



White Paper

Using BarTender with Terminal Services and Citrix MetaFrame

Printing and Licensing Issues

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Overview

This paper explains how to use BarTender with Windows Terminal Services and with Citrix MetaFrame Presentation Server. It discusses printing and licensing issues in these two environments for each of the BarTender editions.

Terminal Services

Terminal Services is a Windows Server 2000/2003 feature that enables a client computer to connect to the server in such a way that the client's keyboard, mouse, and monitor become, in effect, directly connected to the server machine. When the client machine is a computer running Windows, instead of a dumb terminal, then it must have Microsoft's Remote Desktop Connection (RDC) program installed to use Terminal Services.

For more information on Terminal Services, search on "Terminal Services" at Microsoft's web site: www.microsoft.com.

Citrix MetaFrame

Citrix MetaFrame Presentation Server is a product that runs on Terminal Services and provides many enhancements to it. For more information, see the Citrix web site: www.citrix.com.

Printer Redirection

Printer redirection is a feature of Terminal Services that facilitates printing from the server to printers on the client computer. There is a brief discussion of it in the [Client Print Queues](#) section of this document. For more information on printer redirection, see the Windows 2000 Terminal Services Printer Redirection white paper at www.microsoft.com. Or search on "Terminal Services" and "Printer Redirection" also at www.microsoft.com to find knowledge base articles, FAQs, and other type of documentation on this feature.

Printing

When a user logs into a Terminal Services session, the list of printers that will be available to them comes from two sources: the printer drivers installed on the server, and the printer drivers installed on the client. The drivers that are installed on the server are referred to as *server print queues* and the drivers that are installed on the client are called *client print queues*.

Server Print Queues

If a printer is either attached to the server, or on the server's network, the printer driver can be installed on the server. This creates a server print queue and has the effect of making the printer available in all terminal server sessions.

Client Print Queues

When a client logs into a terminal service session, the server will attempt to create client print queues for the printers that are installed on the client.

If the printer is not on the server's local network, then a client print queue must be used. A client print queue can also be used for printers that are on the server's local network, in order to make the printer only available to a particular user's sessions.

Client print queues are created by a Terminal Services feature called printer redirection. It will redirect printed output from the server to the client by creating automatic client print queues. If automatic client print queue creation does not work, the user may be able to solve the problem by creating manual client print queues. In both cases, a matching print driver is installed on the server, all print code is generated on the server, and the resulting printer code is redirected to the client's printer.

Note: printer redirection does not support bi-directional printing. If your label printing procedure depends on receiving data from the printer, such "ready" signals, then you cannot use printer redirection.

Automatic Client Print Queues

Often, printer redirection works with no effort at all. If the server has local access to the driver that is installed on the client, it is automatically used.

If the server does not have access to the driver, then to enable automatic print queue creation, you will need to install on the server a printer driver with the same name as the driver on the client machine. To do this, open the **Printers Folder**, select **Server Properties** from the **File** menu, select the **Drivers** tab, press the **Add** button, and follow instructions. Once this is done, every time the client logs in, the print queue will be created automatically.

Manual Client Print Queues

In some circumstances, automatic client print queue creation doesn't work. Often this happens because the same printer driver cannot be installed on both the server and client, such as when a Windows 9X client logs onto a Windows 2000 server. In these situations, manual client print queues can be created manually.

To create manual client print queues, simply log into a terminal server session, and run the **Add Printer Wizard**. When asked to select a port, choose the desired client port. Each time a user on the specified client machine logs in, this printer mapping is reconstructed automatically.

BarTender Editions

BarTender is available in Basic, Professional and three Enterprise editions (see below). The Basic and Professional editions are licensed per user, and the Enterprise editions are licensed per printer. All editions will run under Terminal Services and Citrix MetaFrame Presentation Server. Licensing issues specific to each of the editions are documented below.

Basic and Professional Editions

The Basic and Professional editions of BarTender can only be run by one user at a time. So if BarTender is already running in one user's session, a second user logged into the server will not be able to run it.

Enterprise Editions

The three Enterprise editions of BarTender (including Enterprise, RFID Enterprise and Enterprise Print Server) allow unlimited users to run the BarTender application. Therefore, it can be run simultaneously in any number of login sessions. Enterprise editions use printer licensing instead of user licensing. The number of active printers is limited by a license. Licenses can be purchased for 3, 5, 10, 15, 20, and more printers. The license system is managed by the Seagull License Server (SLS) software. Details about this system can be found in Seagull Scientific's white paper [*BarTender Enterprise Licensing*](#).

