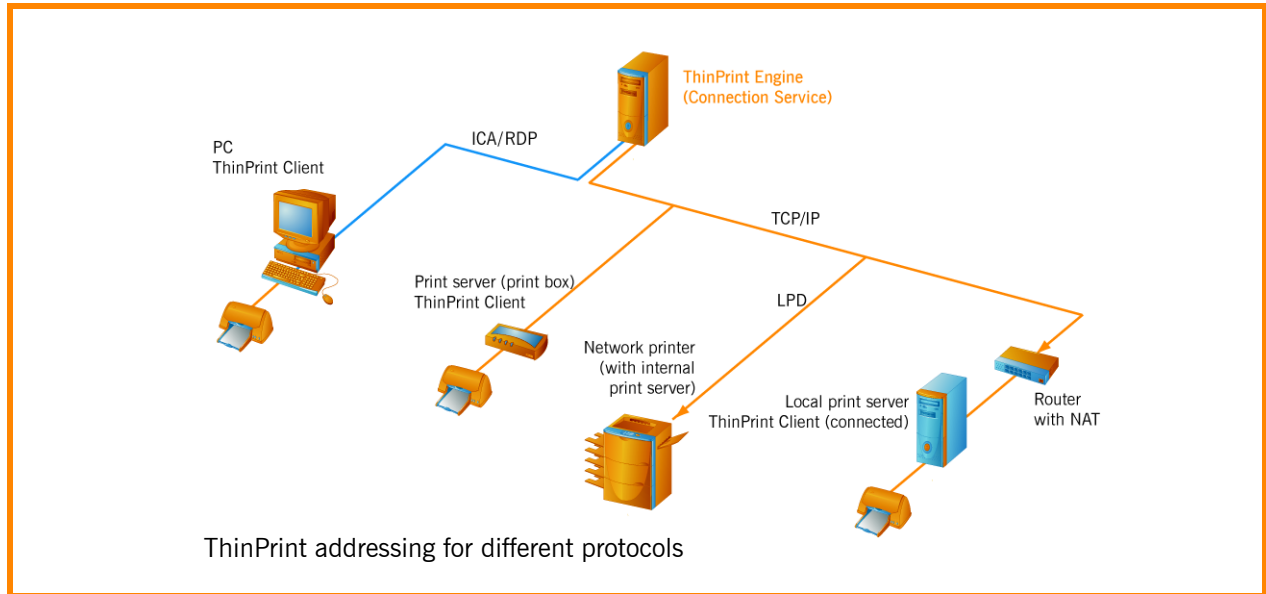


## ThinPrint addressing



ThinPrint is a pure software solution which basically consists of two components: a server and a client component. When printing over ThinPrint, print data is first sent from ThinPrint Engine to ThinPrint Client and then from there on to the printer. ThinPrint Software must therefore ensure two things to address print data:

- ThinPrint Engine must send print data to the correct client.
- ThinPrint Client must send print data to the correct printer.

Both will be explained in this White Paper. Because differences in ThinPrint addressing are somewhat dependent upon protocol, the following description is divided according to the protocols TCP/IP, ICA, RDP and LPD.

### Content:

#### TCP

- Sending print data to the correct client
- Sending print data to the correct printer
- With and without Connection Service

#### ICA/RDP

- Sending print data to the correct client
- Sending print data to the correct printer

#### LPD

- Sending print data to the correct client
- Sending print data to the correct printer

### Printer names with AutoConnect Name conventions (table)

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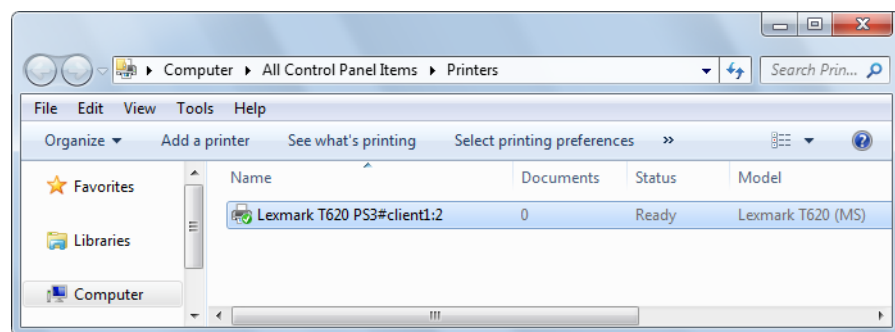
## Introduction

When printing with ThinPrint, the main functions, like bandwidth and compression, are set in the printer port properties. ThinPrint prints via its own ports, to which multiple printers can be connected. This simplifies administration because an individual port does not have to be created for each printer.

