

# Customer Tips

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*... for the user*

## *Printing to a Xerox Multifunction Device Using Port 9100*

### Purpose

This document provides an overview of Port 9100, describes the benefits of using Port 9100, and identifies the Xerox multifunction devices that support Port 9100 printing.

This document also provides information about how some network operating systems print using Port 9100. Although only Windows 2000 was found to support native Port 9100 printing, this document also contains brief discussions of Port 9100 printing related to other operating systems.

Currently, the following devices support Port 9100 printing:

- Document Centre 240/255/265 with System Software 6.x.
- Document Centre 420/432/440 ESS 2.xx
- Document Centre 425/432/440 ESS 3.xx
- Document Centre DC 460/470/480/490
- Document Centre DC535/545/555
- WorkCentre M35/M45/M55
- WorkCentre Pro 35/45/55, WorkCentre Pro 32/40 Color, and WorkCentre Pro 65/75/90

This document applies to these Xerox products:

x	WC Pro 32/40 Color
x	WC Pro 65/75/90
x	WC Pro 35/45/55
x	WC M35/M45/M55
x	DC 555/545/535
x	DC 490/480/470/460
x	DC 440/432/425/420
	DC 340/332
x	DC 265/255/240
	DC 230/220
	DCCS 50

### Description of Port 9100

Many printers support a form of raw printing commonly referred to as any of the following: raw sockets, port printing, standard TCP/IP, Port 9100, Port 2500, AppSocket, and IP direct. All of these names represent the same printing process—open a TCP socket-level connection on the specified port, “dump the code” or send a print ready file to the port, and then close the connection. For the purposes of this document, Port 9100 refers to this type of printing.

Each different implementation of Port 9100 printing has its own specifications and requirements. Some machines support bi-directional communication for printing and/or configuration, some support error control and some support printer side spooling. Some machines support only PCL files, some support only PS files, some only ASCII text, and some support all. Specifications for each implementation are difficult to locate and trial and error is often required to determine a printer's Port 9100 capabilities.

## Benefits of Port 9100 Printing

Port 9100 printing occurs at the transport level of the OSI model, bypassing the upper three layers and lowering the overhead for the print submission subsystem. An application needs only to create print ready code and pass it onto the TCP/IP stack for delivery. The need for a large LPD program and interpreter or a similar spooling program is eliminated.

You may not need the spooling facilities found with more standard print submission systems like LPD. Printers that experience lower printing volumes and encounter less interruption may be perfectly suited for this protocol. If other spooling subsystems are unavailable, Port 9100 can still produce print jobs. Some host environments that include VAX/VMS servers or other large networked computers submit print jobs in a pre-arranged job-by-job basis to specially prepared machines. Port 9100 printing fits well in this environment because printers rarely receive multiple jobs simultaneously.

You can use Telnet for an easy demonstration of Port 9100 printing. After you connect to TCP Port 9100, anything you type in the Telnet screen (see Figure 1), prints when the connection ends.

```
bash$ telnet printer 9100
Trying printer...
Connected to printer.
Escape character is '^]'.
This is a Test Document to port 9100
Testing AppSocket Printing...
This will print when I disconnect.
Disconnecting...^]
telnet> quit
Connection closed.
bash$
```

Figure 1. Example of Telnet Screen

## Multifunction Device Support for Port 9100 Printing

The Xerox implementation of Port 9100 printing has enough flow control to support large jobs sent from multiple clients without corruption. A Xerox multifunction device facilitates this capability with built-in print job spooling. The Xerox implementation of Port 9100 is limited to uni-directional printing only.

Because there is no standard for Port 9100 printing, do not expect common support and functionality between manufacturers, or even between printers from the same manufacturer. Port 9100 printing does not provide spooling facilities, so problems may occur when the printer is busy or it is interrupted while printing.

### Enabling Port 9100 on a DC 240/255/265 System Software 6.x

1. On the control panel, press **[Access]** and enter the password.
2. Press **[Tools]** and make the following selections:
  - a. **[Connectivity and Network Setup]**
  - b. **[Network Setup]**
  - c. **[TCP/IP Options]**
  - d. **[Port 9100 Printing]**
  - e. **[Enable]**
3. Press **[Save]** and **[Exit Tools]**.

