Xerox Document Services Platform Series

Common Controller
System Guide

THE DOCUMENT COMPANY
XEROX

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1. Introduction

The System Guide provides the information needed to perform system administration tasks for configuring and maintaining the Xerox Document Services Platform (DocuSP) for printing systems.

NOTE: The Xerox Client Software will be delivered on a floppy for version 3.6.

About this guide

This guide is intended for Network and System Administrators responsible for setting up and maintaining Xerox printers with DocuSP software. Users should have an understanding of the Sun workstation and be familiar with Solaris 2.x and basic UNIX commands. This includes the use of text editors such as vi or textedit and the ability to maneuver within the Solaris environment. The System Administrator is expected to have a working knowledge of Local Area Networks (LANs), communication protocols, and the applicable client platforms to assist them in a customer site setup.

Contents

In general, this document covers information about the DocuSP that is not covered in the on-line help or other available guides.

The following list describes the contents of this guide:

- Simple Network Management Protocol Configuration (SNMP)
- Backup and Restore
- Security and Network Setup
- Printing
- Finishing
- Fonts

- Accounting and Billing
- Troubleshooting
- Hints and Tips

Conventions

This guide includes the following conventions

- Angle brackets - Variable information that is displayed on your screen is enclosed within angle brackets; for example, "Unable to copy <filename>."

- Square brackets - Names of options you select are shown in square brackets; for example, [OK] and [Cancel].

- Notes are hints that help you perform a task or understand the text. Notes are found in the following format:

  NOTE: This is an example of a note.

Customer Support Number

To place a customer service call, dial the direct TTY number for assistance. The number is 800-735-2988.

2. Gateway Configuration

Setting up the HTTP and SNMP gateways cannot be accomplished through the graphical user interface and must be set using the gwConfig utility through a UNIX Terminal window. The IPP gateway is configured using the DocuSP interface.

Internet Services (HTTP) Gateway Configuration

Perform the following to configure the HTTP gateway:

1. Start the configuration utility. Type

   `./gwConfig`

   1..

   NOTE: Refer to the instructions in the section, IPP Gateway Configuration for information about starting the configuration.

2. Perform the following to set up the Internet Services (HTTP) Gateway:

   `Enter the name of the gateway to be configured:`
   `Internet Services`
   `Configure the Internet Services Gateway? [Y/N]`
   `Y`
   `Enter name:  Value data`
   `Printer URL:  http://<controller name>.<domain`
   `name>.com`

   NOTE: Use the IP address of the controller if there is no domain name. For example, http://52.126.255.255.com

3. A confirmation message of the entered value displays. Confirm that the entry is correct and enter **y** for yes.

4. Continue with this process for every value to be configured.

5. When all of the desired values have been configured, press <Enter> at the Enter Name: [Value Data line].

6. When asked to accept the values and update the configuration, enter y for yes.

---

7. The configuration utility exits.

8. When complete, close the Terminal window and select System, Restart on the DocuSP user interface.

Simple Network Management Protocol (SNMP) Configuration

To configure the SNMP configuration, follow the instructions for configuring the HTTP Gateway in the previous section.

SNMP provides you with the status of network devices. If you are familiar with SNMP manager, you may want to configure the SNMP gateway using gwConfig and the information that follows.

NOTE: SNMP requires a standard FlexLm license. The System Administrator must enable SNMP in License Manager.

Xerox recommends the following third–party SNMP software mangers:

• IBM Network Printer Manager (NT)

• TNG Unicenter (NT)

• HP OpenView (UNIX, NT)

• Xerox CentreWare (UNIX, NT)

NOTE: The SNMP manager (HP OpenView) may have a number of requests into DocuSP for information. Some of the requested information may not be a supported data set on DocuSP. Therefore, the SNMP client/manager displays "no value...etc".

NOTE: You can have more than one SNMP manager running at the same time.

Configuration variables

Of the many parameters that are available for SNMP configuration, only the ones of common interest to Xerox customers are shown in the following table:

Table 2-1.

Parameter Name	Description	Value Range	Default Value
CommandLine	Turn on/off the following flags: **–l:** logging to SNMP_DEBUG_LOG **–w:** logging to window		
Printer operator	The name of the printer operator	String (0...127)	<empty>
Printer administrator	The name of the printer administrator	String (0...127)	<empty>
Printer administrator location	The location of the office of the printer administrator	String (0...127)	<empty>
Printer administrator Phone	The telephone number for contacting the printer administrator	String (0...127)	<empty>
Printer location	The location of the printer	String (0...127)	<empty>

Enter the following CommandLine variables:

```
-l: -w:
```

An example of SNMP gateway configuration for the parameters shown is:

```
SNMP Gateway Configuration File Section
Data:Entry Name Entry ValueCommandLine: -l -
wPrinter Operator: Janet Jones Printer
Administrator: William Webster Printer
Administrator Location: Room 409
Printer Administrator Phone: 122-0001 Printer
Location: Room 444
```

Printer and job messages

SNMP can broadcast messages about the printer and the jobs on the system. Printer messages may announce that the printer is idle, printing, or out of paper. Job messages announce that jobs are pending, processing, or completed. Other job related information may include the job owner's name, the job quantity, the job identifier, etc.

NOTE: "Forwarding" is not a job state that is broadcast by the controller; therefore, job forwarding information will not be displayed by the SNMP job managers.

The information that is displayed at an SNMP Manager may not always reflect the exact status of a job or printer on the DocuSP Controller. Those Managers that do not support loading of Management Information Bases (MIBs) will only display the printer and job status that they support.

SNMP MIB Support

DocuSP 3.0 SNMP MIB file uses the Xerox Common Management Interface (XCMI) version 4.0. The following lists the MIB files included for version 4.0:

- rfc1213 - RFC1213-MIB (MIB-II)
- rfc2790 - HOST-RESOURCES-MIB (XCMI rev 000817)
- rfc2790t - HOST-RESOURCES-TYPES (XCMI rev 000815)
- rfc1759 - Printer-MIB (XCMI rev 000818)
- rfc2707 - Job-Monitoring-MIB (Printer Working Group)
- 02common - XEROX-COMMON-MIB
- 06gentc - XEROX-GENERAL-TC
- 07gen - XEROX-GENERAL-MIB
- 10hosttc - XEROX-HOST-RESOURCES-EXT-TC
- 11hostx - XEROX-HOST-RESOURCES-EXT-MIB
- 15prtxtc - XEROX-PRINTER-EXT-TC
- 16prtx - XEROX-PRINTER-EXT-MIB
- 21rsrctc - XEROX-RESOURCES-TC
- 22rsrc - XEROX-RESOURCES-MIB
- 40jobtc - XEROX-JOB-MONITORING-TC
- 41jobmon - XEROX-JOB-MONITORING-MIB

- 42jobmtc - XEROX-SIMPLE-JOB-MGMT-TC
- 43jobman - XEROX-SIMPLE-JOB-MGMT-MIB
- 50commtc - XEROX-COMMS-ENGINE-TC
- 51comms - XEROX-COMMS-ENGINE-MIB
- 52conftc - XEROX-COMMS-CONFIG-TC
- 53config - XEROX-COMMS-CONFIG-MIB
- 58svctc - XEROX-SERVICE-MONITORING-TC
- 59svcmon - XEROX-SERVICE-MONITORING-MIB
- 93pidtc - XEROX-PRODUCT-ID-TC

The following is a listing of MIBs that are supported:

- RFC 1213 MIB file
    - The system Group
    - The Interface Group
    - The at (address translation) Group
    - The ip Group
    - The icmp Group
    - The tcp Group
    - The udp Group
    - The snmp Group
- Host Resource MIB file
    - The System Group
    - The Storage Group
    - The Device Group
- Printer MIB file
    - The General Printer Group
    - The Input Group
    - The Extended Input Group
    - The Input Media Group
    - The Output Group
    - The Extended Output Group
    - The Output Features Group
    - The Marker Group
    - The Marker Supplies Group

- – The Marker Colorant Group

- – The Media Path Group

- – The Interpreters Group

- – The Channels Group

- – The Console Group

- – The Alerts Groups

- • Xerox General MIB file (uses only the 06gentc and 07gen files)

  - – The xcmGen Base Group

  - – The xcmGen Trap Client Group

  - – The xcmGen Trap View Group

NOTE: The other files in Xerox General MIB are not supported.

NDS Setup

When using Novell Netware, a preferred server needs to be set for environments where there is more than one server on the network. If you are running NDS in an environment with more than one NDS server, to ensure optimal operation, you should specify a preferred server. To do this, perform the following steps (you will need to know your NDS Tree, Context, and Preferred Server Names):

1. Type

su root

   1. and enter password when you are prompted.

2. Type

cd /opt/XRXnps/XRXnwqsgw/bin/

   3. .

4. Type

./QServerSetup

   5. and select the return key.

6. Select the appropriate option:

   - • If there is already an existing NDS QServer Setup that you wish to add a Preferred server name to, select choice 2.

   - • If you are creating a anew NDS QServer Setup with a preferred server name, select choice 1.

7. Select choice 4 to list the current setups to make sure your preferred server was added successfully.

8. Restart the DocuSP software.

NOTE: If logging is enabled, you can check /opt/XRXnps/log/ QServer.Debug.Log to make sure that connection is made with the Preferred server. Ensure that jobs can be submitted from Netware and properly received and printed.

3.   Backup and Restore

Software configuration information and customer specific files should be backed up to a safe location, either to tape or to a remote server on a regular basis. It is valuable to back up a system to a remote location when upgrades of hardware are performed.

Software configuration information should be saved when the system has been installed and all queues and printers have been set up. Also, when any printer or queue properties are changed.

The Configuration utility provided with the DocuSP software will backup all of the DocuSP configuration files in the /opt/XRXnps/ configuration directory. This includes the preferences settings, printer set up, and queue set up files.

If a software upgrade or new software installation is required, a representative will perform the software installation. In each case, certain portions of the system configuration will need to be restored or reentered by the customer.

Backup

The following information should also be backed up on a regular basis or when the DocuSP controller has been modified:

- Customized scripts installed by the customer
- Unique third–party software and related data, or Xerox–developed solutions and related data
- DNS, NIS, or NIS+ files
- Jobs saved to the DocuSP controller using the Save Feature
- Non–Xerox supplied Sun patches
- Customized links to directories
- Continuous Feed custom imposition files
- Continuous Feed custom print mark files

In addition, it is recommended that the System Administrator document the following information:

- Any soft fonts that have been loaded on the system
- Contents of the hosts and hosts.equiv files
- The allowable users
- Any customer–specific passwords

NOTE: In the event of a software upgrade or install by Xerox, Xerox is not responsible for the restoration of the above items to the DocuSP controller.

NOTE: It is highly recommended that a complete system image be backed up to tape or a remote location on a regular basis. Having a current system image stored separate from the DocuSP controller will ensure that in the event of a failure of the system or the hard disks, the system can be easily restored.

Refer to the appropriate SUN documentation for additional information on saving a system image.

Restore

If only a software upgrade is performed on the DocuSP controller, the system configuration information will typically be retained.

During the upgrade, the Xerox Customer Service Representative will provide a hardcopy of the system configuration information, such as the contents of the /etc/hosts and /etc/hosts.equiv files, the list of user names from the /etc/passwd file, and gateway information from any installed optional gateways. If any information needs to be recreated, the hardcopy will assist the System Administrator in restoring the system. Any customized software, saved files, or unique third–party information will have to be restored by the System Administrator.If a hardware installation is performed and there is no system image saved, the System Administrator will have to restore or re-enter, at a minimum, all of the information included on the hardcopy output provided by the Xerox Customer Service Representative.

Xerox Backup and Restore (XBR) Utility for a DP100/115/135/180 EPS System

Backing up a System

To backup a system, use a DocuPrint EPS controller with a QIC tape drive, at least 3 tapes (maybe up to 6 QIC tapes), and the XBR floppy.

NOTE: The most common reason for backup procedure failure is a bad tape. Restart the backup process with a new tape. The system has to be shutdown before the backup operation can be performed.

1. Open a Terminal window.

2. In the terminal window, log in as root.

3. At the command prompt, type

init 0

   4. and press Enter.

5. At the Ok prompt, type

boot -s

   6.. Steps 3 and 4 first shut down the system, then reboot it in single-user mode.

7. Enter the root password.

8. Insert the XBR floppy in the disk drive and a blank tape in the tape drive.

9. At the command-line prompt, type

mkdir /a

   10..

11. Type

mount /dev/diskette /a

   12. and press <Enter>. This command causes UNIX to access the diskette drive (/dev/diskette) through the /a directory.

13. Type

cd /a

   14..

15. Type

./xbr

16. but don't forget the "." before the "/"

17. Type

backup

18. and as the system asks for a new tape, remove the current tape, label it and insert a new tape (each tape takes about 20 to 25 minutes to fill). After inserting a new tape, type

yes

19.. The system may ask for a tape it has already used (for example volume 2 again); ignore the number it gives you and label the tape with the next number in the sequence. This problem is caused by the underlying UNIX utility that is being called multiple times (each time it is called, it starts off at the beginning of the tape numbering sequence and not at the number with which it left off).

