XEROX

Services 11.0
Release Document

Changes are periodically made to this document. Changes, technical inaccuracies, and typographic errors will be corrected in subsequent editions.

The content of this book is based on the Services 11.0 Release.

A Customer Comment Form is provided in this Network Administration Library. If this form has been removed, address comments to:

Xerox Corporation
Attn: Product Education (N1-12)
701 S. Aviation Blvd.
El Segundo, California   90245

Warning: As to equipment manufactured prior to October 1, 1983, such equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause interference to radio communications. As permitted by regulation, it had not been tested for compliance with the limits for Class A compliance with the limits for Class A computing devices pursuant to Subpart J of part 15 of FCC rules, which are designed to provide reasonable protection against such interference. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

As to equipment manufactured after October 1, 1983, such equipment complies with the requirements in Part 15 of FCC Rules for Class A computing devices. Such equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

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A. Services 10.3 overview

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Highlights

Xerox Network Services 11.0 is a mandatory release and can run on both the 8000 and 8090 servers. It incorporates the improvements of the maintenance releases since Services 10.0. Services 11.0 consists of the following components:

* Addition of PC File Service in support of XC 20 or XNS PC Plus

* Addition of Librarian Service to Services System Software

* Print Service enhancements for the support of vector graphics and scanned images

* Many high-priority Action Requests fixed

* Improved Clearinghouse performance useful to large corporate internetworks

* Specific improvements for XNS Services

* File Service backup and restore performance improved for all media types

* Software support for new 8090 server hardware

Clearinghouse Service

Performance will improve substantially in medium-to-large networks with multiple Clearinghouse Services.

* Clearinghouse access control operation determines if a specific name is a member of a group. This enhancement reduces the overall time it takes for access control operations on the network and substantially improves throughput on large networks.

* Smaller update messages sent about groups. This will remove a large source of internetwork traffic that comes from ordinary CHS administration.

* Enhanced policy controls, allowing certain parameters of CHS operations to be modified remotely, and allowing operational statistics to be gathered.

Mail Service

All files associated with the Foreign Gateway Assistant (FGA) are now deleted with the **Expunge** command. Previously, FGA required two reboots to completely expunge. The first reboot was used with the **Expunge** command to delete the FGA. A message then notified the user to reboot again and manually delete the file "FGA.messages."

Print Service

- Increases stack size for processing Interpress masters. This allows some Interpress masters, which previously would not print at all or did not print correctly, to print correctly in Services 11.0.

- Product factoring of printer fonts requires password enabling on each print server.

- Changes to Print Services allow an Interpress master representing a full page bit map (greater than 64 Kb pixel arrays for scanned images) to print, providing there is enough main memory on the server.

- Allows the workstation user or System Administrator to cancel *individual* documents in the Print Service queue. (A workstation user may cancel only their own documents.)

- System Administrator-selectable default font – either Modern or Classic.

- Offers a System Administrator-enabled slow page printing option to avoid image gaps. It is an improvement and a replacement for the Image Gap Printing feature in Services 10.0.

- Offers a System Administrator-enabled new complex printing option to allow the printing of documents containing more complex graphics, large numbers of graphics, or large bitmap images (such as scanned images). This option automatically enables the slow page printing option.

- Enhances the **List Fonts** command to show the total number of disk pages for the listed fonts.

- Message files are annotated to assist translation of banner sheet messages.

- Provides no Services 11.0 upgrade of Facsimile Print Service (FAX) and Formatting Print Service (FPS). FAX and FPS remain at 10.x capability, and may not coreside with 11.0 services on the same server.

File Service

As part of the support for the PC File Service, the File Service has been restructured to allow common software to be shared by both the File Service and the PC File Service.

File Service and PC File Service can coreside on the same server. If both are on the same server, only one instance of backup and restore is needed to support them.

File Service backup and restore

Copy volume enhancements

Copy volume is available from Services System Software on a multiple-drive server running any set of services.

- **Copy Volume** has been made more secure. The command is now available only to the enabled System Administrator.

- **Copy Volume** now requires confirmation by the user before beginning its execution. This should help System Administrators avoid accidentally deleting user data.

