

# FreeFlow<sup>®</sup> Print Server

## Data Overwrite



Xerox Corporation  
Creative & Technical  
Communications  
800 Phillips Road  
MS 0218-01A  
Webster, NY 14580

© 2009, 2011 Xerox Corporation. All rights reserved. Xerox<sup>®</sup> and Xerox and Design<sup>®</sup>, and FreeFlow<sup>®</sup> are trademarks of Xerox Corporation in the US and/or other countries. Includes Adobe<sup>®</sup> Normalizer and PostScript<sup>®</sup>. Includes Monotype Imaging<sup>®</sup> Intellifont<sup>®</sup>.

This kit contains the FreeFlow<sup>®</sup> Print Server Disk Overwrite software supporting all printing products with the FreeFlow Print Server digital front end.

### Requirements

FreeFlow Print Server version 7.0 SP3 (73.B0.xx) or higher.

### Overview

Data Overwrite is a free, standard, automatically installed feature in this release and higher.

If the FreeFlow Print Server software at this release or higher is installed using a clean install with a scrape, the Data Overwrite feature is visible and fully operational.

If the FreeFlow Print Server software is an upgrade to 73.B0.xx from an earlier release, and the Data Overwrite option was not installed in the earlier release, the feature is visible but may not be operational due to the disk partitioning. When Data Overwrite is initiated, an error is displayed clarifying that a full install is necessary in order to establish the necessary partitioning.

If Data Overwrite was installed in a previous release, the disk is already partitioned for Data Overwrite, and a full install is not necessary. Upgrading to 73.B0.xx provides the updated Data Overwrite feature as described in this document.

The Data Overwrite software removes all data from the spool, swap, and outQ partitions of the print server hard disk. The data cannot be retrieved.

The FreeFlow Print Server Data Overwrite feature requirements are documented in NIST SP 800-88 and restated in the Process Guide to DoD 5220.22-M. The algorithm is a three-pass overwrite consisting of a character, its complement, and then a random character. To enable an optional Read Verification pass, Data Overwrite writes a 0x40404040 pattern in the last third write pass.

If the Read Verify option has been enabled, the last write pass is followed by an optional Read verification pass that reads the data sectors and compares the read data to the 0x40404040 pattern. If this data is not found on the disk, the software generates an error.

The data overwrite operation does not process defective or spare blocks for SCSI and FCAL drives. It also does not perform any special disk error recovery. If a higher secure data overwrite scheme is required, the Sun Solaris Format command, Purge utility, is available. Additionally, 3<sup>rd</sup> party software with more flexibility and functions, such as UniShred Pro<sup>®</sup> is available. However, it is not part of the Data Overwrite software nor is it supported by the FreeFlow Print Server.

The Data Overwrite procedure can be initiated from the FreeFlow Print interface.

## How to use Data Overwrite

The Data Overwrite function is available on the System pull-down menu of the FreeFlow Print Server user interface.

1. Log on to the FreeFlow Print Server as Administrator.
2. From the System pull-down menu, select Data Overwrite.
3. Select [OK].
4. If there are active jobs in the system, a warning message is displayed that all active jobs are deleted.
5. Select [OK].
6. The Data Overwrite dialog box is displayed. All Jobs and Logs are automatically overwritten.
7. Select [OK].
8. Select to overwrite any additional items such as Saved Jobs and User Resources such as fonts and forms.
  - Selecting the option for Saved Jobs Only overwrites all saved jobs in the /var/spool/XXnps/saved directory.
9. Select the Use Fast Mode option if desired. The Use Fast Mode option runs the Data Overwrite process in a single write pass only. Not selecting Fast Mode results in three complete passes overwriting the data on the disk.
10. Select to run an additional final pass as verification of the last data written. If the final verification pass is selected, select one of the following:
  - Verify the entire overwritten data
  - Verify a 10 % sample
11. Select [OK].
12. A time estimation for how long Data Overwrite will run is displayed. Select [OK] to begin the Data Overwrite process or select [Cancel].
13. The FreeFlow Print Server interface and the Solaris operating system are shut down.
14. If the system is a Nuvera Model 3, refer to the section on Nuvera Model 3.

*NOTE: Do not interrupt the Data Overwrite process. For example, do not enter Ctrl-C or power off the system. If the Data Overwrite process is interrupted, the system software or file system could become corrupted, rendering the system inoperable or unbootable, and requiring a scrape and clean install of the software.*

15. When the Data Overwrite process is complete, the system reboots for all non-Nuvera products. Nuvera systems power down.

16. The FreeFlow Print Server interface restarts and displays the completion status.

For Nuvera Model 3 systems, at the conclusion of the Data Overwrite, the system is powered down. When the system is powered on, the Nuvera Model 3 displays two Data Overwrite Status lines, one indicating the status of the Print Engine Image Data overwrite, and the second the FreeFlow Print Server Data Overwrite Status

that is common on all products. It is possible that one Data Overwrite operation may complete successfully and the other fail.

If either Data Overwrite process fails, retry the process. If the process fails a second time, call for service.

17. Printers other than the Nuvera Model 3 only display one status.

18. Some printer products, such as Nuvera 288, can perform the Image Disk Overwrite process in parallel with the FreeFlow Print Server Data Overwrite process.

### **Nuvera Model 3**

For Nuvera Model 3, parallel image Data Overwrite is not possible. The Image Disk Data Overwrite has to be completed serially, before starting the FreeFlow Print Server Data Overwrite.

