Citrix Compatibility for the Samsung MultiXpress 6345N Printer

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Introduction

This white paper describes the testing methods used to verify the compatibility of the Samsung MultiXpress 6345N printer with the Citrix environment.

Citrix is the leading terminal service for enterprise operations, and these operations want to print with confidence. Samsung has enlisted the help of Wipro Technologies to verify the compatibility of the MultiXpress 6345N for use with Citrix.

The MultiXpress 6345N

The MultiXpress 6345N design targets small and medium size business and has the following specifications:

Features:

- 40 GB Hard Drive
- 256 MB of memory
- 45 pages per minute (ppm) print speed
- 520 sheet paper tray
- USB and Network interface
- 1200 X 1200 dpi print resolution.

Firmware Specifications:

- Main Firmware Version 1.03.00.61 03-27-2008
- Network Firmware Version 2.03.01 (MultiXpress 6345N) HQ_wipro
- Engine Firmware Version 3.00.33
- UI Firmware Version F_PL_V1.01.00.57 WP 02-25-2008
- PCL5E Version PCL5e 5.64 11-07-2007
- PCLXL Version PCL6 5.57 11-28-2007
- PostScript Version PS3 V1.71.66 11-08-2007
- PDF Version PDF V1.00.45 11-12-2007
- DADF Firmware Version 1.02.

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Printer Drivers Tested

The printer drivers tested include the following:

- Citrix Universal Printer Driver 4.5
- Samsung MultiXpress 6x45 Series PCL 6 Driver Version 3.04.54+:52
- Samsung MultiXpress 6x45 Series PS Driver Version 1.81.

Test Environment

The testing lab used the following Citrix environment to test the MultiXpress 6345N performance.

Citrix Version:

- Citrix Presentation Server 4.5
- Citrix Presentation Server Client Version 10.00.52110.

Hardware:

- Server 32-Bit: Intel Xeon 3040 1.86 GHz processor – Dual, 2 GB RAM, 250 GB hard drive
- Client 64-Bit: AMD Athlon 4400+ processor, 1 GB RAM, 80 GB hard drive
- Client 32-Bit: Intel Core Duo 1.6 GHz processor, 1 GB RAM, 80 GB hard drive.

Software:

- Windows 2003 Server Enterprise Edition with SP1 32-bit OS, running Terminal Services, IIS, and IMA services.
- Clients – Windows XP / 2000 / Vista
- Microsoft Office 2003
- Microsoft.Net Framework 2.0
- J2SE Runtime Environment 5.0 Update 9
- Microsoft Visual J# 2.0 Redistributable Package
- Windows Installer 3.1.

Test Results

The lab tested the Samsung MultiXpress 6345N printer in a Citrix environment using the Citrix printing features. They tested both the PCL and PS drivers using Windows XP.

The following table lists the test results for these tests.

Functionality	Windows 2000 32 Bit	Windows XP 32 Bit	Windows Vista 64 Bit
Auto Creation	Pass	Pass	Pass
Citrix Universal Printer Driver	Pass	Pass	Pass
Driver Compatibility	Pass	Pass	Pass
Session Printing	Pass	Pass	Pass
Driver Replication	Pass	Pass	Pass
Client Driver Mapping	Pass	Pass	Pass
Client Driver Properties	Pass	Pass	Pass
Network Print Servers	Pass	Pass	Pass
Shadowing of Client Printer	Pass	Pass	Pass
Driver Features	Pass	Pass	Pass
Basic UI	Pass	Pass	Pass
Printer Policies	Pass	Pass	Pass
Server Printing	Pass	Pass	Pass
Driver Policies	Pass	Pass	Pass
Driver Installation	Pass	Pass	Pass

Test Scenarios

The tests included several test scenarios designed to verify the compatibility of the Samsung MultiXpress 6345N with Citrix. The test scenarios include the following:

- Auto Creation of Client Printers
- Citrix Universal Printer Driver
- Client Driver Compatibility
- Using Session Printers
- Replicating Printer Drivers
- Mapping Client Printer Drivers
- Verifying Client Driver Properties
- Using a Network Print Server
- Shadowing Client Printers
- Using Driver Features
- Using the Interface
- Using Printer Policies
- Printing from a Server
- Using Driver Policies
- Installing Printer Drivers.