20. After the backup is complete, restart the system by typing

reboot

21. and pressing Enter.

Restoring a System

Before you begin to restore the system, locate the CD labeled "Solaris 8 CD (1 of 2)" from which to run the Operating System. You will also need a system to restore to (with a QIC tape drive), the XBR floppy, all the backup tapes that were made by the previous procedure, the CD-ROM labeled "Solaris 8 CD (1 of 2)". To restore the system, perform the following:

1. Insert the "Solaris 8 CD (1 of 2)" CD-ROM, the first tape, and the XBR floppy into the system.

2. Open a Terminal window.

3. In the Terminal window, login as root.

4. At the command prompt, type

init 0

5. and press <Enter>.

6. At the "ok" prompt, type

boot -s

7.

8. Once the system reboots, login as root.

9. Create a directory; type

mount /dev/diskette /a

 10.

11. Type cd

/a

 12.

13. Type

./xbr

 14. (don't forget the "." and "/")

15. Type

restore

 16.

17. Answer

Y

 18. for yes to the question that comes up.

19. The system will then reboot.

20. Insert each tape as they are asked for and Press <Enter>.

21. Repeat the previous step twice.

22. The system will reboot. Login as root.

23. As the system requests a new tape, enter the next tape in the sequence into the drive.

24. The system will display a message when the restore is complete. To restart the system, type

reboot

 25. and press <Enter>.

4. Security and Network Setup

This section provides you with information on security regarding the DocuSP controller and the Solaris Operating System including access, changing logon levels, and enhancements of the Solaris OS. Also included are general guidelines to security related procedures that can be implemented to improve security of the DocuSP controller and the Solaris OS.

Access and Security

UNIX accounts are defined during the installation process:

- **root:** has super user access to the workstation. The initial password for this account is set during installation of the operating system and should be obtained from the Xerox service personnel.

  NOTE: For security reasons, the root account password should be changed as soon as the Xerox service personnel have completed the installation.

- The Xerox user name is the account from which the Xerox software runs. Use the Xerox user password for this account. Contact your Customer Service Representative if this is unknown.

- **ftp:** an account to permit some clients to retrieve their software from the DocuSP controller using the TCP/IP communication protocol. This account will be set to Read Only access to the /export/home/ftp directory

- **Pxrxsvc:** the account for remote diagnostics by Xerox service personnel. The DocuSP controller is accessed using PPP communications via a modem.

NOTE: The user and group identifications, uid and gid, for the Xerox accounts that are listed above cannot be arbitrarily changed in the password and group files to new values because the software is based on the proper access to the Xerox supplied files.

To allow non–root user command line clients to submit jobs to the DocuSP controller, the Sun workstation needs two pieces of information in its database:

- Users must be listed in the password database.

- The client workstations need to be described as trusted hosts for the user account. This allows remote operation commands at the DocuSP controller from a client workstation, such as rcp, without the requirement for supplying a password. Set the /etc/hosts.equiv file to trust all known workstations by setting the last line in the file to a plus sign, or, if tighter security is required, list the names of the trusted host machines in the /etc/hosts.equiv file.

It is not necessary for the user to have the following on the DocuSP controller:

- Network home directory.

- Meaningful home directory at the DocuSP controller.

- An enabled password.

- The same user identification (uid) as used for the client workstation account.

- The same group identification (gid) as used for the client workstation account.

NOTE: For more information about UNIX security, please consult the man page or hosts.equiv and the Sun documentation.

To set up a user account at the DocuSP controller, it is suggested that the admintool, which runs in the CDE (Common Desktop Environment), be used.

Changing the logon level

The DocuSP software defaults to the Walk Up User access level when the DocuSP software is started.

To log into the DocuSP as the System Administrator or Trusted User, perform the following:

1. Select [System] from the DocuSP Print Services window.

2. Select [Logon]. The Logon dialog is displayed.

3. Select the Trusted User or System Administrator access level and enter the correct password.

The initial passwords for Trusted User and System Administrator can be obtained from your Xerox Service Representative

NOTE: The various system passwords need to be changed as soon as an install is complete. It is also advised that you should have a process in place for changing the passwords on a regular basis.

NOTE: The System Administrator should verify access to the Xerox application for all levels before the service installation personnel leave the site.

NOTE: To maintain security, it is recommended that any restricted access login be terminated as soon as the session has been completed.

Overview of Security

The purpose of the security section is to provide information on security regarding the DocuSP controller and the Solaris Operating System. This section explains the new DocuSP Security Script feature that allows security for the system against unauthorized access and modification. The information in this section about security include procedures and scripts that can be used to improve security of the DocuSP controller and the Solaris OS. The following information is also a compilation of security concerns that have been raised by DocuSP customers.

Roles and responsibilities

The following sections detail the roles and responsibilities in setting and maintaining the security of the DocuSP controller.

Customer responsibility

The customer has the primary responsibility for maintaining the security of the network within the customer's site. It is important that network security is continuously monitored and maintained, and that appropriate security policies are established and followed.

The procedures outlined in this document assume a basic knowledge of UNIX, the vi editor, and general computing concepts. It is expected that the network administrator or system administrator responsible for network security understands the base commands (cd, chmod, cp, grep, kill, ln, ls, man, more, ps, etc.), and the UNIX directory path and filename structures shown in this document.

There is information within the text and in the appendix sections for reference to those who may not use this knowledge often. If you have been given administration privileges to devices covered by these procedures and do not have sufficient training, seek assistance from someone with these skills.

The DocuSP product operates on the default Solaris OS configuration and some additional Solaris patches required by DocuSP. Several scripts are used to provide additional security for the DocuSP. Not all scripts are public knowledge, only those that are public are defined in this document and these can be performed by the customer.

It is the responsibility of the customer to implement any security changes to this default configuration to obtain the level of security they require. This includes: monitoring security bulletins issued by Sun Microsystems, obtaining and installing security patches, and modification of the Solaris OS to implement security measures. The customer is also responsible for documenting and testing the implemented changes to ensure that there is no impact to the current workflow.

Xerox responsibility

Xerox is committed to providing a level of security which will allow the DocuSP controller to be a good network citizen in the response to current security intrusions. Additional security beyond this remains the responsibility of the customer.

Xerox is constantly evaluating the security of the DocuSP controller and the Sun Solaris operating environment. Xerox is committed to providing the latest Solaris security patches provided by Sun Microsystems in each major DocuSP release. The DocuSP development team will also add Solaris security patches in between major release cycles. All OS security patches for applications added during a standard DocuSP install will be included, even if the application code is not normally used by DocuSP users.   Security patches for applications not loaded by a standard DocuSP install will not be evaluated or included. Only the version of a patch impacting security will be included; if a security patch has a newer version that is not security related then this patch will not be updated to the newer version. Any security patch that is determined to have a negative impact to DocuSP operation will not be added (this is expected to be a very rare event).

When the DocuSP software and system was installed, Xerox provided a default root password for the UNIX environment. In addition, default passwords may have been created for the DocuSP Trusted User and System Administrator login levels.

Xerox strongly recommends that the customer change these passwords from the default settings since the ultimate security of the printing system resides with the customer.

NOTE: Please be aware that the Xerox Customer Support Personnel must have access to the new root password for service and support. It is the customer's responsibility to ensure that the root password is available for them.

New security features

In this release of DocuSP, the Xerox DocuSP Security Script has been included with the DocuSP software. When invoked, the script implements changes to the Solaris Operating Environment to secure the system against unauthorized access and modification.

The Xerox DocuSP Security Script is based on Sun Microsystems' Blueprint white papers as well as previous security scripts developed by Xerox for the DocuSP.

The Xerox DocuSP Security Script is run by the Xerox service representative when the DocuSP software is installed or upgraded.

This document details each service impacted by the script so that customers can make informed decisions about whether this script meets the security requirements of their environment. Some customers may find that some features disabled by this script, such as telnet and ftp, are required in their environment. How to re-enable each individual service is not discussed in this document. If further assistance is required, please contact the Customer Support Center.

NOTE: Security changes are not saved during an installation or upgrade of the DocuSP software. When a software install or upgrade is performed, the Xerox Service Representative runs the security script at the completion of the installation. Any adjustments made to the security features by the customer prior to the installation or upgrade need to be made again.

The following list documents the Sun Solaris services that are disabled when the Xerox DocuSP Security Script is run:

- ftp (must be enabled for DigiPath and Continuous Feed systems)
- telnet
- echo
- Discard
- Daytime
- Chargen
- Time
- Name
- Finger
- Uucp
- Talk
- Comsat
- Exec
- Dtspc
- Rpc.rusersd
- Rpc.sprayed
- Rpc.rwalld
- Kems_server
- Rquotad

- Rlogon

- TNAME

- Rstatd

- Sadmin

- Fs

- Amiserv

- Rpc.cmsd

- Tooltalk database server

- KCMS profile server

- Anonymous ftp

- Remote diagnostics

- Removal of + from the hosts.equiv file

- Anonymous lp

- NFS server services

- Nuucp account disabled

- Listen account disabled

- Password entry locked for bin, sys, adm, uucp, nobody, noaccess, nobody4, and anonymous

- Disallow all users for at, cron, and batch

- Bwfns (no longer required for DigiPath)

Solaris services disabled: S40llc2, S47asppp (remote diagnostics), S70uucp, S711dap.client (LDAP daemon), S72autoinstall, S72slpd, S74xntpd, S80spc, S90wbem, S15nfs.server (NFS Server; must be enabled for DigiPath), S76snmpdx, S77dmi, and S80mipagent

NOTE: The new scripts are explained in greater detail later in this document.

Using scripts to enhance security features

The Xerox DocuSP Security Script (XDSS) is comprised of several scripts to that are located in the /opt/XRXnps/bin directory. These scripts enhance security features and must be run when you are logged in as root. This section explains the public scripts that are available and the features they include.

The configure-xdss script

During the DocuSP installation, the configure-xdss script will run. A question, "Do you wish to enable DocuSP Security" is asked at the prompt. When answered with a

`y`

 for yes, additional prompts concerning security features will follow. This section explains the options available when you have chosen to enable the DocuSP Security feature.

Disable LP Anonymous Printing

You can select if you wish to disable anonymous printing on all existing LP printer queues that are associated with the DocuSP virtual printers. Select

`y`

for yes to disable this printing option.

DigiPath and Decomposition Services

DigiPath serves as a transferring station for files to the DocuSP server. The DigiPath configuration will ask two questions.

1. Do you want to disable DigiPath? If you answer "yes", both FTP and the bwnfs daemon are disabled. The bwnfs daemon is not required by DigiPath when NetAgent is being used to share files that have been saved on the DocuSP Controller.

2. If the answer to question 1 is "No", you are prompted with the question, "Do you want to disable DigiPath Decomp services?" If you answer "Yes", the nfs.server and bwnfs daemons will be disabled. When nfs.server is disabled, no directory can be made available for other systems to mount using UNIX NFS. Any third-party application that uses MaestroNFS requires the bwnfs daemon to be enabled. Both XPert Label software and also DigiPath Decomp Services use MaestroNFS and thus require a "No" answer to this question.

NOTE: Before answering yes to this question, ensure that the save repository is not normally shared and that other workflows or third party applications do not require this capability.

When DigiPath is enabled, the ftp and NFS servers work correctly.

Remote shell internet service

If you are using the print command line client, you will need to use the remote shell internet service to transfer files to the DocuSP server. However, if you are not using the print command line client, it is strongly recommended that the remote shell internet service is disabled.

NOTE: If the remote shell internet service is disabled, it is strongly recommended that it remain disabled. If you are unsure whether to enable or disable this feature, you should disable it.

The disable-security script

To disable security, run the disable-security script. Disable-security restores the system to the state it was before configure-xdss was run.

The enable-ftp and disable-ftp scripts

FTP services may disable if DocuSP security is enabled. You must have FTP enabled to install any client software, or when using a Continuous Feed system. To temporarily enable the FTP services to load client software, run the enable-ftp command.

Once client software has been installed, you must run disable-ftp to disable the FTP services again.

NOTE: In order to implement the full set of security options, configure-xdss should be run rather than enable-security.

NOTE: If enhanced security is enabled on a DocuSP Continuous Feed system, ftp must be enabled by either DigiPath or using the enable-ftp script.

The enable-security script

When you run the enable-security script, various security related changed to the Solaris Operating Environment are implemented. All of the changes that are made when this script is run can be reverted by running the disable-security script. The enable-security script implements the following:

- Securing Solaris file permissions
- Deleting and securing user accounts

- Disallowing all users for at, cron, and batch commands
- Disabling unnecessary solaris services
- Disabling bwnfs daemon
- Disabling unnecessary internet services daemon
- Securing name service cache daemon
- Multicast routing
- Hide OS and host information
- Securing sendmail daemon
- Securing network parameters
- Disabling executable stacks
- Restricting NFS port monitor
- Disabling remote logins to CDE
- Preventing the DocuSP from acting as a router
- Enabling security warning banners

Secure Solaris file permissions

The fix-modes command is run with the '-s' option to secure file permissions for Solaris only. When this command is run, a file called /var/sadm/install/content.mods is left. Do not delete this file, it contains valuable information needed by fix-modes to revert the changes to the system file permissions.

