illus. 45)?
 - Are the TCP port numbers the same for the ThinPrint Port and the .print Virtual Channel Gateway? (Illus. 45 and 46)
 - Is TPVCGATEWAY SERVICE running on each terminal server or virtual desktop?
 - Did you install the appropriate Virtual Channel Gateway? (different versions for virtual desktops and for terminal servers)
- Is the TCP/IP print protocol configured properly for the Lexmark and the Epson printer? In detail:
 - Are the port numbers (4000) the same on server and client (see port configuration in MMC on the central print sever and .print Client Manager)?
 - Are you sure that the TCP port number is not being blocked by the firewall or by another program (e.g., .print Virtual Channel Gateway)?
 - Did you disable IPv6?
 - Is the client machine in a masked network (NAT)?
- Check the name convention of the TCP1: printer port (see port configuration in MMC on the central print sever).

- Make sure that the option USE ENCRYPTION is disabled on the server (see port configuration in MMC).
- Establish a printer connection from the terminal server(s) to a shared Output Gateway printer on the central, dedicated print server manually. The resulting printer connection (Illus. 49) can be deleted afterwards.



Illus. 49 Connection to a Output Gateway share on the central print server (example)

- When .print AutoConnect starts (on the terminal server), are the correct shares on the central print server connected (see Illus. 17)? The entries in the name translation table must refer to the printer shares (Illus. 41). Check .print AutoConnect working by starting it manually: Open the command prompt in a terminal session and enter the following to create the session printers:

```
TPAutoConnect -v
```

And to delete them:

```
TPAutoConnect -d
```

If the session printers can be created manually by entering TPAutoConnect in the command line but are not automatically created when the session is started, check all .print AutoConnect settings (Illus. 40 to 43).

- Testing the TCP/IP connection: For printing via TCP/IP, a TCP/IP connection must exist between server and client which allows direct communication to the .print Client and its TCP port. Masked client networks (NAT) in this case can often cause difficulties. Test to see if the connection exists by trying a **telnet** from the server to the client's TCP port. To do this, enter the following at the server's command prompt:

```
telnet IP port (blank space between IP address and TCP port number)
```

IP is the client machine's IP address; *port* is the TCP port the .print Client is using. (See also the .print Client user manuals; [Page 36.](#))

Example 2: `telnet 192.168.131.224 4000`

After executing this command, a telnet window should open **without error message**. If so, the connection is OK.

Appendix

Customer service and technical support

www.thinprint.com/ → SUPPORT & SERVICES
support@thinprint.com

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 → <product name> .:

- .print Application Server Engine
- .print Server Engine
- .print Desktop Engine
- .print Engine for VMware View
- Quick installation of .print Application Server Engine
- Quick installation of .print Server Engine
- .print Connected Gateway
- .print Queue Manager
- .print Host Integration Service
- .print Client user manuals

White papers The following white papers (amongst others) are available at www.thinprint.com/ → SUPPORT → WHITE PAPER DOWNLOAD:

- Creating certificates for printing with ThinPrint .print
- Licensing
- Thin Print Ports
- Windows machine as a .print Client Gateway
- Intermate IAPS ThinPrint as a .print Client Gateway
- SEH TPG60/120 as a .print Client Gateway
- SEH ISD200/300 as a .print Client Gateway
- Intermate 10x as a .print Client Gateway