This also means, however, that the address information cannot be given in the printer port. With ThinPrint, this information is therefore given in the printer name. The printing server then knows where to send print data. The name of the printer object, then, includes address information in addition to the printer information. This ensures on one hand that print data is sent to the correct client, but then also from there to the correct printer.

The name of a printer object for ThinPrint therefore is composed of the proper printer name and the address information:

**Example 1** Lexmark T620 PS3#client1:2 (Illus. 1)

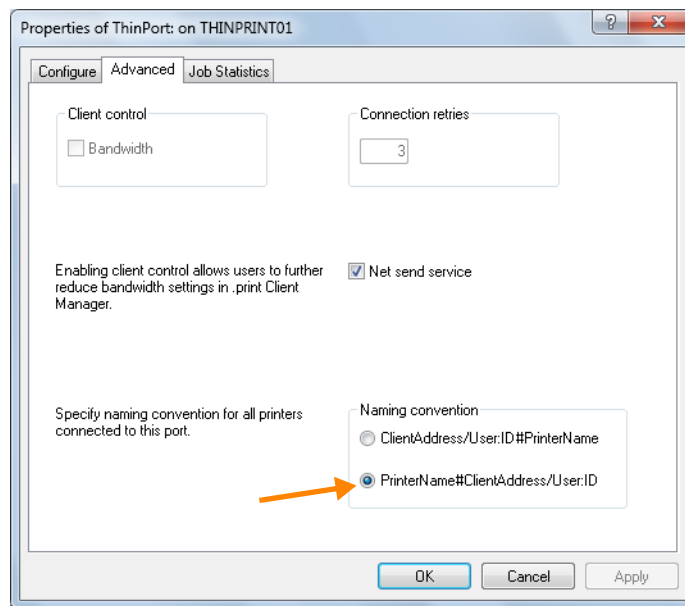


**Illus. 1** Name of the printer with ThinPrint

The two components (printer name and address information) are separated by a hash mark (#). The address information (client1:2) can include a printer ID (here, 2) entered after a colon (:). This is unnecessary if the default printer in the ThinPrint Client (called the CURRENT PRINTER) is to be used for printing - the printer ID can then simply be omitted. If more than one printer is set up on the client machine, though, each printer is assigned a printer ID by ThinPrint Client (see Example 3 on [Page 7](#)). Print data sent to the client will be sent to precisely the printer with this ID.

The protocol in use determines how the address information is formulated. It can be an IP address, a user name, the name of the client machine, or a client ID. Furthermore, the address information is not necessary at all if printing is done from within an ICA or RDP session and the terminal server (or the virtual desktop) knows who started the session.

The printer object is created on the server manually, or automatically with ThinPrint AutoConnect or Management Center. Under NAME CONVENTION on the server, you can specify whether the printer name or address information should be listed first (Illus. 2). Default sequence: Printer name#Address information.



**Illus. 2** Selecting name convention on the server

With AutoConnect, you can also select the order of printer and address information. In the following, you will find examples of possible names for printer objects - for different protocols like TCP/IP, ICA, RDP<sup>1</sup> and LPR/LPD as well as for AutoConnect.

Printer objects created using the Management Center follow the default naming convention, as shown in Illus. 2.

---

<sup>1</sup> All details regarding RDP also apply to the VMware protocol PCoIP.

## TCP/IP

### Sending print data to the right client (without Connection Service)



When communicating via TCP/IP, the printer object name on the server must include either the IP address *or* the name of the client to which the print data is to be sent (see examples [5](#) and [9](#), below). All print jobs for this printer will be sent to this client machine. It is irrelevant:

- Which user is printing
- Whether the document is being printed from a terminal or a virtual desktop session
- Which session protocol (ICA or RDP) is being used

Because the client address is set in the name of the printer object, it is only possible to print to that client machine.

It is possible to send print data through a secure connection that has been encrypted with SSL/TLS.

### Sending print data to the right client with Connection Service (masked networks)



The Connection Service enables ThinPrint print data to be sent via TCP/IP to clients in masked networks (NAT) or, if due to firewall restrictions, the communication direction must be reversed.