The DC 240/255/265 is now ready to print using the Port 9100 protocol.

### Enabling Port 9100 on a DC 420/432/440 ESS 2.xx

1. On the control panel, press **[Access]** and enter the password.
2. Make the following selections:
  - a. **[Print Setups]**
  - b. **[Protocol Setups]**
  - c. **[TCP/IP]**
  - d. **[Additional Services]**
  - e. **[Port 9100]**
  - f. **[Enable]**
  - g. **[LPD Port Number]**
  - h. Enter **9100**
3. Press **[Save]** and **[Exit Tools]**.

The DC 420/432/440 (ESS 2.xx) is now ready to print using the Port 9100 protocol.

### Enabling Port 9100 on a DC 425/432/440 ESS 3.xx

1. On the control panel, press **[Access]** and enter the password.
2. Make the following selections:
  - a. **[Print Setups]**
  - b. **[Protocol Setups]**
  - c. **[TCP/IP]**
  - d. **[Additional Services]**
  - e. **[Raw TCP/IP Printing]**
  - f. **[Enable]**
  - g. **[Raw TCP/IP Printing Port Number]**
  - h. Enter **9100**
3. Press **[Save]** and **[Exit Tools]**.

The DC 425/432/440 (ESS 3.xx) is now ready to print using the Port 9100 protocol.

### Enabling Port 9100 on a DC 460/470/480/490

1. On the control panel, press **[Access A]** and enter the password.
2. Make the following selections:
  - a. **[Go to Tools]**
  - b. **[Connectivity and Network Setup]**
  - c. **[Network Setups]**
  - d. **[TCP/IP OPTIONS]**
  - e. **[Raw TCP/IP Printing]**
  - f. **[Enable] Port Number 9100**
3. Press **[Save]** and **[Exit Tools]**.

The DC 460/470/480/490 is now ready to print using the Port 9100 protocol.

### **Enabling Port 9100 on a DC 535/545/555, WC M35/45/55, or WCP 35/45/55**

1. On the control panel, press [**Access A**] and enter the password.
2. Make the following selections:
  - a. [**Go to Tools**]
  - b. [**Connectivity and Network Setups**]
  - c. [**Network Setups**]
  - d. [**TCP/IP OPTIONS**]
  - e. [**Raw TCP/IP Printing**]
  - f. [**Enable**] **Port Number 9100**
3. Press [**Save**] and [**Exit Tools**].

The multifunction device is now ready to print using the Port 9100 protocol.

### **Enabling Port 9100 on a WCP 65/75/90**

1. On the control panel, press [**Access A**] and enter the password.
2. Make the following selections:
  - a. [**Tools Pathway**]
  - b. [**Connectivity and Network Setups**]
  - c. [**Network Setups**]
  - d. [**TCP/IP OPTIONS**]
  - e. [**Raw TCP/IP Printing**]
  - f. [**Enable**] **Port Number 9100**
3. Press [**Save**] and [**Exit Tools**].

The WCP 65/75/90 is now ready to print using the Port 9100 protocol.

### **Enabling Port 9100 on a WCP 32/40 Color**

1. On the control panel, press [**Access A**] and enter the password. Press [**Log-in**].
2. If necessary, press [**More**] until Connectivity and Network Setups is displayed. Make the following selections:
  - a. [**Connectivity and Network Setups**]
  - b. [**Network Setups**]
  - c. [**TCP/IP OPTIONS**]
  - d. [**Raw TCP/IP Printing**]
  - e. [**Enable**] **Port Number 9100**
3. Press [**Save**] and [**Exit Tools**].

The WCP 32/40 Color is now ready to print using the Port 9100 protocol.

## **Server Configurations for Port 9100 Printing**

Port 9100 printing works best in environments where dedicated devices (such as a print server) handle print jobs. This is important because Port 9100 printing typically has no error correction and may merge jobs if they simultaneously arrive at the printer. The testing that produced this document demonstrated that Xerox multifunction devices include error checking because large jobs sent simultaneously from several clients printed correctly.