Delete and Secure User Accounts

When the security script is enabled, the nuucp and listen accounts are deleted. Also, the passwords for the following accounts are locked; bin, sys, adm, lp, uucp, nobody, noaccess and nobody4.

Disallow all users for at, cron and batch commands

When security is enabled, all users are blocked from using the at, cron, and batch commands by creating the files /etc/cron.d/cron.allow and etc/cron.d/at.allow.

Disable Unnecessary Solaris Services

Solaris services that are not required for DocuSP are disabled when security has been enabled. The following services are disabled:

- **S4011c2**: Class II logical link control driver

- **S47asppp**:   Asynchronous PPP link manager. This service is re-enabled via enable-remote-diagnostics command.

- **S70uucp**: UUCP server

- **S711dap.client**: LDAP daemon to cache server and client information for NIS lookups.

- **S72autoinstall**: Script executed during stub JumpStart or / AUTOINSTALL JumpStart

- **S72slpd**: Service Location Protocol daemon

- **S74xntpd**: Network Time Protocol daemon

- **S80spc**: SunSoft Print Client daemon

- **S90wbem**: CIM Boot Manager: Disables WBEM clients from accessing DocuSP server.

The following services from /etc/rc3.d directory are disabled:

- **S15nfs.server**: NFS Server. Disable ability to export DocuSP server file systems. This service is enabled if DigiPath and Decomp Services are enabled.

- **S76snmpdx**: Sun Solstice Enterprise Master Agent. Solaris SNMP services are disabled. This does not prevent DocuSP SNMP services from operating.

- **S77dmi**: Sun Solstice Enterprise DMI Service Provider

- **S80mipagent:** Mobile IP agent

Disable unnecessary internet services daemons

The following internet services that are found in the /etc/ inetd.conf file are disabled when security is enabled.

- **ftp:** File transfer protocol server. This does not prevent you from using ftp from the DocuSP server to another host that is running an FTP server.

- **telnet:** DARPA TELNET protocol server.

- **echo:** Echoes back any character sent. Used mainly for testing.

- **discard:** Discards everything sent.

- **daytime:** Displays the date and time.

- **chargen:** Sends revolving pattern of ASCII characters.

- **time:** Outdated time service

- **name:** Obsolete IEN-116 name service
- **finger:** Remote user information server
- **uucp:** Used by UUCP over IP".
- **talk:** server talk program
- **comsat:** Biff server - mail notification daemon
- **exec:** Remote execution server. Used by rexec(1) command
- **login:** Remote login server. Used by the rlogin(1) command
- **dtspc:** CDE Subprocess Control Service
- **rpc.rusersd:** Network username server
- **rpc.sprayd:** Spray server, records the packets sent by the spray (IM) command
- **rpc.rwalld:** Network rwall server
- **kcms_server:** KCMS library service daemon, allows the KCMS library to access profiles on remote machines
- **rquotad:** Remote quota server. Used by the quota(1M) command to display user quotas for remote file systems
- **sadmind:** Distributed system administration daemon.
- **fs:** Xfont server. Used by CDE to render fonts
- **amiserv:** RPC Smart Card Interface
- **Rpc.cmsd:** Calendar manager service daemon

Remote Diagnostics

The disable-remote diagnostics removes the asppp daemon which is required for service representatives to log into the system when using a modem. Running enable-remote diagnostics will undo the disable daemon.

Disabling secure name service databases:

The following databases are disabled when Security is invoked:
- passwd(4)
- group(4)
- exec_attr(4)
- prof_attr(4)
- user_attr(4)

Multicast routing

Multicast is used to send data to many systems at the same time while using one address. It is recommended to disable this feature when security is enabled.

Hide OS and host information

When security is enabled, the ftp and telnet banners are set to null. Also, the sendmail banner is modified to not provide any OS host information.

Securing the sendmail daemon

When security is enabled, sendmail is forced to perform only outgoing mail. No incoming mail will be accepted.

Securing the network parameters

When security is enabled, network parameters are secured. For additional information, view the /etc/init.d/nddconfig file as well as Sun's document, Solaris Operating Environment Settings for Security.

Disabling executable stacks

When security is enabled, the system stack is non-executable. This is done so security exploitation programs cannot take advantage of the Solaris OE kernel executable system stack and cannot attack the system. To ensure that these system stacks are not executable, ensure that the following lines are added to the /etc/system/fP file:

`[set noexer_user_stack=1]`
`[set noexer_user_stack_log=1]`

Restricting NFS port monitor

The NFS server normally accepts requests from any port number. The NFS Server can be altered to process only those requests from privileged ports. To restrict access, add the following entry into the /etc/system file:

`[set nfssrv:nfs_protmon=1]`

Disabling remote login to CDE

Ensure that all remote logins are prohibited to CDE on the DocuSP by installing the appropriate /etc/dt/config/Xaccess file.

Disabling DocuSP as a router

To prevent the DocuSP server from being used a router, create an empty file, /etc/notrouter.

Security warning banners

When security is enabled, security warning banners are displayed when a user logs in or telnets into the DocuSP server. This message explains that only authorized users should be using the system. Any others face the possibility of being monitored by law enforcement officials.

Example of /etc/inetd.conf file after security edits

```
#ident   "@(#)inetd.conf1.2796/09/24 SMI"/*
SVr4.0 1.5*/
#
#
# Configuration file for inetd(1M).  See
inetd.conf(4).
#
# To re-configure the running inetd process,
edit this file, then
# send the inetd process a SIGHUP.
#
# Syntax for socket-based Internet services:
#  <service_name> <socket_type> <proto> <flags>
<user> <server_pathname> <args>
#
# Syntax for TLI-based Internet services:
#
#  <service_name> tli <proto> <flags> <user>
<server_pathname> <args>
#
# Ftp and telnet are standard Internet
services.
#
ftp       stream   tcp      nowait   root     /
```

```
usr/sbin/in.ftpdin.ftpd
telnet    stream    tcp        nowait    root      /
usr/sbin/in.telnetdin.telnetd
#
# Tnamed serves the obsolete IEN-116 name
server protocol.
#
###name  dgram     udp        wait      root      /
usr/sbin/in.tnamedin.tnamed
#
# Shell, login, exec, comsat and talk are BSD
protocols.
#
###shell stream    tcp        nowait    root      /
usr/sbin/in.rshdin.rshd
login     stream    tcp        nowait    root      /
usr/sbin/in.rlogindin.rlogind
###exec   stream    tcp        nowait    root      /
usr/sbin/in.rexecdin.rexecd
###comsatdgram      udp        wait      root      /
usr/sbin/in.comsatin.comsat
###talk   dgram     udp        wait      root      /
usr/sbin/in.talkdin.talkd
#
# Must run as root (to read /etc/shadow); "-n"
turns off logging in utmp/wtmp.
#
###uucp   stream    tcp        nowait    root      /
usr/sbin/in.uucpdin.uucpd
#
# Tftp service is provided primarily for
booting.  Most sites run this
# only on machines acting as "boot servers."
#
#tftp     dgram     udp        wait      root      /
usr/sbin/in.tftpdin.tftpd -s /tftpboot
#
# Finger, systat and netstat give out user
information which may be
# valuable to potential "system crackers."
Many sites choose to disable
# some or all of these services to improve
security.
#
###fingerstream    tcp        nowait    nobody    /
usr/sbin/in.fingerdin.fingerd
```

```
#systat   stream    tcp       nowait    root      /
usr/bin/ps        ps -ef
#netstat stream    tcp       nowait    root      /
usr/bin/netstat netstat -f inet
#
# Time service is used for clock
synchronization.
#
###time   stream    tcp       nowait    root
internal
###time   dgram     udp       wait      root
internal
#
# Echo, discard, daytime, and chargen are used
primarily for testing.
#
###echo   stream    tcp       nowait    root
internal
###echo   dgram     udp       wait      root
internal
###discardstream    tcp       nowait    root
internal
###discarddgram     udp       wait      root
internal
###daytimestream    tcp       nowait    root
internal
###daytimedgram     udp       wait      root
internal
###chargenstream    tcp       nowait    root
internal
###chargendgram     udp       wait      root
internal
#
#
# RPC services syntax:
#   <rpc_prog>/<vers> <endpoint-type> rpc/
<proto> <flags> <user> \
#   <pathname> <args>
#
# <endpoint-type> can be either "tli" or
"stream" or "dgram".
# For "stream" and "dgram" assume that the
endpoint is a socket descriptor.
# <proto> can be either a nettype or a netid or
a "*". The value is
# first treated as a nettype. If it is not a
```

```
                    valid nettype then it is
                    # treated as a netid. The "*" is a short-hand
                    way of saying all the
                    # transports supported by this system, ie. it
                    equates to the "visible"
                    # nettype. The syntax for <proto> is:
                    #
                    *|<nettype|netid>|<nettype|netid>{[,<nettype|ne
                    tid>]}# For example:
                    # dummy/1tli       rpc/circuit_v,udpwaitroot  /
                    tmp/test_svctest_svc
                    #
                    # Solstice system and network administration
                    class agent server
                    ###100232/10tli   rpc/udp  wait root /usr/sbin/
                    sadmind   sadmind
                    #
                    # Rquotad supports UFS disk quotas for NFS
                    clients
                    #
                    ###rquotad/1tli    rpc/datagram_vwait root /usr/
                    lib/nfs/rquotadrquotad
                    #
                    # The rusers service gives out user
                    information.  Sites concerned# with security
                    may choose to disable it.
                    #
                    ###rusersd/2-3tli rpc/datagram_v,circuit_vwait
                    root /usr/lib/netsvc/rusers/rpc.rusersd
                    rpc.rusersd
                    #
                    # The spray server is used primarily for
                    testing.
                    #
                    ###sprayd/1tli     rpc/datagram_vwait root /usr/
                    lib/netsvc/spray/rpc.spraydrpc.sprayd
                    #
                    # The rwall server allows others to post
                    messages to users on this machine.
                    #
                    ###walld/1         tli        rpc/datagram_vwait
                    root /usr/lib/netsvc/rwall/rpc.rwalldrpc.rwalld
                    #
                    # Rstatd is used by programs such as perfmeter.
                    #
                    ###rstatd/2-4tli    rpc/datagram_v wait root /
```

```
usr/lib/netsvc/rstat/rpc.rstatd rpc.rstatd
#
# The rexd server provides only minimal
authentication and is often not run
#
#rexd/1          tli  rpc/tcp wait root /usr/
sbin/rpc.rexd      rpc.rexd
#
# rpc.cmsd is a data base daemon which manages
calendar data backed# by files in /var/spool/
calendar
#
#
# Sun ToolTalk Database Server
#
#
# UFS-aware service daemon
#
#ufsd/1  tli       rpc/*     wait      root      /
usr/lib/fs/ufs/ufsdufsd -p
#
# Sun KCMS Profile Server
#100221/1tli       rpc/tcp  wait root /usr/
openwin/bin/kcms_serverkcms_server
#
# Sun Font Server
#fs                stream   tcp      wait nobody
/usr/openwin/lib/fs.autofs
#
# CacheFS Daemon
#100235/1 tli rpc/tcp wait root /usr/lib/fs/
cachefs/cachefsd cachefsd
#
# Kerbd Daemon
#kerbd/4         tli     rpc/ticlts      wait
root    /usr/sbin/kerbd kerbd
#
# Print Protocol Adaptor - BSD listener
#printer           stream   tcp      nowait
root     /usr/lib/print/in.lpdin.lpd
dtspc stream tcp nowait root /usr/dt/bin/dtspcd
/usr/dt/bin/dtspcd
xaudio   stream tcp   wait root /usr/openwin/
bin/Xaserver Xaserver -noauth -inetd
100068/2-5 dgram rpc/udp wait root /usr/dt/bin/
rpc.cmsd rpc.cmsd
```

```
###100083/1 tli rpc/tcp wait root /usr/dt/bin/
rpc.ttdbserverd /usr/dt/bin/rpc.ttdbserverd
536870916/1     dgram   rpc/udp wait root /opt/
SUNWvts/bin/vtsk /opt/SUNWvts/bin/vtsk
```

Helpful Security tips

Most of the files and processes modified in this document have a corresponding man page that describes, in considerable detail, their functionality. It is good practice to read the man pages on each item to get an understanding of the process being modified to ensure ahead of time if your workflow may be effected. The following is an example of a man page command.

`#man hosts.equiv<RETURN>`

Additional information can be found in the Solaris Answerbook. The Solaris Answerbook can be found online at almost every University web page. A search for Answerbook should return hundreds of sites.