It is possible to use TCP/IP in masked networks because the clients are not addressed with their IP addresses, but with a ThinPrint Client specific client ID. The Connection Service has a database in which all client IDs are listed. The client address information about ThinPrint specific client IDs can be seen in this database. Print data is therefore routed through a “detour” to the server on which the Connection Service is running, and the Connection Service sends it to the client ID that it reads from the database.

When printing with the Connection Service, printer object names on the server must include a client ID (see examples [6](#) and [8](#)). All print jobs for this printer will be sent to the client with this ID. It is irrelevant:

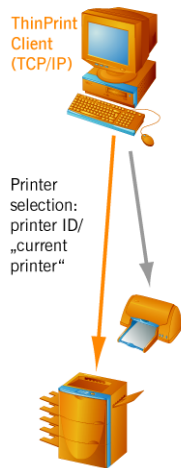
- Which user is printing
- Whether the document is being printed from a terminal or a virtual desktop session
- Which session protocol (ICA or RDP) is being used

Because the client ID is set in the name of the printer object, it is only possible to print to that client machine.

It is possible to send print data through a secure connection that has been encrypted with SSL/TLS.

## Sending print data to the correct printer

Forwarding print data to the correct printer using ThinPrint Client can occur in two ways:



a) entering the printer ID at the server

.ThinPrint Client assigns each printer an ID ([Example 3](#)). This can be entered in the printer object name at the server ([Example 6](#)); then print data can be sent directly to this printer without any further client settings being necessary.

Exceptions: When printing via the Virtual Channel Gateway, AutoConnect can write the printer ID in the Windows registry of the session when no printer IDs are included in the printer name on the central print server.

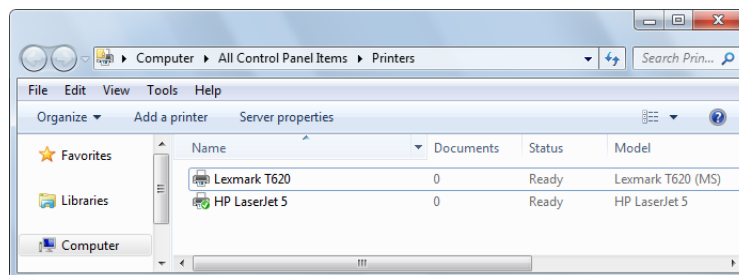
b) selecting “current printer”

One printer is always set as “current printer” in ThinPrint Client Manager ([Example 2](#)). If the printer object name has no or no correct printer ID, ThinPrint Client sends print data to the printer which is marked as “current printer”. A valid printer ID, however, takes priority over “current printer”.

### Examples: Client

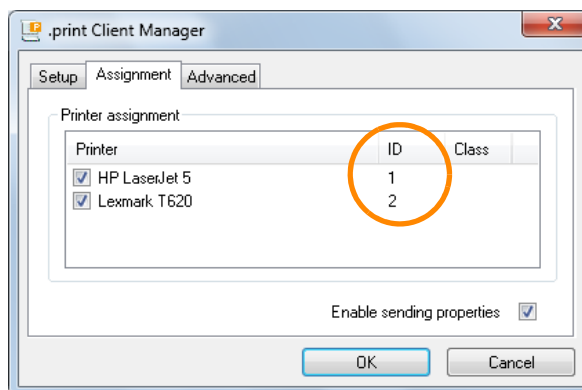
#### Example 2

2 locally installed printers on the client (client IP address: 192.168.1.100)