Backup and restore enhancements

- Backup and restore software is now part of the common software shared by the File Service and the new PC File Service. If both services are installed on the same server, only one instance of the backup and restore software is required.

- Backup and restore software now supports the 48 Mb cartridge tape drive built into each 8090 server. Cartridge tape is the backup media for all internal disk hardware configurations.

- In high capacity 8090 server configurations, backup and restore software also supports one to four 130 Mb high capacity cartridge tape drives. Multiple high capacity tape drives can be "chained" to permit complete backup of a volume without user intervention. High capacity cartridge tape is the recommended backup media for all high capacity server configurations.

- Rigid disk backup performance has been improved by 10%, and rigid disk restore by 30%. Floppy disk backup and restore have been improved slightly.

- Improved restore procedures now make it possible to perform a restore over more than one increment when no Backup Increments Log is available.

- Backup and incremental restore to the high capacity 8090 cartridge tape media is two to three times faster for both backup and restore than to the rigid disk and floppy disk media.

PC File Service

The PC File Service is a new, separately-loadable application that gives personal computers using XC 20 or XNS PC Plus software access to the filing resources of the XNS File Service, mutual sharing of stored files among XC 20 or XNS PC Plus clients, and file interchange with clients of the XNS Filing Protocol.

PC File Service allows XNS PC Plus or XC 20 PC users to access Xerox 8000 or 8090 file servers. With PC File Service, Xerox XNS workstations (using XNS protocols to access the Xerox File Service), and DOS PCs (using XC 20), can share and exchange files on the same network.

PC File Service, in combination with XNS PC Plus, provides a significant user interface improvement by accessing a Xerox file server from inside the PC application instead of using the current XFILE interface. PC File Service emulates an XC 20 File Service, so the PC user interface to the Xerox File Service is unchanged from the standard user interface of the active PC application. The PC File Service also offers better performance than XFILE for storage and retrieval of files from a Xerox File Service, along with improved handling of file name translation and wildcard support

for file names. (XFILE must still be used to access a Xerox File Service residing on a different network from the client PC.)

Like the XC 80 File Service, the PC File Service accepts network client requests to access files that reside in the services volume on the server's fixed disk. By doing so, it enables sharing of files by network users.

NOTE

A single PC File Service supports a maximum of 15 personal computers. If the number of active PC connections regularly exceeds eight, an additional PC File Service should be installed on another server, with the actively used shared directories split between the two.

Librarian Service

The Librarian Service is provided with Standard Services Software and will support the new ViewPoint Shared Books feature, which will be part of the forthcoming ViewPoint 2.0 release.

Shared Books uses the Librarian Service to maintain data about files that are shared by a work group.

External Communication Service

It is now possible for a user to end a 3270 Emulation session by closing the emulation window. Closing the window now ends the connection.

Internetwork Routing Service

The message file has been named "IRS.messages."

Interactive Terminal Service

The Interactive Terminal Service now permits you to ask for help in the middle of entering a message, without requiring you to rekey the message.

Remote Batch Service

• Changes were made in the supported protocols to correct errors in communication with an IBM 5520.

• The Remote Batch Service now acknowledges the receipt of a file while it is processing another.

Boot Service

The special etherboot files install and list commands have been modified to work with 8090 servers. The 8000 Boot Service software has not changed.

System Administrator changes

The following changes affect System Administrator operations.

Print Service

- The **Install from Floppy** command is changed to **Install Fonts and Test Patterns**, to allow installation from cartridge tape as well as floppy disk.

- The **Cancel Document** command is changed to allow the owner or a System Administrator to cancel a specific document.

```
PS!Cancel Document
    Select documents <   >
    1  <document name>  <status>
    2  <document name>  <status>
    3  <document name>  <status>
Enter one or more choices:
```

- A new command, **Cancel All Documents**, allows the System Administrator to cancel all documents in the print queue. Previously, queued documents were canceled by their activity-related category (such as formatting); now they are not.

```
PS!Cancel All Documents
    Please confirm cancellation of all documents (Y/N):
        <document name> (Canceled <    >)
        <document name> (Canceled <    >)
        <document name> (Canceled <    >)
        < # > document(s) canceled.
```