If you are unfamiliar with the vi editor, you can use the GUI based editor /usr/openwin/bin/textedit. To launch the editor login as root enter the following:

`#/usr/openwin/bin/textedit & <RETURN>`

Textedit leaves a backup of the modified file in the same directory. This backup file will have a % after the name. This file can be deleted if you have already backed up the original file.

Always document and backup all files that you modify in case some unforeseen problem. Example:

`#cp /etc/inet/inetd.conf  /etc/inet/`
`inetd.conf.orig <RETURN>`

If, for whatever reason, the DocuSP controller will not boot up after your modifications, you can restore the software to its original configuration by booting to single user mode. This is done by typing in

`boot -s`

 from the ok> prompt. You will be prompted for the root password. Upon login as root, you can copy the original files back. Example:

`#cp /etc/inet/inetd.conf.orig /etc/inet/`
`inetd.conf <RETURN>`

In order to determine what security options have been implemented in the past, whenever configure-xdss is run, it logs all of the actions into the /opt/XRXnps/log/xdss_log.txt. View this file to view options that have been implemented.

5. Printing

The following information will help you understand how to enable and print using FIFO printing. The various printing utilities that are available are also outlined in this section as well as using TIFF orientation, MICR, and VIPP.

First In/First Out (FIFO) Printing

When jobs are printed in the same order in which they are received, this is FIFO printing. The Queue must also have the Release status set to Yes.

Controller settings for limited FIFO scheduling/printing

To set up the system to perform in a FIFO manner, perform the following:

1. Logon as System Administrator.

2. In DocuSP Print Services window, select [Options: Preferences: Job Policy: Resources Required] and then select [System Fault].

3. In DocuSP Print Services window, select [Options: Preferences: Font Site Policy: Use Substitute Font] then select [Yes].

4. Set up one queue as the FIFO queue.

5. When FIFO is critical, set the release status of all other queues to [No] and only submit jobs to the FIFO queue.

Important information about FIFO:

• To preserve the FIFO Job Scheduling order, set the release status of the FIFO queue to No in Queue Manager, and do not hold an individual job in Job Manager.

- If FIFO is desired dynamically, all jobs must be submitted from a single client to a single queue with a release status set to [Yes]. All other queues must have the release status set to No.

- If the queue that is set to use FIFO is not currently releasing jobs to the printer, then the jobs may not appear in the correct FIFO order. Select [Job Manager] and then select the Options menu. Select [Redisplay] to view the jobs in correct FIFO order.

NOTE: Some error conditions within the printer can cause a job to fault because there is no recovery operation that the operator can perform. These jobs are dropped out of the sequence, destroying the original FIFO order. The controller is not designed to wait for corrective action by an operator for a faulted job before advancing to the next job which has already been scheduled and is displaying a 'Waiting for Printer' status.

Enable/Disable FIFO Job Scheduling

To enable or disable FIFO job scheduling, perform the following:

1. Open a Terminal Window.

2. Log in as root.

3. At the #, type the following

cd /opt/XRXnps/bin

4.and press <Enter>.

5. Type

./setfifomode

6. and press <Enter>.

7. Respond as appropriate to the following prompts:

'This script is being run as root'

if the user is not logged in as root, the following message will appear:

'You must be root to run this script!'

The script will exit.

- If FIFO Job Scheduling is not enabled, the following will appear:

'Currently FIFO Job Scheduling is off'
'Do you wish to enable FIFO Job Scheduling? (y/ n)

- Enable FIFO Job Scheduling by typing

y

• for yes, or

n

• for no.

The following messages will appear:

'Enabling FIFO Job Scheduling'
'You will need to Restart the DocuSP Software for changes to take effect'

- If

n

• for no is entered, the following will appear:

'No Change Made'

- If FIFO Job Scheduling has previously been enabled, the following will appear:

'Currently FIFO Job Scheduling is on'
'Do you wish to disable FIFO Job Scheduling? (y/n)'

- Disable FIFO Job Scheduling by typing

y

• for yes.

The following message will appear:

'Disabling FIFO Job Scheduling'
'You will need to Restart the DocuSP Software for changes to take effect'

- If

n

• for no is entered, the following will appear:

'No Change Made'

8. In the DocuSP Print Services, select [System] and select [Restart] to complete either enabling or disabling the Limited FIFO Job Scheduling option.

With FIFO Job Scheduling enabled, the Controller will schedule jobs for printing in the order that Job ID's are assigned to incoming jobs. Therefore, if Job ID 2 completes its "Receiving Data" status and goes "Pending" before Job ID 1, Job ID 1 will still be scheduled for print before Job ID 2.

With FIFO Job Scheduling disabled, the Controller will schedule the jobs for print as soon as they complete their "Receiving Data" status in Job Manager. Therefore, Job ID 2 will be scheduled for print before Job ID 1 if Job ID 2 goes "Pending" before Job ID 1.

The following table illustrates an example of FIFO Job Scheduling.

Table 5-1.

Event Sequence	Job ABC	Job XYZ	Limited FIFO **Enabled**	Limited FIFO **Disabled**
1	Received, assigned Job ID 1			
2	"Receiving Data"	Received, assigned Job ID 2		
3	Still "Receiving Data"	"Receiving Data"		
4	Still "Receiving Data"	"Pending"		Job 2 prints first
5	"Pending"	Still "Pending"	Job 1 prints first	

ASCII and PCL Printing Utility

ASCII printing within various environments results in output that is not always formatted as desired. Unfortunately, there is no "standard" method for printing ASCII files. ASCII is a character set and is not a Page Description Language. Therefore, ASCII files do not contain format commands nor is there a de facto standard for ASCII formatting. However, users often have the requirement to match a specific format. The utility below helps enable this formatting flexibility along with the feature in Queue Manager that enables the ability to select the default document format.

Impact on DocuSP printers

The DocuSP software automatically wraps ASCII files with a predefined set of PostScript code and sends the data through the PostScript decomposer. Unfortunately, this predefined formatting does not always meet customer ASCII printing needs and there are no "knobs" to change the formatting within PostScript.

As an alternative, ASCII files can be identified as PCL and sent through the PCL decomposer. The PCL decomposer does provide some additional capabilities that can be used to print ASCII files as desired.

To force ASCII files to use the PCL decomposer, change the file format in Job Manager. This can also be done by changing the queue default document property from ASCII to PCL.

setpclontrol Utility

The setpclcontrol utility offers the following user controls:

You may set the site default for the PCL decomposer line termination. Setting these options allows both native PCL files and ASCII streams forced through the PCL decomposer to be conditioned with various combinations of carriage returns (CR), line feeds (LF), and form feeds (FF). Mainframe and UNIX environments typically requite some form of CR/LF/FF adjustment.

This utility allows you to set a custom paper size to map to the PCL escape sequence <esc>&|101A (which denotes "print on custom stock size"). HP printers generally respond to this command by imaging an area of 11.7 x 17.7 inches and then printing the image, centered, on whatever stock is supplied by the operator. The setpclcontrol utility allows you to specify a single image and paper size to correspond with this escape sequence.

NOTE: This control does not affect ASCII data streams.

Syntax of the utility:

setpclcontrol -t option where 'option' equals one of the following:

```
0 - CR=CR; LF=LF; FF=FF (default)
1 - CR=CR-LF; LF=LF; FF=FF
2 - CR=CR; LF=CR-LF; FF=CR-FF
3 - CR=CR-LF; LF=CR-LF; FF=CR-FF
```

The following is an example of an adjusted line termination setting for a UNIX ASCII environment:

```
docusp_printer% su root
Password:
# cd /opt/XRXnps/bin/
# ./setpclcontrol -t 3
PLEASE RESTART DOCUSP TO APPLY SETTING.
```

Notes and Cautions:

- This utility changes the PCL decomposer default line termination. This utility should not be used in a mixed PCL and ASCII environment. This is because PCL data streams can include another line termination escape sequence. Such a job will change the line termination setting again (possibly without the user's knowledge).

- The process is the same to set the line termination value back to the default.

- This change may be erased upon an upgrade.

- Mainframe users typically require a setting of "3". However, trial and error may be required.

- Mainframe applications often have the ability to change line termination settings. An adjustment at the mainframe is always more desirable than using this utility.

Set lp/lprcopycount utility

The setlpcopycount utility allows the DocuSP customer to modify the behavior of how the lp/lpr gateway should handle a copy count of one. Beginning with DocuSP version 1.41.06, the default setting ignores a copy count of one placed on the job by the lp/lpr submission protocol. This allows the internal copy count set by the PDL to take precedence. The following utility allows a customer to return the DocuSP to its original behavior: either imply a copy count of one when none is specified or honor a copy count of one if specified on the command line. This copy count of one will take precedence over the copy count set by the PDL.

Syntax of the utility:

```
setlpcopycount -f option
0 - Specifies that LP will set a copy count of
1 if received.
1 - Specifies that LP will ignore a copy count
of 1 if received.(default)
No option will display current setting
```

Example:

```
docusp_printer% su root
Password:
# cd /opt/XRXnps/bin/
# ./setlpcopycount -f 0
```

Socket Gateway Configuration Utility: setVPSoption

This utility allows you to configure the two ports of the Socket Gateway to either remove the echo commands (VPS) or leave the data unaltered (NONVPS).

If you are a DT61xx or DT65/75/90 non-LCDS customer, configure both ports as NONVPS. DP1xxxEPS and DT 75/90 customers using LCDS need to decide whether to configure one or both ports as VPS. If a port is not being used, it is recommended to set the port to NONVPS.

The Socket Gateway allows two ports to be configured at one time. Regardless of the port number assigned on the Socket Configuration Utility, the socket port configured on the first port will always be Port 1, and the second line is always Port 2. Both ports will are set as VPS upon installation.

Syntax of the utility:

```
setVPSoption -1<option> -2<option>
```

0 - Specifies Port 1

1 - Specifies Port 2

```
option -VPS(default) or NONVPS
```

An example of the utility is as follows:

```
docusp_printer% su root
Password:
# cd /opt/XRXnps/bin
# ./setVPSoption -1VPS -2NONVPS
```

This sets Port 1 as VPS and Port 2 as NONVPS)

```
# ./setVPSoption -1VPS
```

This sets Port1 as VPS and leaves Port 2 unaltered.

```
# ./setVPSoption -2NONVPS
```

This leaves Port 1 unaltered and sets Port 2 as NONVPS.

Restart the DocuSP software after setting this option.

TIFF Orientation

The DocuSP Save Feature stores TIFF images in different orientations on the DocuTech/DocuPrint 75/90 and the DocuTech 61XX. This is done by design to optimize productivity and allow for the different finishing requirements of the print engines controlled by the DocuSP software.

- DocuTech 61xx -- The DocuTech 61xx finishes the trail edge of the pages and orients the image appropriately.

- DocuTech/DocuPrint 75/90 -- The DocuTech/DocuPrint 75/90 finishes the lead edge of the pages and orients the image properly.

This difference can result in PostScript/VIPP files that call Decomposition Service TIFFs being incompatible across the different platform. The imported TIFFs may print with a different orientation relative to the PostScript image.

MICR Enablement

Magnetic Ink Character Recognition Definition (MICR) is a standard character set which, when printed with magnetic ink, allows machine recognition of the characters. This is commonly used in banking for account numbers, routing codes and amounts on checks. On Xerox MICR printers, the complete page is printed with magnetic toner and the characteristics of the MICR fonts allow only the MICR characters to be comprehended by MICR readers. MICR printing is valued by customers because it allows creation of documents that can be mechanically processed and magnetically read by MICR equipment.

MICR fonts are available on a separate floppy. Fonts include: PCL, PostScript and LCDS. A separate floppy is used to allow you to control MICR font usage. The supplied soft fonts can be loaded or deleted using Administration's font installation on the DocuSP GUI.

NOTE: Only 300 dpi mode is supported for MICR printing.

Using VIPP

To specify a job as a VIPP job, a start string is required. The required start string can be automatically added using DocuSP functionality. This can be completed using the Command Line Client, Queue Manager, and Job Properties.

To implement the VIPP Start feature, perform the following:

1. Copy the VIPP startup file into /var/spool/XRXnps/vipp and then restart DocuSP. The file must exist in this directory and cannot be changed. However, you can set a symbolic link to other locations.

NOTE: The startup file must end with a lowercase .ini extension.

2. In Queue Manager, create a print queue named VIPP. Change the default document format from ASCII to PostScript. If this is not done, all VIPP jobs will be run as ASCII unless the data file begins with "%!".

3. Select the PDF/PostScript tab, and select [Start File]. Browse to the startup file and select this file.

Paper Trays

For the DocuPrint 90 only, when running a job requiring more than one color, seize, or weight of paper, use the trays in a Tray 1/Tray 3 and then Tray 2/Tray 4 sequence for optimal speed. For example, Tray 1 would contain 8 1/2 x11 inch white paper, and Tray 3 would have 8 1/2x11inch yellow paper for a job. Using Tray 1/Tray 2 or Tray 3/Tray 4 combinations will slow the process.