Auto Creation of Client Printers

Description

The Auto Creation feature displays the client machine printers on the server during an ICA connection. The server users can print from these auto-created client printers. When a user logs on to a server farm, Citric creates their configured printers in the session automatically, without requiring an installation of the printer drivers or printers located on the client system.

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer to a client using a USB cable and they installed the printer drivers on the client. They made an ICA connection from the client to the server. All of the client printers in were auto-created on the server. The lab printed from the server using the auto-created client printers.

Observation

The Samsung MultiXpress 6345N printer was successfully auto-created, and there were no printing issues using the PCL6 and PS drivers.

Citrix Universal Printer Driver

Description

Citrix uses the Citrix Universal Printer Driver to auto-create printers on the server when the native printer driver is not available from the client.

The Citrix Universal Printer Driver supports the following printer control languages:

- PostScript (PS)
- PCL5C
- PCL4

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer to a client using a USB cable and they installed the printer driver on the client. They made an ICA connection from the client to the server. They did not install the Samsung MultiXpress 6345N printer driver on the server.

Observation

Citrix successfully used the Citrix Universal Printer Driver to auto-create the driver on the server. The lab printed to the Samsung MultiXpress 6345N printer from the server using this driver and experienced no issues.

Client Driver Compatibility

Description

Client Driver Compatibility in Citrix provides an option you can use to prevent Auto-Create from creating drivers on the server from the client printers. This option allows you to prevent a problematic driver from causing a fatal system error on the server.

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer to a client using a USB cable and they installed the printer driver on the client. They made an ICA connection from the client to the server. From the Presentation Console of the server, the lab disabled the Auto-Create feature for the Samsung MultiXpress 6345N printer driver by using the Client Driver Compatibility feature.

Observation

When the lab connected the client to the server using an ICA connection, the Client Driver Compatibility feature prevented Auto-Create from creating the Samsung MultiXpress 6345N printer driver on the server. The Samsung MultiXpress 6345N printer exhibited no issues during the testing of this feature.

Using Session Printers

Description

Citrix Presentation Server defines policy-based session printers as "printers attached locally to a Server running Citrix Presentation Server" or as "shared printers imported from a Network Print Server." When Citrix applies the Session Printer Policy to a user, it creates the configured printers for that user automatically for any log on session with a Server farm, without requiring an installation of the printer drivers or the presence of a printer on the client system.

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer to a client using a USB cable or by creating a TCP/IP port.

They enabled the Samsung MultiXpress 6345N printer as a session printer for the client by using the Session Printer Policy from the Presentation console of the Server. The lab made an ICA connection from the client to the server.

Observation

The Citrix client recognized the Samsung MultiXpress 6345N printer as a Session Printer during the ICA connection. The lab successfully printed from the Samsung MultiXpress 6345N Session Printer.

Replicating Printer Drivers

Description

Driver Replication is a Citrix Server feature that allows printer drivers installed on one server to replicate to another server in the same server farm. This feature reduces the overhead caused by installing the printer on each Server separately. This feature saves time and it ensures that newly installed drivers are available from all of the servers.

Replicating printer drivers in the server farm ensures that the ICA client users can print to any of the client and the network printers located on the server farm.

Test Methodology

The lab joined two servers (Server1 and Server2) to create a server farm. They installed the Samsung MultiXpress 6345N printer driver on Server1 and not on Server2. Then they replicated the driver from Server1 to Server2. Finally, they established an ICA connection to Server2 from the client.

Observation

The lab used Auto Create to create the client printers on Server2 using the replicated Samsung MultiXpress 6345N printer driver. They successfully printed through the auto-created client printer. The lab did not encounter any issues with the Samsung MultiXpress 6345N printer on any of the operating system platforms tested.

Mapping Client Printer Drivers

Description

The Citrix Presentation Server Driver Mapping feature allows users to substitute specific Windows printer drivers for client printers. Each client provides information about the printers during logon, including the printer model name. During client printer auto-creation, the selected Windows-server printer driver names correspond to the printer model names provided by the client. The auto creation process then employs the identified, available printer drivers to construct redirected client print queues. In some cases, the printer model names provided by the client do not correspond directly to the printer driver names on the Windows-server. When this happens, auto creation will fail, unless the administrator designates a surrogate driver.