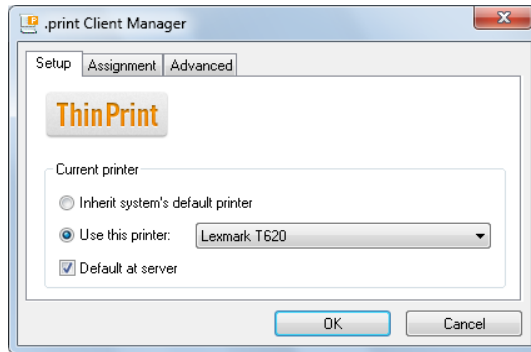


#### Example 3

Both printers with ID in ThinPrint Client Manager



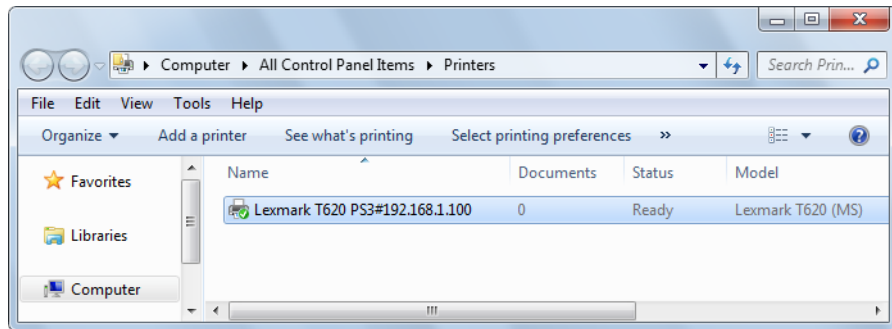
**Example 4**  
 “Current printer”  
 in ThinPrint Client  
 Manager



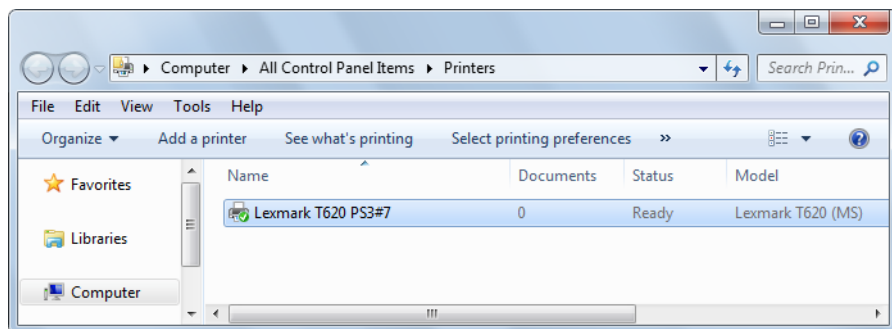
**Examples: Server (1)**

On the server (or on virtual desktops), the clients and printers are addressed over the printer object names listed at the server (see examples):

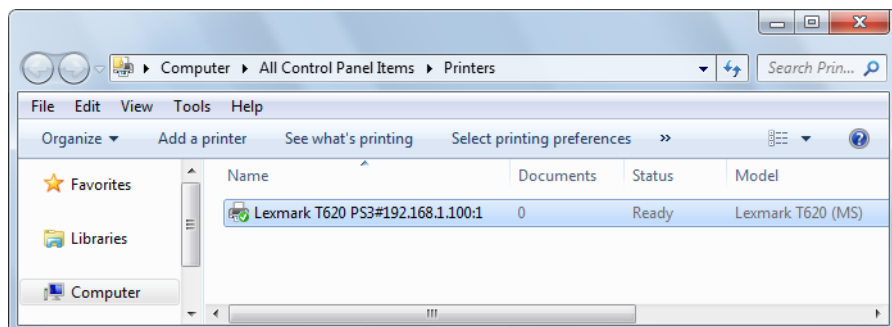
**Example 5** On the server: addressing of clients over IP address (= 192.168.1.100) – Printing to “current printer”



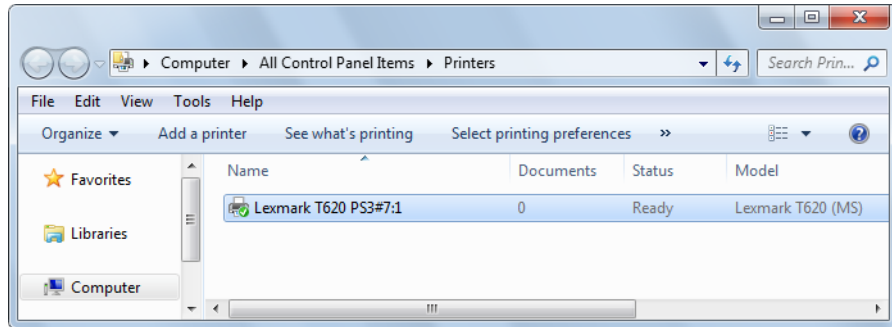
**Example 6** On the server: addressing clients by client ID (=7) – Printing to “current printer”