- A new command, **Set Default Substitution Font**, lets the System Administrator specify either Modern or Classic as the default font.

```
PS!Set Default Substitution Font
    Select default substitution font
        1    Modern
        2    Classic
        Enter choice number: <2 >
Default substitution font = < Classic >
```

- A new prompt appears when entering **Run Service** to change the Print Service configuration. (See the *Services Maintenance Guide* of the Network Administration Library for the complete steps.)

```
.
.
.
PS!Run Service
.

Reserve extra disk pages for complex printing (required for
scanned images)? (Y/N):
```

If **N** is selected, then another new prompt appears:

```
Enable slow page printing as needed to avoid printing gaps
(uses extra disk pages)? (Y/N):
```

Prompts appear only if there are sufficient resources. Otherwise, messages appear stating that there are insufficient resources.

NOTE: Refer to the *Services Installation and Setup Guide* in the Network Administration Library for all preliminary steps.

* The **Show Status** command now indicates whether complex printing and slow page printing features are enabled, disabled, or unavailable.

File Service

The File Service **Add File Drawer** command has been enhanced to allow the initial access list for a newly-created drawer to be input and/or edited. Previously, a separate invocation of the **Change File Drawer** command was required.

File Service backup and restore

The **Copy Volume** command is now available ONLY at the second server initialization interrupt point, to an enabled System Administrator when the volume is closed. Previously, any user could initiate a copy volume operation by (re)booting a server.

Extra confirmation is now required before the copy volume operation can proceed.

Boot Service

Two new commands, **Install Etherboot Files** and **List Etherboot Files**, provide the same functionality for the 8090 Boot Service that the **Retrieve Floppy Files** and **List Floppy Files** commands provide for the 8000 Boot Service.

```
BS!Install Etherboot Files
File List: *
EtherInitial.db... copied to the working dir...
DLion.germ... copied to the working directory
```

The Boot Service will prompt the System Administrator to install the appropriate boot files.

Deliverables for 11.0

Xerox Network Services 11.0 contains the following deliverables.

Software

Services 11.0 is delivered via two types of software media: floppy disk to support existing 8000 server hardware, and cartridge tape to support the newly-announced 8090 server hardware.

Services 11.0 consists of these updated or new applications:

- File Service, includes PC File Service
- Boot Service
- Print Service
- Interactive Terminal Service
- Internetwork Routing Service, includes X.25
- Communications Monitoring Service
- 850/860 Gateway Service
- Mail Service, includes Foreign Gateway Assistant
- Remote Batch Service

Services System Software

- Clearinghouse Service
- External Communication Service
- Server Monitor Service
- Librarian Service

Documentation

Services 11.0 is supported by the following documentation.

- The Network Administration Library has been revised to improve the focus and organization to isolate installation, backup, troubleshooting, and daily operating procedures in separate volumes.
  - *Guide to System Administration Activities*
  - *Services Installation and Setup Guide*
  - *Services Maintenance Guide*
  - *Backup and Restore Guide*
  - *Basic Network Troubleshooting* (three volumes)
- *Services 11.0 Release Document*
  - Services 11.0 Overview
  - Upgrade instructions
  - Notes and cautions

• Optional documentation

    - Services 11.0 introduces the Xerox Network Services *Technical Reference Manual* (TRM), for users who have larger or more complex networks. This document is available through the Xerox Document Subscription Service at an additional fee.

Prerequisites

Services 11.0 requires at least 512 Kb server memory.

Print Service

Tables 1-1 and 1-2 on the following pages show the minimum resources required to run the Print Service on a server with and without coresident services. Table 1 lists the minimum resource requirements for the 8000 server. Table 1-2 shows the similar requirements for the 8090 server.

Service compatibility

Servers running Services 10.0-10.3 can run on a network having Services 11.0-level servers. Services 11.0 is a mandatory upgrade, so all users should plan to upgrade all servers to 11.0, with the following exceptions:

- 8000 Formatting Print Service - must run only on a dedicated 8000 server running Services 10.0-10.3.

- Facsimile Print Service - must run only on a dedicated 8000 server running Services 10.0-10.3.

- SNA Access and SNA Mail Relay - must run only on a dedicated 8000 server running Services 10.3. SNA also requires 768 Kb real memory and a 42 Mb rigid disk.