Administrators can also use the Citrix Presentation Server Driver Mapping feature to force families of compatible printers to use a single reliable driver.

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer to a client by using a USB cable. They also installed the driver for this printer on the server and on a client with a different name than used on the server. The lab used the Presentation console to map the client's printer driver to the server's printer driver. Then they made an ICA connection from the client to sever.

Observation

Citrix auto-created the client printers on the server during the ICA connection and mapped the client's printer driver to the driver present on the server. The lab successfully printed through this client auto-created printer using the mapped driver.

Verifying Client Driver Properties

Description

In Citrix, driver properties refer to the printer configuration settings you make to the client system.

You perform these settings locally on the client machine. These settings include orientation, paper size, pages per sheet etc. Citrix displays these printer driver properties in the settings for the auto-created client printer.

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer to the client by using a USB cable. They installed the printer driver on the server and on the client. Then they verified the printer driver properties of the auto-created printer against the printer driver properties on the client machine.

Observation

The lab confirmed that the printer driver settings of the auto-created client printers are the same as the settings on the client machine. The changes they made to the printer driver properties on the client machine were present on the auto-created client printers when they established an ICA connection with the server.

Using a Network Print Server

Description

Citrix Network Print Servers are servers to which you attach shared printers. You import these shared printers to the Citrix Presentation Server and assign them to users through policies.

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer to the Citrix Print Server using a USB connection or a TCP/IP connection. They verified the availability of shared printers. The lab then imported the shared printer to the server and configured it for a specific user through the session policy. That user then connected to the server by using an ICA connection.

Observations

The lab confirmed that the Print Server was available for printing in the tested session. They successfully printed to the Samsung MultiXpress 6345N printer by using that session.

Shadowing Client Printers

Description

Citrix shadowing is a feature that allows users to view and control other user's sessions remotely. You can use session shadowing to monitor and interact with user's sessions. When you shadow a user, you can view whatever appears on the user's session display. Shadowing is a useful tool for user collaboration, training, troubleshooting, and monitoring by supervisors, help desk personnel, and teachers.

You can use the Citrix Shadow Taskbar to shadow sessions and to switch among multiple shadowed sessions.

Test Methodology

The lab selected the shadowing option in Citrix Server, and then they selected a user desktop to shadow. They verified the actions performed on client side against those performed on the user side. The lab rejected shadowing of the desktop and verified whether this step blocked shadowing from occurring.

The lab connected the Samsung MultiXpress 6345N printer to the client by using a USB connection or TCP/IP connection. They selected a user's desktop to shadow for the test. Then the lab tested the print drivers while shadowing the user.

Observation

The lab successfully shadowed the user and observed their actions performed on the server side from the client side. Then they successfully printed to the Samsung MultiXpress 6345N printer using the PCL 6 and PS drivers over the shadow session. The lab encountered no issues on any of the tested Windows operating systems.

Using Driver Features

Description

A printer driver contains the printer instructions you can configure to control a printers features. These features allow you to output your print jobs by using different printing formats. Printer features can include watermarks, overlays, etc. You should get the same results using these printer features from an auto-created client driver, as you would get from a local client printer driver.

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer to the Citrix Presentation Server machine using a USB connection or using a TCP/IP connection. They installed the printer driver on the server and on the client machine. The lab created a Microsoft Word document named 'Data.doc' on the server. The lab established an ICA connection from the client to the server using MS Word from the server. They opened and printed the 'Data.doc' file from the Server to test the watermark, overlay, and n-up printing features of the driver during the ICA session.

Observation

The lab successfully printed to the Samsung MultiXpress 6345N printer using the watermark, overlay, and n-up driver features without encountering any issues on any of the Windows operating systems tested.

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Using the Printer Driver Interface

Description

The Printer Driver User Interface is the interactive visual representation of the printer features and their settings presented in a format that allows a user to configure or arrange the printer settings to accommodate their printing requirements.

A Printer Driver User Interface provides the following:

- Control over the printer input, allowing the user to manipulate the system.

- Control over the printer output, allowing the system to produce the desired user-configured effects.

The goal of any user interface is to provide easy navigation, accessibility, and a logical flow of the user interaction. It must provide an environment that any user can understand and that they can use to create their expected output.