Printing hints

If you compress the resolution of embedded bitmap object at the application level, you can produce smaller pdf files. This will allow your job to transfer across the net faster, would require less DFE spool/disk space, and may process faster.

6.   Finishing

The following section contains information about how to use subset finishing and mixed stacking on a printing job.

The finishing information below does not apply to Continuous Feed (CF) systems. For CF systems, the finishing configuration is defined at the CF (STAMPA) Controller. CF imposition files are used to impose documents for printing in conjunction with specific CF finishing configurations.

Subset Finishing

Subset finishing is the capability to use different types of finishing (or no finishing) within the same job.   The ability to finish subsets independently is a critical feature for many variable data applications

This product allows more than one type of finishing within a single PostScript job. The supported finishing options and the output locations that can be used vary depending upon the printer type. The finishing options and delivery locations are the following:

DocuTech 61xx:

- Portrait stitch
- Landscape stitch
- Dual Stitch
- Right Portrait Stitch
- Right Landscape Stitch
- Right Dual Staple
- Bind
- Right Bind

NOTE: The DT 61xx printers allow Short Edge Feed (SEF) only in paper tray 3, 4, and 5. The short edges of the stocks range from approximately 10 inches to 14 inches (254mm to 300mm).

Creating jobs to use subset finishing

It is important that jobs intended to be printed using subset finishing be enabled with the following:

- PostScript code (using the "setpagedevice" operator)

- Variable Data Intelligent PostScript PrintWare (VIPP) version 2.0 or later.

NOTE: The Xerox Production Print Services (XPPS) client software does not support subset finishing at this time.

Subset finishing can also be performed at the DigiPath workstation through the Document Scan and Make Ready application.

Subset Offset (Page Level Jog)

The printer has the ability to offset on a page level. This support allows VIPP to be utilized for offset type applications. This ability allows jobs to be sent as one larger file with page level offset commands.

The term "Jog" is used to initiate an offset behavior.

- setpagedevice jog 0 (The offset command is "OFF")

- setpagedevice jog 3 (The offset command is "ON")

A job with a multiple copy count with a "jog 3" should force offsets between each distinct set. A job with a copy count of 1 can contain "jog 0" or "jog 3" on a page by page basis. The system will alternate offsets between each alternating jog 3 and jog 0 command.

The following information should be considered when using the "Jog" command:

- The first jog command on a page will be honored and all others will be ignored.

- Multiple cases of jog 3 without the corresponding job 0's will be ignored.

- The Printer Manager's setting of offset "ON" or "OFF" should not impact the action of the PDL level jog commands. For example, if the Printer Manager's offset is set to "OFF" and a job has a jog 3, then the sets should be offset from one another.

- The DT/DP 75/90 allows subset offsets to the top tray. However, the 61xx is not mechanically capable of jogging to the top tray.

PCL Offset/Separator/Subset Finishing command

The use of the PCL separator command, <ESC>&l1T, in combination with DocuSP queue defaults enables subset finishing for PCL jobs. The PCL separator command defines offset segments of a job. PCL does not commonly support finishing; however, the use of the PCL separator command allows offset segments of a job to be finished based on the finishing default set on the queue. For example, if the queue default is portrait stitch, all segments of a job where the PCL separator command has been used will be stitched.

The placement guidelines are as follows:

- Current Page Offset: If the current page is to be offset from the previous page, then the PCL separator command must be placed on the current page before any image data. Placement should be within the job/page control section or before.

- Next Page Offset: If the next page in the document is to be offset from the current page, the PCL separator command must be placed at the end of the current page after any image items.

Access the Offset stacking switch by opening Printer Manager and selecting the Stacking tab and then select [Offset Stacking].

To enable offset stacking for collated or uncollated jobs, select the enable checkbox. Both buttons are located under the collated stacking and uncollated stacking sections.

The following information should be considered when using PCL separator command:

- The offset switch in Printer Manager in the DocuSP software must be set to ON. If the offset switch is set to OFF and a job with the PCL separator command is received, the sets will not offset when the job is printed.

- Multiple uses of the PCL separator command within a job will be honored.

- Multiple uses of the PCL separator command on a page will be ignored.

- All finishing limitations and restrictions at the printer will apply to a subset segment.

PCL Paper Source Command

Use the PCL Paper Source command <esc & 1 # H> to program a PCL print job to use a specific paper. The PCL decomposer on the DocuSP Controller reads the paper source command and, using the PCL Paper Sources option in the Queue Properties, maps the command to the appropriate paper. The number code corresponds to the following PCL Paper Source Programmed in Queue Properties.

To program the PCL Paper Source, use the following guidelines:

- **Standard:** <ESC>&11H

- **Manual Paper Feed:** <ESC>&13H

- **Manual Envelope Feed:** <ESC>&13H

- **Lower:** <ESC>&14H

- **Large Capacity:** <ESC>&15H

- **Envelope Feed:** <ESC>&16H

Mixed Stacking

Mixed stacking allows all completed jobs with different finishing to accumulate in the stacker until it is full or until the operator empties it.

The types of finishing that can be mixed include stitching, binding, and unfinished. The mixed stack can also include banner pages.   The stacker can hold between 12 and 18 subsets of different types of finishing in the stacker before unloading.

Mixed stacking is enabled upon installation but can be disabled if you choose to do so. If you wish to have it enabled at a later date, a Xerox Service Representative must assist you.

Additional finishing information

The DocuSP is unable to dual staple 3-hole punched stock. If dual staple is selected when using pre-drilled paper, improper registration will occur. Select to single staple the job, or print on non-drilled stock and manually punch the holes after finishing of dual staple is complete.

7. Fonts

The following information explains how to use and choose fonts for a job. It also covers various resident and non-resident fonts and their availability.

How to choose fonts

Although document source files can specify almost any image on a printed page, images that contain letters, numbers, punctuation, and symbols are common enough to require a special mechanism for dealing with them, similar to movable type. This mechanism is the font. The DocuSP controller supports Adobe PostScript Type 1 and Type 3 fonts, PCL scalable and bitmap fonts, and TrueType fonts.

Fonts

The most important thing to remember is that the font used to create a document must also be available to the DocuSP controller.

NOTE: DocuSP supports the euro character. Most font families include the euro character.

At the DocuSP controller, a font can exist in three forms:

Resident fonts   A resident font is an internal font that is permanently stored on the DocuSP controller and is always available.

Soft fonts   A soft, or optional, fonts are a typeface that are loaded as needed at the DocuSP controller. This allows the DocuSP controller to be customized with special fonts, such as logos, or other special font applications.

Downloaded font   When a font is downloaded with a document, all the font
                        requirements are embedded in the actual source file. If this font
                        is not available at the DocuSP controller, the downloaded
                        information is used to process and print the document. Although
                        is useful, it also creates a much larger file size.

Resident Fonts

The DocuSP controller comes with a wide variety of fonts that
are available when creating a document.

*NOTE: If you are unsure of the availability of a font, always
consult with your print organization management to determine
which fonts are currently loaded on the DocuSP controller.*

PostScript Resident Fonts

The PostScript Type 1 typeface families listed in Table 7–1 are
scalable, which means that all point sizes are supported, even
intermediate point sizes. These include the typefaces that make
up the LaserWriter IINTX basic font set, plus additional Type 1
fonts supplied by Xerox.

Table 7-1. Fonts

Font Family	Stresses and weights
ACaslon	Italic, Regular, Semi Bold, Semi Bold Italic
AGaramond	Bold, Bold Italic, Italic, Regular
Americana	Americana, Extra Bold
AvantGarde	Book, Book Oblique, Demi, Demi Oblique
AdobeSans	MM
AdobeSerif	MM
Albertus	Italic, Light, MT
Americana	ExtraBold, Regular
AntiqueOlive	Bold, Compact, Italic, Roman
Apple	Chancery
Arial	BoldItalicMT, BoldMT, ItalicMT, MT
Barmeno	Bold, Extra Bold, Medium, Regular
Blackoak	---
Bodoni	Bold, BoldItalic, Italic, Poster, Poster Compressed
Bookman	Demi, Demi Italic, Light, Light Italic
Carta	---

Table 7-1. Fonts

Font Family	Stresses and weights
Chicago	---
Clarendon	Bold, Light
CooperBlack	Regular, Italic, ThirtyThreeBC, ThirtyTwoBC
Coronet	---
Courier	Courier, Bold, Oblique, Bold Oblique, Regular
Eurostile	Regular, Bold, Bold Extended Two, Extended Two
Formata	Italic, Medium, Medium Italic, Regular
Garamond	Light, Light Italic, Bold, Bold Italic
Geneva	---
GillSans	Bold, BoldCondensed, BoldItalic, Condensed, ExtraBold, Italic, LightItalic
Goudy	Regular, Bold, BoldItalic, ExtraBold, Italic
Helvetica	Helvetica Black, Black Oblique, Bold, Bold Oblique, Oblique, Light, Light Oblique, Condensed, Condensed Bold, Condensed Bold Oblique, Condensed Oblique, Narrow, Narrow Bold, Narrow Bold Oblique, Narrow Oblique
HoeflerText	Black, BlackItalic, Italic, Ornaments, Regular
Joanna	Regular (MT), Bold, BoldItalic, Italic
Kaufmann	---
Korinna	Bold, Kursiv Bold, Kursiv Regular, Regular
LetterGothic	Regular, Bold, BoldSlanted, Slanted
Liithos	Black, Regular
LubalinGraph	Book, BookOblique, Demi, DemiOblique
Marigold	---
MonaLisa–Recut	---
Monaco	---
New Century Schoolbook	Roman, Bold, Italic, Bold Italic
NewYork	---
Optima	Bold, BoldItalic, Italic
Oxford	---
Palatino	Roman, Bold, Italic, Bold Italic
Parisian	---
ParkAvenue	---

Table 7-1. Fonts

Font Family	Stresses and weights
Poetica	SuppOrnaments
StempelGaramond	Bold, BoldItalic, Italic, Roman
Symbol	---
Tekton	Tekton, Bold
Times	Bold, Bold Italic, Italic, Roman
TimesNewRomanPS	Bold Italic MT, Bold MT, Italic MT, MT
Trajan	Bold
Univers	Regular, Bold, BoldExt, BoldExtObl, BoldOblique, Condensed, CondensedBold, CondensedBoldOblique, CondensedOblique, Extended, Light, LightOblique, Oblique
Wingdings	---
Woodtype Ornaments	Two
XeroxLogoTypes	---
ZapfChancery	Medium Italic
ZapfDingbats	---

PCL resident fonts

There are three types of PCL 5e resident fonts that are permanently loaded at the DocuSP controller:

- Scalable Intellifont typefaces
- LaserJet IV bitmap typefaces
- Typefaces that match the TrueType fonts as shown in Table 7–4.

NOTE: These are the same internal typefaces that are provided with the HP LaserJet 4 printer.

Table 7-2. PCL Resident Fonts

Font Family	Typefaces
Albertus	Extra Bold, Medium
Arial	Regular, Bold, Italic, Bold Italic
Antique Olive	Antique Olive, Bold, Italic
CG Times	CG Times, Bold, Bold Italic, Italic
CG Omega	CG Omega, Bold, Bold Italic, Italic
Clarendon	Condensed
Coronet	---

Table 7-2. PCL Resident Fonts

Font Family	Typefaces
Courier	Courier, Bold, Bold Italic, Italic
Garamond	Antiqua, Halbfett, Kursiv, Kursiv Halbfett
Letter Gothic	Letter Gothic, Bold, Italic
Marigold	---
Times New	Regular, Bold, Bold Italic
Symbol	---
Wingdings	---
Univers	Medium, Medium Condensed, Medium Condensed Italic, Medium Italic, Bold, Bold Italic, Bold Condensed, Bold Condensed Italic

Table 7-3. PCL 5e resident bitmap fonts

Font Family	Typefaces
Line Printer 16.67 pitch 8.5 point	Portrait, Landscape
Arial	Bold, Bold Italic, Italic
Times	New, New Bold, New Bold Italic, New Italic
Symbol	---
Wingding	comparable Tidbits

Non Resident Fonts

There may be many fonts available in your application that are not resident at the DocuSP controller. There are two options for using non-resident fonts to create a document:

• **Downloaded fonts**

If you expect to create a document using fonts that are available on your workstation but not available at the DocuSP controller, your application may automatically download the font when the job is sent to the printer. Fonts downloaded in this manner are considered "temporary" and are deleted from the DocuSP controller as soon as the job is printed.

NOTE: Refer to your application documentation for more information on downloading fonts in your document.

If you are using a font in your application that has the same name as a resident font but is a different version, it must be downloaded with the job. The DocuSP controller will use the downloaded font rather than the resident font.