Table 1-3 lists the products that comprise the Xerox Systems Integration Release base compatible with Services 11.0. The "Client" heading represents the product and the "Version No." heading represents the product version software.

Table 1-4 provides specific details on the XNS protocol levels supported by Services 11.0. This information may be useful to developers of application-level software.

Table 1-1. **Minimum resources required to run Print Service on an 8000 server**

	Storage (Mb)					Memory			Virtual memory	
	10*	29*	42	80	300	512 Kb	768 Kb	1.5 Mb	22-bit	23-bit
Print Service without coresident services	X					X			X	
Print Service with coresident services		X					X		X	
Print Service running slow page printing without coresident services		X						X	X	
Print Service running slow page printing with coresident services - Not supported										
Print Service running complex printing without coresident services		X						X		X
Print Service running complex printing with coresident services - Not supported										
Print Service with Japanese Modern or Japanese Classic Fonts without coresident services			X				X		X	
Print Service with Japanese Modern AND Japanese Classic Fonts without coresident services				X			X		X	

*This limits fonts that can be loaded, and reduces the size and complexity of documents that can be handled.

Table 1-2. **Minimum resources required to run Print Service on an 8090 server**

	Storage (Mb)			Memory (Mb)		
	25*	85	310	1.1	1.6	3.6
Print Service without coresident services	X			X		
Print Service with coresident services		X		X		
Print Service running slow page printing without coresident services	X				X	
Print Service running slow page printing with coresident services		X				X
Print Service running complex printing without coresident services	X				X	
Print Service running complex printing with coresident services		X				X
Print Service with Japanese Modern or Japanese Classic Fonts without coresident services		X		X		
Print Service with Japanese Modern AND Japanese Classic Fonts without coresident services		X		X		

*This limits fonts that can be loaded, and reduces the size and complexity of documents that can be handled.

Table 1-3. **Product interoperability with Services 11.0***

Client	Version No.	Client	Version No.
DEC VAX	3.0 and 3.1	Memwrtr 620/630CX	**
XNS 4.0 for the VMS Op Sys (DEC VAX)	4.0	Memwrtr 6020/6030C	**
XNS PC	1.1 and 1.2	Memwrtr 645/ITS	**
XNS PC Plus	1.0	Memwrtr 645E	4.0
XTerm	1.1	Expert	2.4 and 2.5
Star	3.4	XPS 700	4.x
ViewPoint	1.X	Interlisp	Koto
XDE	4.0 and 5.0	Kurzweil 4000 OCR	**
820 SIU	10.00	16/8 SIU	10.00
860 E3270	10.00	6060 PC Family/ITS	**
860 Enet	10.00	150 Graphic Input Scanner	2.0
860 SIU	10.00	XC 20 Access to XC 80/ITS	1.01, 1.1, and 1.2
860 ETTY	10.00	3700	2.3 and 4.0
860 TTY/ITS	H4.0	5700	6.0
860 XModem/ITS	5.0	9700/8700	10CR
860 2770/2780/ PTP Comms.	**	4050 LPS	1.9
Memwrtr 620/630C	**	XPIW 7650 Pro Imager	2.x 2.x

* Formatting Print Service and Facsimile Print Services are not supported by Services 11.0.
** No version number available.

Table 1-4. **XNS protocols and program numbers supported by Services 11.0**

Service, Service function	Protocol	#	Version(s)
Clearinghouse Service or Clearinghouse to User (Prg. 2) or Clearinghouse Access Control Protocol (Prg. 127)	Authenication Protocol Clearinghouse Protocol CH Entry Format	XNSS 098605 XSIS 078404 XSIS 168404	2 2 or 3 4/84 (note 1)
Clearinghouse Access Control Protocol (Prg. 127)	CH Access Control Protocol	-	1
External Communication Service (Prg. 3)	Gateway Access Protocol CH Entry Format	- XSIS 168404	2 or 3 4/84 (note 2)
File Service (Prg. 10)	Filing Protocol (Full Filing)	XNSS 108605	2 thru 5, 6 (note 3)
Internetwork Routing Service	Synch Point-to-Point Protocol Ethernet Data Link Layer	XSIS 158412 -	2 or 3 ENet2
Mail Service	Mail Protocol Mail Transport Protocol (Prg. 17) In-Basket Protocol (Prg. 18) Mail Format Specification	XSIS 148412 - - -	- 1 or 2 1 -
Print Service	Printing Protocol	XNSS 118404	3

Notes:
1 Prior to publication of the April 1984 Entry Format, an older format was used for IBM 3270 hosts and is still supported through backware compatibility sofware in the CHS code.
2 Used in the ECS code.
3 Recommended for new development.