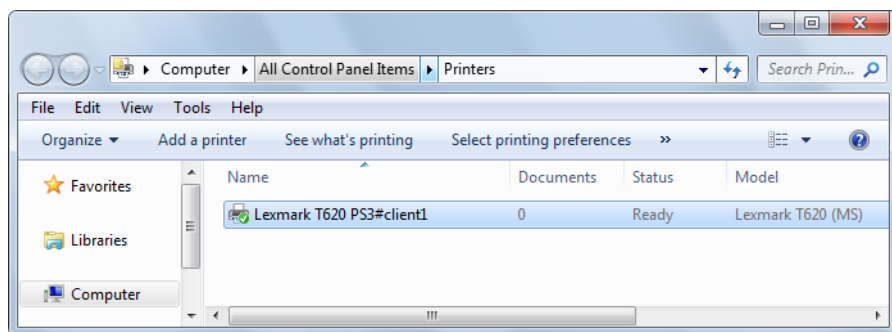
**Example 7** On the server: addressing of clients over IP address – Printing to printer with ID 1



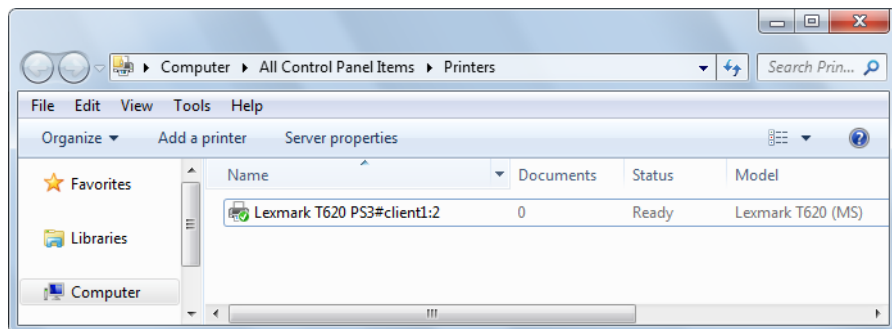
**Example 8** On the server: addressing clients by client ID – Printing to printer with ID 1



**Example 9** On the server: addressing of clients over client names (= client1) – Printing to “current printer”



**Example 10** On the server: addressing of clients over client names (client1) – Printing to printer with ID 2



## ICA / RDP

### Sending print data to the correct client



With ICA or RDP the printer object name does not require client information (this is also not analyzed), so the printer object name can basically be anything (if no printer ID is used). When printing from within a terminal session, ThinPrint Engine automatically detects from which session and from which client the print data has been requested and sends the print data to this client.

A printer object on the server (or on the virtual desktop) therefore does not print to a preset client; it can basically be used by any client. Print data is always sent to the client from whose session it was requested; i. e., to each respective user workstation.

Unlike with TCP/IP, this is a point-to-point connection, a tunnel between the server and the user workstation. The session ID and user name tell the server which is the correct tunnel for sending print data. The print data is therefore automatically sent to the correct user, even if no address information has been given.

## Sending print data to the correct printer

Print data can be sent to the correct client over ThinPrint Client in two ways:

- a) Entering a printer ID at the server

ThinPrint Client assigns each printer an ID ([Example 3](#)). This can be entered in the printer object name at the server or virtual desktop ([Example 10](#)); then print data can be sent directly to this printer without any further client settings being necessary.

Exceptions: When printing via the Virtual Channel Gateway, AutoConnect can write the printer ID in the Windows registry of the session when no printer IDs are included in the printer name on the central print server.

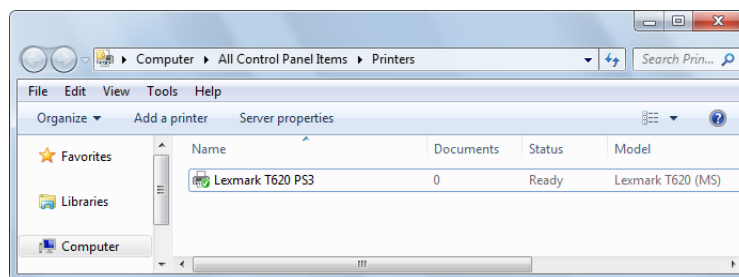
- b) Selecting “current printer”

One printer is always set as “current printer” in ThinPrint Client Manager ([Example 3](#)). If the printer object name or in the Windows registration on the server or on the virtual desktop has no or no correct printer ID, ThinPrint Client sends print data to the printer which is marked as “current printer”. A valid printer ID, however, takes priority over “current printer”.