*NOTE: Marking a font for "permanent" downloading in your
application is not supported.*

•   **Optional or soft fonts**

    Downloading fonts each time you print will increase the size
    of the file and result in a longer transmission time. If your print
    jobs regularly require a font that is not a resident font, you
    may request to have it installed as an optional font at the
    DocuSP controller. Your printing organization's font policy
    should give you the specific information you need to request
    a special font.

Font substitution

A document may require a font that is not available at the
DocuSP controller and has not been downloaded with the source
file. When the requested font is not available, font substitution
will take place.

PostScript fonts

A single default font, set by the System Administrator in the
DocuSP software, will be substituted for any font requirements
that cannot be met at the DocuSP controller. A message will be
printed to confirm that a substitution has taken place.

PCL 5e fonts

Another type of substitution occurs for PCL fonts. If a requested
PCL font is not available, the DocuSP controller will determine
which available font best matches the requested one and
perform the substitution. Any PCL stream that does not have any
fonts specified in the file will have the default font programmed in
the "PCL font" section for the corresponding queue in Queue
Management.

TIFF files

This section discusses the TIFF tags supported by the DocuSP
software and the guidelines for printing TIFF files to achieve the
optimum performance.

TIFF overview

The purpose of this section is to provide you with information for creating TIFF files that can be submitted to the DocuSP controller and to provide information about the type of TIFF files that will increase printer productivity.

Prior to DocuSP 3.1, the controller utilized a conversion tool (TIFF to PostScript) to process and print TIFF files. A native TIFF decomposer has now been implemented to directly process TIFF files for printing. This improves the TIFF printing performance for certain types of files. Decomposer level adjustments are also now available for the TIFF decomposer at the Queue level.

NOTE: Multipage TIFF files are now supported. Single TIFF files can now contain multiple TIFF images to be processed and printed.

Performance considerations

Optimum performance can be achieved for printing TIFF files by following the guidelines listed below:

- Use CCITT Group 4 compression for speed.

- Use a resolution of 600 dpi to eliminate the need to scale the image.

- Use a TIFF orientation tag value of 8 to eliminate the need to rotate the image.

- Use single strip image data to eliminate additional image data manipulations.

- Use a value of 1 for Fill Order to eliminate additional image data manipulations.

Supported TIFF tags

Below is a list of the TIFF tags supported by the DocuSP software.

Compression

– Default = 1

– DocuSP supports values of 1 (uncompressed), 2 (CCITT Modified Huffman RLE, 32773 (PackBits), 3 (CCITT Group 3), and 4 (CCITT Group 4).

T4 Option

– Default = 0

– This is used to determine CCITT Group 3 one or two dimensional coding.

Fill Order

– Default = 1

– DocuSP supports values of 1 and 2.

Image Width and Image Length

– Default = none; values must be supplied.

Orientation

– Default = 1

– DocuSP supports values of 1, 3, 6, and 8. Values of 2, 4, 5, and 7 are treated as if they were 1, 3, 6, and 8 respectively.

Photometric Interpretation

– Default = none; value must be supplied.

– DocuSP supports bi-level values of 0 and 1 only.

Resolution Units

– Default = 2

– DocuSP supports values of 2 (inches) and 3 (centimeters)

Rows Per Strip

– Default = none

– DocuSP supports single and multiple strip images.

NOTE: Strips and tiles cannot be intermixed within the same TIFF file.

Strip Byte Counts and Strip Offsets

– Default = none; values must be supplied if the image data is organized into strips.

– DocuSP supports single and multiple strip images.

X and Y Resolution

– Default = none

– Values must be supplied for printing.

Tile Width, Tile Length, Tile Offsets, Tile Byte Counts

– Default = none

– Values must be supplied if image data is organized into tiles.

8.   Accounting and Billing

The following sections explain the various accounting log versions that are available. It also lists the billing meters for each region and an explanation of each meter.

Accounting

Auto exporting accounting log

The Accounting function will automatically export and purge the accounting data when the database reaches 80% full. This will protect data from being overwritten when the log previously ran out of space. This option is performed automatically and saved in a designated path for the default file location is: /export/home/xrusr/accountingexportfiles directory.

NOTE: When purging, the oldest entry is purged first.

Accounting exported values

The Accounting feature tracks all jobs that have been processed and printed, enabling your site to charge for use of the Xerox printing system.

There are four different versions supported for exporting the customer accounting log. Version 2, Version 3, Version 3.1 and Version 4.

- Version 2: This is the most common version that is supported for the DocuSP printing system. If this version is selected to be exported, it will not include any new accounting entries.

- Version 3: This version will export all entries that are new and old and zero and non-zero values. Additionally, entries will be exported that are not viewable on the GUI. These entries are: Channel Idle Time, Initial JDL, Initial JDE, DJDE Records Read, and Lines Printed.

- Version 3.1: This version will export all entries that are new and old and zero and non-zero values. This version is similar and includes the same exported values as Version 3. Version 3.1 also includes the following fields:

  – Interrupt Status: Options are Interrupt and Interrupted.

  – Job Source: Indicates the Gateway through which the job was submitted.

  – RIP Interrupt Time: This value displays how long the job was suspended in the ripping status if the job was interrupted by a "Print Now" job.

- Version 4.0: This version is similar and includes all the same values as Version 3.1. However, it also includes the exported value for Trapping. The number displayed will be the total number of pages trapped within a job.

Billing

Billable Events

NOTE: For Continuous Feed (CF) printing systems, the DocuSP billing meters are not maintained. For CF systems, billing meters are maintained within the print engine. For additional information, contact a Xerox Service Representative.

Xerox billable events include the following:

- Administration pages, such as the banner page or error page

- Internal reports, such as billing reports or accounting reports

- All completed sets and stacks

- Sample jobs

- Any partial sets that are generated by a programming conflict, a PDL error, or when a job is cancelled by the operator during printing

- Blank sides created as part of the job

Administration pages and sample jobs will be billed as 1-sided sheets.

Billable events do not include the following:

- Blank sides inserted by the system; for example, the last page of an odd-numbered 2-sided job.

- Sheets purged by the system for fault recovery or image quality adjustment

- Any partial sets generated when the system fault recovery forces the job to be saved or cancelled during printing.

- Slip sheets

Billing Meters

Table 8-1.

Market Region	Billing Meters for Region
Region 1 (USCO)	Meter A: Total impressions to an output destination including Administration Pages.
	Meter B: Total impressions for each image of the job up to and including the last sheet of the 10th set. Does not include Administration Pages.
Region 2 (RX UK)	Meter 1: Total impressions to an output destination including Administration Pages.
	Meter 2: Total impressions printed on sheets wider than 9". Includes Administration Pages.
	Meter 3: Total impressions for sets 11-18. Begins counting with the fist image in set 11 and stops after the last image in set 18. Does not include Administration Pages.
	Meter 4: Total impressions in set 19 of every document printed. Does not include Administration Pages.
Region 5 (XCI)	Meter A: Total impressions to an output destination including Administration Pages.

Table 8-1.

Market Region	Billing Meters for Region
Region 6 (FX)	Meter 1: Total impressions to an output destination including Administration Pages.
	Meter 2: Total impressions for each image of the job up to and including the last sheet of the 10th set. Does not include Administration Pages.

9.   Troubleshooting

This section covers the various faults that you may encounter. Declared faults are those that display a message to indicate a problem. Undeclared faults are problems that you may encounter that do not display a message or visual on the GUI.

Calling for service

Before calling the Customer Service Support Center, ensure you have read this information and have tried the corrective actions described in this document. If the problem persists, gather the necessary information and call the appropriate Customer Service Support Center phone number. Your site representative can supply you with the telephone number for the Customer Service Support Center in your area.

The Xerox Welcome Center number is (800-821-2797)

Before calling for service, make note of:

- Print/job fault messages, that appear on the system controller.

- Status messages that appear on the printer control console.

- Indicator lights that may or may not be lit.

- Status codes that appear in the message display of the tape drive control panel if there is a tape drive problem.

Your call is answered by a representative who will ask you for your equipment serial number, ensure that you have this available at the time of the call.

Declared faults

The following topics cover the various declared faults that you may encounter on your system.

Printer fault

An indicator will appear on the DocuSP GUI when a printer fault occurs and the Printer Faults window will display. The Printer Faults window will display all existing printer faults. Select a fault to open the Fault Clearance window and proceed to clear the fault by following the instructions in the Printer Faults Clearance window.

NOTE: Closing the Printer Faults Clearance window does not clear the fault.

Job fault

A job will fault if a requirement of the job can not be met. All faulted jobs will be displayed in the Faulted Jobs window. Selecting Jobs Faults will display the Job Fault Clearance window. Follow the instructions on the window to clear the job fault. To avoid common job faults, ensure that the paper that is programmed for the job is available and that the finishing programmed is acceptable and available.

Undeclared faults

The following are possible undeclared faults that you may encounter:

- Client Problems: Client problems include job submission problems with no message displayed at the client workstation.

- Graphical User Interface (GUI) problems: GUI icons or windows do not appear correctly, do not appear correctly, do not operate correctly, or disappear suddenly.

- Print quality: The output from the printer contains image defects such as deletions, problems with lines, missing images, smudges, shading, or text problems.

- Font problems: The output from the printer contains font defects, such as incorrect character spacing, jagged characters, text runs off the page, or sentences run into each other.

- Inoperable system: The inoperable system has experienced an unrecoverable software error due to a job or operator action.

- Job flow: Jobs sent from the client are not received at a printer queue.

- Job integrity: The output from the printer is not as expected. Such as missing pages, missing data, incorrect page orientation, incorrectly ordered sets, or job attribute inconsistencies.

- PDL problem isolation: Questions that a System Administrator may ask the job submitters when they are experiencing problems with printing.

- Process problems: A process was followed incorrectly or unintentionally.

- Productivity and performance: The job takes an excessive amount of time to complete.

- Save problems: A job was submitted from a client with a Save destination, but the job is not saved.

Client problems

Client problems are handled differently depending on the client platform used.

Windows problems

A job is submitted from a Windows client and is not received by the printer queue.

If the Xerox Document Submission client application does not run properly or the job cannot be submitted to a queue, perform the following:

1. The user must exit the Xerox Document Submission and Windows applications

2. Verify the user is logged on to the appropriate file server.

3. Restart the Xerox Document Submission software at the client workstation.

Macintosh problems

A job is submitted from a Macintosh client and the printer queues cannot be viewed.

If the Macintosh client cannot view any printer queues from the Chooser, perform the following:

1. Verify that the Apple Talk network, is up and that there is at least one router on the network.

2. If there is no router on the Apple Talk network, jobs cannot be submitted through the Apple Talk gateway. When a router becomes available, reboot the controller to submit jobs through the Apple Talk gateway.

If there is a router on the Apple Talk network, delete the "/opt/XRXnps/bin/atports" file at the controller and reboot.

NOTE: You must be logged in as the root user to delete this file.

DigiPath problems

A job is submitted from a DigiPath client and does not print.

If the message, "Warning: cannot open the file xdms/<filename>.gf/<filename>.tif. Select OK to continue or cancel to stop the print job." is displayed, perform the following:

1. Place the queue on hold that the DigiPath jobs are being sent to. Do this by changing the accept status to "no".

2. Wait until all jobs have completed printing.

3. Purge the /var/spool/XRXnps/var/spool/data/xdms directory.

GUI problems

If any of the modules of the DocuSP do not function or if you cannot use Exit to restart the system, perform the following:

- If any of the DocuSP icons disappears or does not respond, restart that module.

- If the GUI opens with a black blank background and the label names of the modules do not appear correctly, perform the following:

  1. Determine if the **/opt/XRXnps/XRXservui/data/locale/<locale*>/resources** directory exists.

  2. Determine if the file **/opt/XRXnps/XRXservui/data/ui.mn.config** file exists.

  3. If the above files do not exist, set the XAPPLRESDIR environment variable by entering the following:

```
setenv XAPPLRESDIR/opt/XRXnps/XRXservui/data/
locale/<locale>resources
```

NOTE: The "Locale" is the locale of your server.

- *en_US for U.S. English*
- *in_UK for U.K. English*
- *fr for French*
- *es for Spanish*
- *de for German*
- *it for Italian*
- *ja for Japanese*

Print Quality problems

An image quality problem exists if a job has been submitted successfully, but does not print correctly.

NOTE: If Image Quality parameters are changed, the DocuSP software must be restarted for the change to take affect.

NOTE: The Image Quality default settings are optimized for the printer. If changes are made, the factory installed defaults can be restored by selecting [Defaults]. Selecting [Reset] sets the Image Quality parameters to the most recently applied setting.

To determine the print quality problem and possibly fix the problem, perform the following:

1. Retrieve the error page if one was printed.

2. Submit the job to a draft PostScript printer if one is available to determine if the master is valid.

3. Ensure that the jobs are sent to the correct queue.

4. Ensure that a valid PDL is used.

5. If the problem still exists, recreate the job with a different print driver and resubmit the job to the printer.

Font problems

A font problem exists when incorrect printed fonts have character spacing, jagged characters, text running off the page, or sentences running into each other.