The following operating systems were evaluated to determine if Port 9100 printing is possible with a Xerox multifunction device: Windows NT server, Windows 2000 server, Novell NetWare 5.0 and Solaris version 2.7. The evaluations were not exhaustive tests of these systems. Out of these leading operating systems, only Windows 2000 was found to support native Port 9100 printing.

## Windows 2000

Windows 2000 server supports printing with Port 9100. The information in this section is based on Windows 2000 server (Evaluation Copy Build 2195).

1. Select [**Start: Settings: Printers**]. Open the [**Add printer**] icon.
2. At the "Add Printer Wizard" dialog, click [**Next**].
3. At the "Local or Network printer" dialog, select [**Local Printer**] and click [**Next**].
4. At the "Select the Printer Port" dialog, select [**Create New Port**] and select [**Standard TCP/IP Port**] for the type. (Printing fails if you select 'local port' or 'LPR' ports.) Click [**Next**] twice. The "Welcome to the Add Standard TCP/IP Printer Port Wizard" appears.
5. At the "Add Port" dialog, enter the [**<IP address>**] of the multifunction device in Printer Name or IP Address. In the Port Name type a name. Click [**Next**] and [**Finish**].

**NOTE:** The "Additional Port Information Required" dialog appears if the device type isn't recognized. Check that you entered the IP address correctly.

6. In the list of manufacturers, select [**Xerox**] and then select the correct multifunction device. Select [**Next**].
7. At the "Completing the Add Standard TCP/IP Printer Port Wizard" dialog, check the port and ensure the protocol is "**Raw**" (if not you can change it later). Click [**Finish**].  
**NOTE:** If you previously had the printer installed and the "Use Existing Driver" dialog appears, select [**Replace existing driver**] and [**Next**].
8. At the "Name Your Printer" dialog, assign the printer a name and click [**Next**].
9. At the "Printer sharing" dialog, indicate if you want to share the printer and click [**Next**].  
If this is the first time you installed this printer, a "Location & Comment" screen may appear. You can enter optional information in these boxes and then click [**Next**].
10. At the "Print a Test Page" dialog, do not print a test page at this time. Click [**Next**] to continue.
11. The next screen is "Completing the Add Printer Wizard." Verify configuration settings. To close, click [**Finish**].

## Confirm that Port 9100 Printing is Enabled

1. Select [**Start: Settings: Printers**] to return to the Printers dialog. Select the printer you just added and right-click to select [**Properties**].
2. On the Ports tab, make these selections:
  - Highlight the Port 9100 entry and select [**Configure Port**].
  - For protocol, select [**Raw**].  
**NOTE:** Ensure the "**Raw**" protocol is selected to use Port 9100. If LPR is selected printing is via lp.
  - "9100" should now appear in the Raw Settings Port Number field.
  - Click <**OK**>.
3. Click [**Close**].

Your Windows 2000 server is now set up to print using the Port 9100 protocol.

## Windows NT 4.0 Server

Windows NT 4.0 server does not appear to support printing with TCP port 9100, though third-party applications may enable this type of printing.

## Novell

Novell NetWare provides limited support for Port 9100 printing. Configuring a printer connection to a specific socket in NetWare requires that the printer manufacturer provide an NLM such as an NDPS gateway. This NLM must support assignment of a specific socket for the printer's IP address. You would do so by using a command line switch when the NLM is loaded. Xerox does not support specification of a port number associated with the multifunction device's IP address. Xerox's support for non-NDPS (Bindery) printing in PSERVER mode is limited to IPX.

## UNIX

Several dedicated print submission tools exist for Port 9100 printing in the UNIX environment. You can use third-party applications to create Port 9100 print spoolers to receive user's jobs and then spool them to the printer over TCP Port 9100.

## Additional Information

Xerox Customer Service welcomes feedback on all documentation - send feedback via e-mail to: [USA.DSSC.Doc.Feedback@mc.usa.xerox.com](mailto:USA.DSSC.Doc.Feedback@mc.usa.xerox.com).

You can reach Xerox Customer Support at 1-800-821-2797 (USA), TTY 1-800-855-2880 or at <http://www.xerox.com>.

Other Tips about Xerox multifunction devices are available at the following URL: <http://www.xerox.com/DocumentCentreFamily/Tips>.

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