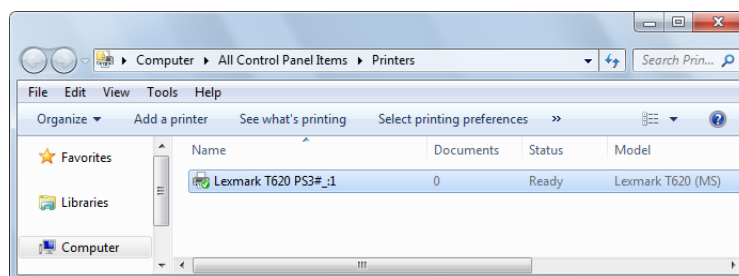
### Examples: Server (2)

Examples [2](#) to [4](#) are also valid here. Clients are addressed using their session information. Furthermore, client printers can be addressed with the printer ID (see next example):

**Example 11** The printer object name on the server has no address information; print data is sent to the client machine from which the user opened the session – Printing to “current printer”



**Example 12** As in Example 10, no server-side client addressing – Printing to printer 1



## LPD

## Sending print data to the correct LPD device



The LPR/LPD protocol is only necessary for ThinPrint if no ThinPrint Client is available on the client side.

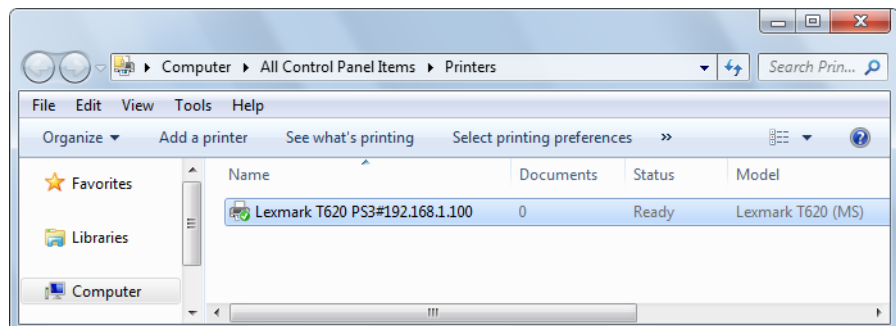
An LPD device is also addressed over the printer object name at the server – either the IP address or name of the device (usually a network printer or an external print server/print box) is entered there. With a printer object on the server, print data is sent to each specific printer. Printing over LPD is independent of the terminal session, as with printing over TCP/IP.

## Sending print data to the correct printer

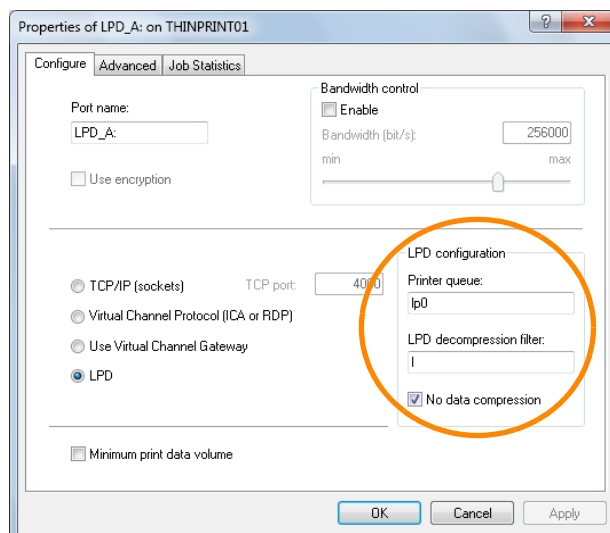
Printer IDs are not used for addressing the printer, because no ThinPrint Client is available ([Example 13](#)). Instead, correct printer assignment is made over the (device specific) printer queue name, which must be entered in the configuration of the ThinPrint Port (in the server's MMC). Entering this queue name is always required ([Example 14](#)).

## Examples: Server (3)

**Example 13** On the server: print server addressing over the IP address (= 192.168.1.100) – Printing in the lp0 queue (see [Example 14](#))



**Example 14** ThinPrint port configuration: printer queue *lp0* selected



## Printer names with AutoConnect

To use AutoConnect with Application Server Engine, create a printer template on the server instead of the formerly described printer objects; for example: `_#LEXMARK T630`. A template always starts with an underscore and hash mark (`_#`) followed by the printer name. The underscore is a place marker in which AutoConnect automatically writes the address information (client name, IP address, or user name) when creating a printer.

Only thereafter does the name convention come to bear. By default, the printer name is displayed first, then the address information (example: Lexmark T630#client1:3). If you change the name convention on the server (see [illus. 2](#)), the address information is displayed before the hash mark and the printer name after it (example: client1:3#Lexmark T630).