Technical Notes

Special Issue for Citrix MetaFrame and Enterprise Editions

When an Enterprise edition is used with Citrix MetaFrame, and the driver for a TCP/IP connected printer is installed as a local printer on multiple client computers, BarTender and SLS will consider this printer to be a different printer on each computer, unnecessarily using up printer licenses. This is not an optimal print configuration anyway, as it does not provide a centrally managed print queue.

A superior configuration, which ensures that the printer will use only one license, is to use the **Add Printer** wizard to install the driver as a local and shared printer on a computer that will act as the print server. Then, on all other computers, install the driver using the **Add Printer** wizard as a network printer. If you wish to understand exactly what causes this issue and why this configuration solves the problem, read the following [*Technical Details*](#) section.

Technical Details

All three Enterprise editions of BarTender use Seagull License Server (SLS) to track the number of printers that are being used. SLS distinguishes printers by location, model, and port. There are two forms for the printer name in Citrix MetaFrame Presentation Server, one for printers that are not shared, and one for printers that are shared. (The "Client" and the "#" below are constants.)

Non-shared Printers:	Client\ <i><client_name></i> #\ <i><printer></i>
Shared Printers:	Client\ <i><client_name></i> #\\\ <i><pc_name></i> \\ <i><printer></i>
<i><client_name></i>	The name of the client computer as specified within the MetaFrame client software
<i><printer></i>	The name of the printer as it appears in the Printers Folder
<i><pc_name></i>	The name of the client computer on the client's network

For non-shared printers, BarTender uses “*<client_name>*” as the location and “Client*<client_name>*#*<printer>*” as the port name. For shared printers, BarTender uses “*<pc_name>*” as the location, and “*<pc_name>**<printer>*” as the port name.

If the driver for a single TCP/IP-connected printer is installed as a local printer on multiple clients, MetaFrame uses the non-shared printer naming convention. This results in BarTender using the unique “*<client_name>*” as the printer's location for each of the clients. That is why the same printer will use multiple printer licenses. Installing the driver as a shared local printer on one client and then installing the driver as a network printer on the other clients solves this problem as it causes MetaFrame to use the naming convention for shared printers. That way BarTender uses “*<pc_name>*” for the location, making the location consistent on all of the clients that are printing to that printer.

Performance with Windows 2003 Server

There may be reduced printing performance when Terminal Services is used to connect to a server running Windows 2003 Server and the client does not connect to the server's console session.

To avoid this possible performance problem, use the following method to launch the Remote Desktop Connection (RDC) program on the client.

Open the Command Prompt by selecting **Programs | Accessories | Command Prompt** from the **Start** menu. At the Command Prompt enter:

```
mstsc /v:<servername> /console [/f]
```

The `/console` switch will connect the client to the server's console session and it will ensure the same printing performance as the remote user would have if he or she were using the server's actual keyboard and monitor. When RDC is launched in the usual way, by double-clicking the RDC icon, then the `/console` switch is not used, so the client does not use the server's console session and the performance reduction is not avoided.

The optional `/f` switch will start the session in full screen mode. To see more options for the `mstsc` command, enter

```
mstsc /?
```

at the Command Prompt.

Available Seagull White Papers

General White Papers

- The Advantage of Drivers by Seagull
- Choosing the Right BarTender Edition
- Label System Security

Companion Applications

- Printer Maestro, Part 1: Enterprise Print Management
- BarTender Security Center
- BarTender Web Print Server

Recent Upgrades

- What's New in the Latest BarTender

Integration White Papers

- Integration Overview
- Commander
- Commander Examples
- BarTender's .NET SDKs
- BarTender's ActiveX Automation Interface
- Exporting Printer Code Templates
- Using BarTender with Terminal Services and Citrix MetaFrame
- XML Integration with Oracle's WMS and MSCA

Integration With SAP

- SAP Integration Methods
- Reading SAP IDocs
- SAP Auto Infrastructure Integration with BarTender

Miscellaneous White Papers

- BarTender Enterprise Licensing
- Printing International Characters Using BarTender
- BarTender Software Activation
- Using BarTender's Application Identifier Wizard
- Optimizing Label Printing Performance
- Status Monitor Overview
- Silent Install

For downloadable versions, visit:

www.seagullscientific.com/asp/whitepapers.aspx