Test Methodology

The lab installed the Samsung MultiXpress 6345N PCL 6 driver on the Citrix Presentation Server machine and on the Citrix Client. They established an ICA connection from the client to the server by using MS Word from the Server side. The lab connected the printer to the server. They tested the Samsung Printer Driver User Interface print window for navigability, accessibility, and functionality. The lab accessed all of the UI tabs such as Page Order, Page Orientation, etc.

Observation

The lab found all of the Samsung Printer Driver User Interface tabs to be functional, navigable, and user friendly. They did not encounter any issues while testing the Samsung MultiXpress 6345N printer on any of the Windows Operating systems tested.

Using Printer Policies

Description

You use Citrix Presentation Server Printer Policies created in the Presentation Server Console to configure printer management. Presentation Server Printer Policies provide a mechanism to define a collection of system settings that can be associated with a broader range of criteria than just users, groups, and computers.

You can use policies to establish farm-wide defaults for server settings. You assign Presentation Server Printer Policies through filters that apply rules defined by using any combination of the following criteria:

- Access Control

- Client IP address

- Client Name

- Servers

- Users.

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer to the Citrix Presentation Client machine by using a USB connection or by using a TCP/IP connection. They installed the printer driver on the Client. Then from the Citrix Presentation Console the lab enabled the server 'Auto Create all Client Printers' policy and applied it to the following:

- A range of IP addresses

- One particular IP address

- A specific client name

- One particular user

The lab tested the auto creation of client printers after they applied each of these policies.

Observation

Citrix successfully auto-created all of the client printers to which the policies were applied.

Printing from a Server

Description

Printing from a server is the process of using any of the Citrix access options to print from a locally connected server printer and from a network printer.

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer locally to the Citrix Presentation Server machine by using a USB connection or a TCP/IP connection. They installed the printer drivers on the Server. Then the lab established an ICA connection from the client to server by using MS Word from the Server side. The lab verified the printing ability of the printer drivers during the ICA session by firing a test print using the Server local printer drivers in the ICA session.

The lab connected the Samsung MultiXpress 6345N printer to the Host-A machine and shared the printer in the Citrix Presentation Server machine network. They installed the printer driver on the server machine by using the 'Import Network Print Server' feature in the Citrix Presentation Console. The lab enabled the Session Printer Policy applied it to the client machine. They established a new ICA connection between the client and the server by using MS Word from the server side. Then the lab verified the 'Printers and Faxes' window for the Network Print Server installed on the server side of the ICA session and fired a test print to verify the functionality of the installed network printer.

Observation

The lab successfully installed the printer drivers on the server and printed through the server printer driver. Then they successfully used the server network printer to print from the server side. The lab did not encounter any issues testing this feature on any of the Windows Operating Systems.

Using Driver Policies

Description

Citrix Driver Policies provide a mechanism you can use to define a collection of system settings for a broader range of criteria than just users, groups, and computers. Driver Policies basically, deal with the native printer drivers and the universal printer drivers.

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer to the Citrix Presentation Client machine by using a USB connection or a TCP/IP connection. Then they installed the printer driver on the client and the server machines. The lab enabled 'Native Printer Drivers' and 'Universal Printer Drivers' policies from the Citrix Presentation Console of the Server.

Observation

The lab observed that Citrix successfully auto-created the client printer drivers by only using the native printer drivers when the 'Native Printer Drivers' policy was enabled. They did not encounter any issues testing this feature on any of the Windows Operating Systems.

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Installing Printer Drivers

Description

Proper installation and removal of the Samsung MultiXpress 6345N printer drivers on the Citrix Presentation Server 4.5 and on the Citrix Presentation Client machines is essential for adding and removing system printers.

Test Methodology

The lab connected the Samsung MultiXpress 6345N printer to the Citrix Presentation Server 4.5 machine locally by using a USB or a TCP/IP connection. Then they installed and removed the Samsung MultiXpress 6345N series printer driver from Citrix Presentation Server 4.5 machine.

The lab connected the Samsung MultiXpress 6345N printer to the Citrix Presentation Client machine locally by using a USB or a TCP/IP connection. Then they installed and removed the Samsung MultiXpress 6345N series printer driver from Citrix Presentation Client machine.

Observation

The lab did not encounter any issues installing or removing the Samsung MultiXpress 6345N series printer driver for either the server, or the client with a printer connected to the server or the client locally using any of the Windows Operating Systems.

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