Instead of the printer name, templates can contain all the names from the target column of the Dynamic Printer Matrix.

## Name conventions for printer objects

It is irrelevant to the a ThinPrint printer name whether the object represents a traditional or ThinPrint Output Gateway printer driver. ThinPrint printer name is composed according to the network protocol in use, and whether AutoConnect is being run:

<i>Printer names</i>	<b>Network protocol</b>	<b>Names of printer objects</b>
	<b>TCP/IP</b> (without AutoConnect)	<p><b>Either:</b> <code>printer#clientname:printer_ID</code> Example: <code>Kyocera FS-850#client1:3</code></p> <p><b>Or:</b> <code>printer#IPaddress:printer_ID</code> Example: <code>Kyocera FS-850#191.168.1.17:3</code></p> <p><b>Or:</b> <code>clientname:printer_ID#printer</code> Example: <code>client1:3#Kyocera FS-850</code></p> <p><b>Or:</b> <code>IPaddress:printer_ID#printer</code> Example: <code>191.168.1.17:3#Kyocera FS-850</code></p> <p><b>Or:</b> <code>printer#client_ID:printer</code> Example: <code>Kyocera FS-850#77:3</code></p> <p><b>Or:</b> <code>client_ID:printer_ID#printer</code> Example: <code>77:3#Kyocera FS-850</code></p> <p>The <code>printer_ID</code> is automatically assigned by the ThinPrint Client (see its manual).</p> <p>: and <code>printer_ID</code> can also be omitted; then the <i>current printer</i> at the client will be targeted.</p> <p>The Connection Service uses the <code>client_ID</code>.</p>

Network protocol	Names of printer objects
ICA/RDP (without AutoConnect)	<p><b>Either:</b> <i>printer#_:printer_ID</i> Example: Kyocera FS-850#_:3</p> <p><b>Or:</b> <i>:printer_ID#printer</i> Example: :3#Kyocera FS-850</p> <p># and :ID can also be omitted; then the <i>current printer</i> at the client will be targeted. The underscore can also be omitted or replaced by a blank.</p>
LPD	<p><b>Either:</b> <i>printer#clientname</i> Example: Kyocera FS-850#client</p> <p><b>Or:</b> <i>printer#IPaddress</i> Example: Kyocera FS-850#191.168.1.17</p> <p><b>Or:</b> <i>clientname#printer</i> Example: client1#Kyocera FS-850</p> <p><b>Or:</b> <i>IPaddress#printer</i> Example: 191.168.1.17#Kyocera FS-850</p>

## Template names

Network protocol	Names of printer objects (for templates)
TCP/IP, ICA, RDP with AutoConnect	<p><b>Either:</b> <i>_#printer</i> Example: <i>_#Kyocera FS-850</i></p> <p><b>Or:</b> <i>_#class</i> Example: <i>_#HPLaser</i></p> <p>Printers can be created with a template with a specific name (e.g., <i>_#printer</i>) if their printer name or class name corresponds with the template name (after the #).</p> <p>The use of class names makes sense when printers with different names shall use the same template, and adding extra rows to the Dynamic Printer Matrix is not desired (for example when the driver of the template is suitable for the different client printers).</p>

## Important tips

1. On the server (or on the virtual desktop), all printers which will print over *ThinPrint* must be associated with a *ThinPrint Port*. The network protocol and bandwidth can be set for each port – in the server's MMC ([Example 14](#)).
2. The name of the *ThinPrint Port* is irrelevant for all protocols; it serves purely as an informative description (unlike the usual naming concept, as with LPR ports, where the port name includes IP address and queue name).
3. When using *Virtual Channel Gateways*, addressing occurs exactly as described for printing over ICA /RDP.

4. If multiple users are using the same use name, the following is true:
  - TCP/IP printing: no problems
  - ICA/RDP printing directly from terminal servers: no problems
  - ICA/RDP printing from the central print server over a *Virtual Channel Gateway*: not possible
5. With *AutoConnect*, printer objects are created on the terminal server (or on the virtual desktop) according to the name convention for each protocol and automatically given the correct printer ID<sup>2</sup>. Over ICA/RDP the user name is entered in the printer object name; this is nonetheless insignificant for addressing and only serves to differentiate between printer objects which have been created for different users.

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<sup>2</sup> This is, however, only true if ThinPrint Engine is running on a terminal sever or on a virtual desktop.