To determine and fix the font problem, perform the following:

1. Determine if the font is being downloaded with the job.

NOTE: If a downloaded font is not found, font substitution occurs and an error page is printed.

2. If the font is not being downloaded with the job, determine if the font is loaded on the server by viewing the Fonts module of the DocuSP.

3. If jagged characters are seen, determine if there is a scalable option available for that font and whether the user selected that option.

4. For incorrect character or text that runs off the page, determine if the document was created with one driver and printed with another driver.

5. If you are comparing prints from a proof printer, ensure that the same PDL file was used to make the prints on both printers.

6. If small fonts are printing ragged, change the default font renderer in Print Manager from the "Adobe Type Manager" to the "Font Solution".

Inoperable system problems

If the system is inoperable due to a software, job, or operator error, use another system and perform the following:

1. Telnet using another system into the controller and use the

su

1. command to become the root user.

2. At the # prompt, type:

sync; sync; halt

and press <Enter>.

3. At the ok prompt, type

boot

NOTE: Pressing <Stop> and <A> may result in lost information is a job is currently being received by the system. Jobs would need to be resent.

Job flow problems

If a job is submitted to a printer but does not print, this is a job flow problem.

Determine the status of the printer, printer queue and ensure that the queue is set to release jobs.

If the file system is out of disk space, perform the following:

- Open a terminal window and enter

df -k

  • to determine which partition is full.

- If the /var/spool/XRXnps/outQ partition is full, go to the DocuSP GUI. Open [Preferences] and then [Job Policy]. Set the system to small partitions or large partitions to avoid saturating the outQ.

- If the /opt partition is full, delete unnecessary files and compress and move any core files that are in the /opt/XRXnps/corefiles directory.

- If the /var/spool partition is full, determine the size of the /var/spool/XRXnps/inQ directory.   If a job is larger than half the size of the directory, delete the job and restart the Xerox software.

  If the job is small, store it on a server and resubmit the job from the client.

  Delete any faulted, ineligible, or held jobs that are no longer needed. Also, delete any completed jobs in the /opt/XRXnps/log/errorLogs directory.

- If any other partition is full, free space on the partition by deleting any unnecessary files.

- If only one job is in the printer queue, cancel the job and resubmit as smaller files.

If the job is in PostScript, ASCII, or TIFF format and the job status is "processing", perform the following:

1. Hold the job.

2. Resubmit the job to a draft PostScript printer to determine if the master is corrupted. If the job prints without problems, contact the Customer Support Center.

NOTE: If a job that is known to be without faults has been submitted and will not print, shut down and restart the DocuSP software.

If an active job has a status of "printing" or "waiting for the printer" and will not print and there are no faults or messages displayed, perform the following:

1. Open the printer door. If a message appears in the faults and messages frame, then the communication with the printer is working.

2. Restart the DocuSP software. If the problem still persists, contact the Customer Support Center.

Job Integrity problems

If the job does not print as expected (missing pages, missing data, incorrect page orientation, incorrectly ordered sets, job attribute inconsistencies), perform the following:

1. Check the job properties to ensure proper programming.

2. Check for any queue override attributes that may be conflicting with the job programming.

3. If the job is PCL or PostScript, check for job ticket information that may have created a problem with the job. Make changes and resubmit the job.

PDL problems

If a problem exists with a PDL job, the System Administrator can ask the job submitter specific questions to identify the problem. Possible questions that may help are the following:

• What printer driver was used to create the file?

• What application was used to create the file?

• Do all applications create this file format?

• Have you tried to use a different printer driver? If not, do so to conclude if it also creates problems.

• Has the file printed previously on a different printer?

• Was the file recreated and resubmitted?

• Have you checked to see if the destination queue is accepting files? Were the resources adequate?

• Did this file or a similar file print on a previously installed version of the system software?

PostScript problems

The following questions may be helpful to ask when trying to isolate a PostScript problem:

• What printer driver was used to create the file?

- What client/application was used to create the file?

- Was the file recreated and resubmitted with a different driver? What was the result?

- Is there a printed PostScript error page, and what errors were listed?

- Is the queue faulted, or is it accepting jobs?

- Did this file or a similar file print on a previously installed version of the system software?

- Will the job print on any other PostScript printers?

- Does the PostScript file distill properly using Acrobat Distiller?

TIFF problems

The following questions may be helpful to ask when trying to isolate a TIFF problem:

- Is the file a true TIFF, or is it a TIFF wrapped in a PostScript wrapper?

- Did the PostScript error page list the error as "Decomposition Task Failed" to indicate that the tags and compression formats of this file are not supported?

- What type of client and application were used to submit the file?

- Can the TIFF image be viewed using any software package?

- Does the error page list errors such as "image mask", "Xeroximage" or "image" to indicate that the FTP transmission of the file has corrupted the TIFF image data?

- If the file has an orientation problem, has an attempt been made to change the orientation using the Xerox Client Software print command orientation switch?

- What compression format was used to compress the file?

- What dots per inch (dpi) resolution was used or intended for the file?

PDF problems

The following questions may be helpful to ask when trying to isolate a PDF problem:

- Was the PDF created from the original PostScript using the latest version of Adobe's PDF Distiller?

- Does the original PostScript file print correctly?

- Will all of the pages of the job open with Adobe Acrobat?

- What application and/or PDF software created the PDF file?

- With the printer's error pages turned on, does the printer produce a PostScript error page?

- Has the file been redistilled again using a newer PostScript?

- Are all of the document fonts downloaded and included within the job?

- What was used to create the PDF? PDF Writer or Adobe's PDF Distiller?

Restore password

To restore the default password if a Trusted User or System Administrator forgets the system password, perform the following:

1. Open a terminal window.

2. Logon as the root user by typing

su

3. and select <Enter>.

Enter the the password and select <enter>

4. At the prompt (#), enter the following:

cd /opt/XRXnps/XRXui61XX/data

5. and select <Enter>.

6. Type:

ls -la

7. and select <enter>.

8. Delete the files ".npw" and ".sum" by typing

rm .npw .sum

9. and selecting <senter>.

10. Open the System menu and select [Logon]. Select the desired user type and enter the password. Select <OK>.

11. An error message will display, "A problem was detected in the password file." Select <OK> and retype the default password again and select <OK>.

12. A message will display in the main window which reads, "Missing password file recreated."

13. Select on the "missing password file" recreated message. A pop-up window will display the service code C03-501. Another message will be displayed which reads, "The missing password file has been recreated. All current passwords are now valid. Contact the System Administrator to install Trused user and System Administrator passwords." Select [Reset].

Restart DocuSP software without rebooting

If [Exit] is accidentally selected from the Xerox software, perform the following to start the software without rebooting the controller:

Open a terminal window and enter the following:

```
.openwin-init
```

Productivity and performance problems

If a job takes longer to process than anticipated and a performance problem is suspected, perform the following to check the system:

1. Check the job status in the Job Manager window.

2. If the job status is Hold, select [Release] to process the job.

3. If the job is Ripping, check the performance meter. If the CPU activity is high, the decomposer is working. If this is not true, restart the DocuSP software.

4. Submit the job to a draft printer to determine if the master is valid.

5. Check the time on the decomposer that is working on the job. For example, if the job is a PostScript job, type the following in a Terminal Window:

```
ps -ae|grep ps_cdf
```

The system will return a time value along with the process ID of the PostScript decomposers that are running. Wait, then repeat the command. If the time displayed is increasing, then the job is Ripping.

For a PCL job, type:

```
ps -ae|grep pcl_cdf
```

For a TIFF job, type:

```
ps -ae|grep tiff_cdf
```

6. If problems still persist, contact the Customer Support Center.

Problems when saving a job

If a job was submitted from a client with a save destination, but is not saved, perform the following:

1. Ensure that the banner and error pages are enabled,

2. Submit the job for printing.

3. Check the error page for the words "OFFENDING COMMAND". The words after this will instruct what to do to fix the file.

Printing system logs

System logs gather information to recover various system problems.

Logs are used to gather second level information on the operation of the system. These should only be used when directed by this guide or but the Customer Support Center. All logs are found in the /opt/XRXnps/log directory. The most recent entry is at the bottom of the file.

all_jobs_log

The all_jobs_log contains information about the status of various tasks associated with processing a job, such as decomposing, marking, and printing.

The format of the file is as follows:

```
Logging Module /t# Absolute Time /t# Job ID /t# Message
```

system_log

The system_log contains information about general high level system events such as the initialization of software or the starting of a process.

The format of the file is as follows:

`Logging Module /t# Absolute Time /t# Message`

status_log

The status_log contains information about the attributes of a job once it has been accepted and tracked by the system.

The attribute information found in this file is as follows (the sequence and attributes displayed vary with the job):

`Logging Module /t# Sender Name /t# Data Size /`
`t# Document Name /t# Document Format /t# Job ID`
`/t# Virtual Printer Name /t# Message /t# Time /`
`t# Network Protocol /t# Assigned Physical`
`Printer /t# Plex /t# Plex Requested /t#`
`Disposition`

ep_exception_log and ep_primary_log

These logs contain a list of faults. The ep_exception_log contains a listing of all logged faults. The ep_primary_log contains exceptions that are the primary cause of the problem.

The format of these files is as follows:

`Logging Module /t# Absolute Time /t#`
`Microseconds /t# Instance ID:Module TD /t#`
`Exception ID /t# Service Code`

Printing the System logs

You print the System logs to help you gather information and recover from various system problems.

To print the logs:

1. Open a Terminal window and log in as "root".

2. Change directory to the log directory by entering the following command:

`cd /opt/XRXnps/log`

3. Enter the following command:

`print -p <que_name> <log_name>`

   Ensure that you know and substitute the name of the queue that you are printing to and the log name you are printing to.

4. Press <Enter>.

Printing the Accounting log

Print the Accounting log to gather information and recover from various accounting problems. Either the entire Accounting log or a portion of the log may be printed.

Rebooting and restarting

Recovery procedures throughout this guide instruct you to either reboot or restart the software.

To reboot the system and perform a file system check, perform the following:

1. Place your mouse cursor in the background outside of the DocuSP Print Services window.

2. Right-click and select [Programs].

3. Select [Terminal].

4. Put your mouse cursor in the window and type:

su

5. Select <Enter>.

6. Type in your root password.

7. Select <Enter>. A # symbol displays.

   NOTE: When entering text, do so in lower-case because UNIX is a case sensitive system.

8. Type:

sync; sync; halt

   9.

10. Select <Enter>. The system will reboot.

11. A Program Terminated message and an Ok prompt display. Type

boot -s

12. At the Ok prompt, type

boot -s

13. Select <Enter>. The system will reboot.

14. When you recieve the following message, "Type Ctrl-d to proceed with a normal startup, (or give root password for system maintenance)." Type the root password again.

15. Select <Enter>. The prompt (#) will display. The system will prompt you to perform a File Check.

16. Type

fsk -y

17. and select <Enter>.

18. Select the <Ctrl> and <d> keys on your keyboard at the same time to complete the boot.

NOTE: This procedure performs the file check and takes about one minute. The # symbol appears again.

If there are problems starting the software, check the console window for messages.

Loading XDJC/Unix

The Xerox Job Description Compiler is loaded by entering the following on the command line:

/opt/XRXnps/bin/XDJC [-option[,option...]]
<filename> ...

The **filename** is the name of the JSL file that is to be compiled. The JSL filename is required to terminate with the suffix .jsl or .JSL. The filename may contain path information.

Many options may be specified and shown in the above example. The **option** may be specified in any order and are 3-character abbreviations. A list of the available options and their abbreviations are as follows:

• REPlace / NOReplace: Replace or backup existing PDL object files

• DISplay / NODisplay: Display or suppress XDJC messages

• PRInt / NOPrint Generate: JSL compilation listing always or only when errors/warnings occur

• TRUncate / NOTruncate: Truncate or accept JSL source lines after 72 characters

• LABel / NOLabel: Generate or suppress 128-byte Xerox standard label

• COMpile / SCAn: Compile with output or scan only

• SINglebyte / DOUblebyte: Use singlebyte or doublebyte code and printer carriage control   translation files

- Vx: LPS PDL version number, x = 10, 2, 35, 3615, 37, 38, 39, 40, 50, 3A, M10

- PAPersizes: Papersize to use for PDL VM10, s = USLEGAL / USLETTER / A4

- DATed = d: Date format, d = US / EUROPEAN

- PAGinate = p: Lines per page, n = 0, 5 to 999 (0 means no pagination)

- OUTpath=p: Base directory for output files, p = <path>, default is current directory (Note that ~ is not supported.)

Configuring XDJC/Unix

The configuration file, CONFIG.TXT found in the directory /opt/ XRXnps/bin/, contains default parameters for the invocation of XDJC. The text file can be edited using any simple text editor.