1. The print engine performs an Image Disk Data Overwrite prior to the FreeFlow Print Server shutting down to Single User Mode.
2. A message, Please Wait, Data Overwrite is in progress, appears on the GUI.

The print server aborts the Data Overwrite operation on a Nuvera Model 3 if the system is in a state where Data Overwrite cannot begin. An informational message indicates the condition to be resolved. The System Administrator would need to restart the Data Overwrite.

The following are the conditions that will prevent Data Overwrite from starting on a Nuvera Model 3 system:

- a. Printer is in low power mode, sleep mode or is powered off.
- b. Either FreeFlow Print Server is in diagnostics mode, or the Print Engine is in intrusive mode.

The error message displayed is: This operation is not possible. Fault Code: xxx.

The error codes are:

Code 04 ----- Printer is powered off.  
Code 29 ----- Printer is in Power Saver Mode.  
Code 40 ----- Printer is in Sleep Mode.  
Code 39 ----- Printer is in Low Power Mode.  
Code 27 ----- Printer is not connected to the FreeFlow Print Server.  
Code 30 ----- Printer is in Intrusive Mode.  
Code 997 ----- FreeFlow Print Server is in Diagnostics Mode.

The error condition needs to be resolved and the Data Overwrite operation re-started.

3. While performing Image Disk Data Overwrite, the FreeFlow Print Server public network interface is disabled and the print server is inaccessible to remote clients.
4. Upon completion of Image Disk Data Overwrite, the print server reboots to Single User Mode to continue the Data Overwrite of the FreeFlow Print Server hard drive.
5. The Data Overwrite process continues automatically. Refer to step 16 above.

## Security considerations

In addition to a regularly planned schedule for performing the Data Overwrite process, it is important to ensure that the environment for the FreeFlow Print Server and supported printers is secure.

Xerox is committed to providing a level of security that allows the print server 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 FreeFlow Print Server and the Sun Solaris Operating System. Xerox is committed to providing the latest Solaris security patches provided by Sun Microsystems in each major print server release. The FreeFlow Print Server development team also adds Solaris security patches in between major release cycles.

Security of the network and the print environment is the responsibility of customer. The following are some considerations to ensure a secure printing environment.

The FreeFlow Print Server System Administrator, Operator, and UNIX superuser (root) passwords must follow proper security protocols, which include a regular timetable for changing the passwords and include length and character mix for the passwords.

*NOTE: Please be aware that 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 and system administrator passwords are available for them.*

The room or rooms containing the supported printers are secure.

The network environment is secure.

The FreeFlow Print Server software is properly installed, is the most current version, and contains all current security patches. For further information on print server security, refer to the most current version of the *Xerox FreeFlow Print Server Security Guide*. This document is included as a PDF file on the User Guides CD-ROM delivered with your printer.

## Managing the Log Files

The Data Overwrite process maintains a detailed log of the entire Data Overwrite process, including the start and stop time for each partition, the partition name and boundaries, and error messages. The log file is cumulative and every time the Data Overwrite process is run, the details are added to the existing log. The file is maintained during the overwriting process in `/dataOverwrite.log`. When the Data Overwrite process is complete, the file is transferred to `/var/spool/XRXnps/log/dataOverwrite.log`.

On a regular basis, the log file should be backed up and deleted from the system.

Below is a sample of a portion of the log file.

```
Tue Jul 22 14:41:05 EDT 2003  DataOverwriteInit  Start
/.profile not found  DataOverwriteInit  End Tue Jul 22
14:41:05 EDT 2003 Tue Jul 22 14:43:25 2003  DataOverwrite
Start  Logfile Created Successfully Tue Jul 22 14:43:25 2003
```

```
Reading in Commandline Args Tue Jul 22 14:43:25 2003
Checking License for DataOverwrite Feature License validated
and approved for DataOverwrite Feature. Tue Jul 22 14:43:25
2003 Prompting user to continue Tue Jul 22 14:44:27 EDT 2003
DoPreWipeOutQ Start Unmounting /var/spool/XXnps/outQ
DoPreWipeOutQ End Tue Jul 22 14:44:27 EDT 2003 DatOvrPurge
Start Purging c0t1d0 : 0 - 60885674 Warning: interrupted
DoPostWipeOutQ Start Restoring outQ Partition Creating New
Filesystem On /dev/dsk/c0t1d0s1Cylinder groups must have a
multiple of 16 cylinders with the given parameters Rounded
cgsize up to 256
```

For the Nuvera Model 3, the image disk data overwrite log file is a separate file.

The image disk data is accessed through the terminal window at /var/phoenix/debug. A debug log file is started every time the Print Server is powered up. The file is DebugMsgLog.2009\_mm\_dd.hh\_mm\_ss. The debug log file with the newest time stamp is the current. You can use an editor to view and search the log for what you need.

The log contains information similar to the following:

```
DF mode 1
DF diskSize in blks 312581808
DF diskBlockSize 512
DF passes 1
DF pattern 0x40
DF dataPattern 0x40404040
DF write epc @ 4587613
DF epcWriteAddress 0x4c977000
.
.
4587794 SATA W 2000@2000:61ms (multiple instances)
4587865 SATA W 2000@4000:70ms
.
.
DF write done, start verify
4588357 SATA R 2000@0:21ms
DF blks read 2000 (multiple instances)
.
.
DF verify success
```