The first line of the configuration file must not be edited; it contains XDJC version information. Each subsequent line contains a single option; any text following the first word, and any invalid options, are ignored. Options may be repeated or contradicted on following lines; the last option specified overrides previous options. The following sample configuration file is provided:

```
XDJC VM10 PDL Compiler
REPLACE
NODISPLAY
PRINT
TRUNCATE
LABEL
COMPILE
SINGLEBYTE
VM10
PAPERSIZE=USLETTER
DATE=US
PAGINATE=60
OUTPATH =/opt/XRXnps/resources/lcds
```

Output files

Upon compilation of a JSL source file, the XDJC generates the following:

• JSL source listing file

  <filename>.lst or <filename>.LST

  The filename is the name of the JSL file, excluding path information. The case of the file extension corresponds with the case of the file extension of the JSL source file.

• Resource listing file

  <filename>.rsc or <filename>.RSC

  The filename is the name of the JSL file, excluding path information. The case of the file extension corresponds with the case of the file extension of the JSL source file.

• Zero or more PDL object files of types

  .JDL .CME .IDR .LIB .PDE .STK .TST

  All filenames are in upper case and are written to the directory <outpath>/VM10 where outpath is the output path specified. Files are overwritten if the REPLACE option is selected; otherwise they are renamed to $xx where xx is the first two characters of the file type.

• a log file containing messages displayed to the screen

XDJC.LOG

  The log file is written to the directory in which XDJC/Unix is installed and is appended at each invocation of XDJC.

Properly ejecting a diskette from the Diskette drive on a DocuSP workstation

Several problems can arise if you use the eject button on the floppy disk without first selecting Ejct in the software.

To properly and safely eject a floppy diskette (or other mountable, removable media) perform the following:

1. Select [Setup] and then [Configuration]. The Setup Configuration window displays.

2. Select the Peripherals tab.

3. Right-click on the drive entitled "floppy0."

4. From the right-click menu, select [Eject/Unload]. This dismounts the floppty media, and protects the platform from damage caused by attempting to eject the media manually.

5. Select [OK] to close the "Removable Media Manager" window.

6. Now use the floppy eject button to eject the floppy diskette.

10. Hints and Tips

General

Disabling the Solaris 8 Screen Saver

To disable the Solaris 8 Screen Saver:

1. Open a Terminal window.

2. Type the following path:

cd /usr/openwin/bin

3. .

4. Type

dtpower

5. .

6. Select Yes from the Scheme Confirmation window that opens. The Power Saver screen is displayed.

7. From the Current Power Saver Scheme pull-down menu, select Disable.

8. Select OK, and close the Terminal window.

Common Desktop Environment (CDE) Front Panel Removal and Workaround

The purpose of this procedure is to describe the steps necessary to restore the Front Panel Display Tool Bar on the Common Desktop Environment. This feature was removed from the 3.11.04 software but was present in the 3.10.00 software. To bring this panel back, perform the following steps:

1. Open a Terminal window.

2. Login as root.

3. Edit **/usr/dt/app-defaults/C/Dtwm**.

4. Change the following line to "True:"

   Dtwm*useFrontPanel:False

5. Reboot the system. The CDE front panel will return.

Color Systems

General Comments

The time required to process a job can depend on various influences. The time required to process a job is made up of 4 components:

- Time for a client workstation to generate the Page Description Language (PDL, i.e. PostScript, HP-PCL, TIFF, etc.).

- Time to transfer the job PDL across the net and be marked as received by the DocuSP.

- Time required to RIP the PDL to produce the bit maps that the print engine can use.

- Time required to write the RIPped bit maps to the print engine and generate paper.

Time used to generate the PDL

These components is strongly influenced by the speed of the client workstation, the print driver being used by the application, and the complexity of the pages to be printed.

Time used to transfer PDL

These components is influenced by the speed of the network connection between the client workstation and the DocuSP. It is also impacted by the number of workstations on the network, by the configuration of the net (i.e. number and speed of the gateways and routers and by the number of simultaneous network connections that DocuSP has to manage). Finally it is impacted by the complexity of the pages being printed (i.e. the size of the PDL files being transferred).

Time required to RIP PDL

These components are influenced by the efficiency of the PDL to be RIPped, the complexity of the pages being RIPped, the number and resolution of images included, and the media/color space transforms being performed on the data before imaging/printing.

Time required to print PDL

These components are influenced by the media being used and the paper path through the IOT. Whether the printing is face up or down, simplex or duplex, all one size or a mix of sizes to be drawn from different trays all make a difference. In addition, the complexity of the pages and therefore the number of Image Quality Adjustments that the DC 2045/2060/6060 print engine makes during a job also impact the final performance of the printer as it generates paper.

Job Submission Hints

Number of Images

The number and resolution of the images that are embedded within a job will be a big driver of the PDL size and therefore PDL generation time, data transfer, spool and RIP performance. Minimizing the number and/or resolution of embedded images will improve performance.

Ethernet

To keep the network from becoming over loaded with jobs when several clients are simultaneously submitting and printing, it is important to have a fairly fast ether net (100 Bast T or faster).

Gateways

If a user has all of the DocuSP gateways installed and active, performance will be less than expected because the work required to monitor each added gateway and potential client connection will consume a small portion of the available CPU band width. If this is a problem, you may wish to remove gateways not being used (i.e. lpr, IPP, SNMP, HTTP Novell, Appletalk or Token Ring), keeping only those that are needed.

Job submission order

Job submission order can impact performance. It is suggested that a job with many pages to be RIPped and a large number of copies should be submitted at the end of the say if possible. With the printer paused, the job can then RIP over night. That job will then start printing the beginning of the next day and while it is printing, the DocuSP can process a complex/difficult job that takes a long time to RIP. As long as the previous job is still printing when the next job finishes RIPping, the DocuSP can RIP still another job to get even further ahead. In this way, the print engine itself will never be idle waiting for a hard job to finish RIP.

Job RIP Hints

If using the default media/color settings that are pre-loaded on the DFE, the DocuSP can use built in color space transformations to accelerate RIP performance. If you do any of the following, the color space transformation will probably take more time and the RIP will be slower:

- Define own media

- Include input or output ICC color profiles in the PDL file

- Change any of the system color settings (i.e. saturation, lightness, color adjustments for C,M,Y or K, emulation mode, etc.)

NOTE: In general, RGB and LAB color space transformations are slower than CMYK transformations. If the input images of a job can be created in CMYK color space then the DocuSP will be able to process the job more efficiently.

Variable data

Variable data job construction is also an important driver of RIP performance. Jobs that are constructed with a single underlay or background plane and a small number of variable text or image overlays will run very efficiently. If the same job is constructed with the underlay constructed from several distinct objects which the DocuSP is asked to composite on the fly then the job will not be able to take advantage of the DocuSP variable data performance enhancement. In that case it may RIP significantly shower than the more efficiently constructed job.

For cases where the background/underlay of the variable data job is composed of 2 or 3 relatively static objects it is suggested to have the application create each static combination of objects as a different underlay. This will be more efficient than having the DocuSP perform the composition. When creating variable objects to be overlaid on fixed underlays or backgrounds, it is also important to ensure that the objects are properly cropped or bounded and at the lowest acceptable resolution. The DocuSP can compose 2 variable data objects of 2 inches by 2 inches and 300 dots/inch resolution about 10-20 times faster than it could if the same objects were 600 dpi and 8.5x11 inches.

Image Quality

Generally the image quality of a DocuSP/DC 2045/2060/6060 system will be above average and the Image Quality (IQ) enhancements filters provided within DocuSP will be unnecessary. If you wish to improve output IQ, the DocuSP provides separate controls for enabling Anti Aliasing, Trapping, and Intelligent Black Overprint. Disabling all 3 of these IQ filters will improve performance. If you are printing only a small number of copies, the expected increase in RIP time will be visible as a significant fraction of the total job processing time. When printing documents with a large a number of copies, then the majority of the processing time will be devoted to the actual printing and the RIP performance decrease will be less visible (a smaller fraction of the total job time). You should examine the DocuSP printed output with the IQ enhancing filters enabled and disabled and decide then whether the IQ improvement is worth the performance drop for his particular job scenario.

On DC 2045/2060/6060 there are certain scenarios where the printer will cycle down and do an Image Quality (IQ) adjustment. The % area coverage of the page (i.e. amount of image/text written on the page) also effects the number of IQ Adjustments that the printer will make. A standard letter size page (8.5x11 inches) is about 21.6x27.9 cm or about 603.5 square cm. If the text and images written to a page cover more than about 250 square cm (about 40% of the page), then the print engine will automatically generate IQ Adjustments.   If you find that a particular document seems to take a long time to print because of IQ adjustments, improve performance by simplifying the page. For example, the text and images on the page might be downsized to cover less than 40% of the viewable area of the paper and the performance may improve because the printer does fewer IQ Adjustments.

The DC 2045/2060/6060 print engine will also perform IQ adjustments if a difficult job is being processed and RIP falls behind the print output. If this occurs, the print engine will cycle down for a few seconds while the RIP catches up and then it will perform an IQ adjustment which will take anywhere from 5-95 seconds. During the IQ adjustment, the printer will not print anything. However, the RIP will continue and be slightly ahead. As soon as the printer finishes the IQ adjustment it will print all of the RIPped pages and catch up with the printer.

Job Printing Hints

The DC 6060 print engine cycles down on certain operations such as on tray/bank switches or between jobs. Each cycle may take 10-40 seconds to complete before the print engine is ready to print again. To avoid unnecessary print engine cycling, you can perform the following:

- Disable finishing, slip-sheets and offset stacking.

- Disable banner sheets when making multiple copies of a job.

- Avoid media tray switches by constructing the job to use only a single size, color, weight paper and by ensuring before running a job that the currently active tray has enough media loaded to print the entire job.

Skipped Pitches

To stop the cycle of skipped pitches and cycle the print engine down, perform one of the following to improve the overall job performance:

1. Process the job in N-1 order rather than 1-N order. This will force the job to be completely ripped before the print engine is started up. When the print engine starts it will consume pages at 60 ppm until all pages are printed.

2. The other alternative is counter intuitive. The user could pause the printer (the green button on the DocuSP GUI) until a large number of pages in the job have been RIPped.   If the user then resumes the printer at the right time (some time before the whole job is RIPped), the print engine will print all of the queued pages and the controller will simultaneously finish ripping the remainder of the job. To do this successfully, the user will need to watch and compute the rate that DocuSP is ripping at. If he knows how many pages are in the job, then knowing that the printer will generate paper at 60 ppm, he can compute how far from the end of the job to release the printer so that RIP and print finish at the same time.

XJDC Hints and Tips

- If the config file needs to be changed, modify the /opt/XRXnps/XRXXJDC/data/CONFIG.TXT file. Otherwise, the default setting in the CONFIG.TXT file will take effect.

- An example for the syntax /opt/XRXnps/bin/XJDC filename would be: /opt/XRXnps/bin/XJDC /home/XDJCtest/BASIC.JSL where the filename is represented by /home/XJDCtest/BASIC.JSL

- The output files are stored under the OUTPATH directory which is specified in either /opt/XRXnps/bin/CONFIG.TXT file or command line. For example, if OUTPATH is /opt/XRXnps/temp/, then all the output files are put in the directory of /opt/XRXnps/temp.

- JSL source files can be edited using the textedit command or UNIX vi command. "textedit" is available with the software release. To invoke the editor, bring up a Terminal window and <Enter> "textedit". For example, open a terminal shell and on the command line, type: textedit BASIC.JSL or vi BASIC.JSL

- During the XJDC compilation, if an error is encountered, the compiler will print the error report to printer. Ensure the first available queue is PostScript queue.

PCI Channel Interface PWB Trace Capture Procedure

Load the PCI Channel Interface PWB Trace command when software is installed and the PCI Channel Interface PWB PWB is detected. This procedure is usually performed at the request of Software Engineering or as part of a SPAR package.

Perform a Trace

To start the trace, perform the following:

1. Login as Administrator.

2. Select [System - Online Manager].

3. Select:

   • Channel Gateway - Enable

   • Input Device - Online

   • Input Control - Start

4. Submit a job from the host.

5. After the job is completely received by the Controller, select Input Control - End.

6. Open a Terminal window.

7. Type

cd /opt/XRXnps/XRXgrpset/bin

   8. and press <Enter>.

9. Type

./dspTrc > FileName.txt

   10. and press <Enter>.

11. Type

ls -l

   12. and press <Enter> to see the new file and the file size.

13. If the file size is greater than 1.44 MB, type

compress FileName.txt

   14. and press <Enter>. If the file size is less than 1.44 MB, go to "Export the trace file to floppy".

Export the trace file to floppy

To export the trace file to a floppy, perform the following:

1. Insert a blank, formatted floppy into the floppy drive.

2. Type

`volrmmount -i`

3.and press <Enter>.

4. If you used the "compress" command above, type

`cp FileName.txt.Z /floppy/floppy0`

5. and press <Enter>. If you did not use the "compress" command above, type

`cp FileName.txt /floppy/floppy0`

6. and press <Enter>.

7. Type

`eject`

8. and press <Enter>.