Upgrade procedures

This chapter contains the step-by-step procedures recommended by Xerox Services System Software for upgrading a 10.x-based server with Services 11.0 software.

Mandatory upgrade

A fully-upgraded 11.0 server can coreside on the same Ethernet or on the same internetwork with a Services 10.x server. There is no recommendation that the servers within a given internetwork or site be upgraded in any particular order. However, because Services 11.0 is a mandatory release, it is necessary that you eventually upgrade every server.

CAUTION: DO NOT UPGRADE any 10.x servers running the SNA Mail Relay, Formatting Print Service, or Facsimile Print Service. These services are not part of the 11.0 release and require 10.3 Services System Software.

See the "Services 11.0 overview" section for a description of Services 11.0.

Prerequisites

Perform the following tasks before performing the upgrade procedures.

- Read the *Guide to System Administration Activities* in the Network Administration Library (NAL) to familiarize yourself with the Services System Software and the services you are upgrading.

- Develop and post a schedule to upgrade your servers.

  If possible, schedule the upgrade during non-peak hours. The Clearinghouse Service and the Mail Service take longer to upgrade than other services because they must open their databases. The Print Service must catalog fonts after being restarted. Installing printer fonts takes about five minutes for each new printer font.

- Obtain the appropriate Services System Software diskettes. The following diskettes are available:

  - Services System Software (10, 29, 42 Mb Disks) # 1; Network Services 11.0
  - Services System Software (10, 29, 42 Mb Disks) # 2; Network Services 11.0
  - Services System Software (10, 29, 42 Mb Disks) # 3; Network Services 11.0
    or

  - Services System Software (80, 300 Mb Disks) # 1; Network Services 11.0
  - Services System Software (80, 300 Mb Disks) # 2; Network Services 11.0

NOTE

- Services System Software (80, 300 Mb Disks) # 3; Network Services 11.0

A different set of diskettes is needed for servers with 10, 29, and 42 Mb disk drives from those servers with 80 and 300 Mb disk drives.

- Obtain the diskettes for the services options you want to install. The following diskettes are available:

  - 850/860 Gateway Service; Network Services 11.0
  - Boot Service; Network Services 11.0
  - Standard Ether Boot Files 1.1.2 # 1
  - Standard Ether Boot Files 1.1.2 # 2
  - Standard Ether Boot Files 1.1.2 # 3
  - Standard Ether Boot Files 1.1.2 # 4
  - Standard Ether Boot Files 1.1.2 # 5
  - Standard Ether Boot Files 1.1.2 # 6
  - Standard Ether Boot Files 1.1.2 # 7
  - Standard Ether Boot Files 1.1.2 # 8
  - Standard Ether Boot Files 1.1.2 # 9
  - Standard Ether Boot Files 1.1.2 # 10
  - Clearinghouse, External Communication, and Server Monitor Services; Network Services 11.0
  - Communications Monitoring Service; Network Services 11.0
  - File Service; Network Services 11.0 (includes PC File Service)
  - Interactive Terminal Service; Network Services 11.0
  - Internetwork Routing Service; Network Services 11.0 (includes Clusternet and X.25)
  - Librarian Service; Network Services 11.0
  - Mail Service; Network Services 11.0 (includes External Mail Gateway)
  - Print Service; Network Services 11.0
  - Remote Batch Service; Network Services 11.0
  - Multiport Option; Network Services 11.0

If you are upgrading or adding a server running a Print Service, see the "Services 11.0 overview" section for information about the new complex printing feature and the memory requirements.

Because 10.0 fonts are compatible with Services 11.0 Print Service applications, you do not need to install new font files. However, you may want to add a new font style at the time of the upgrade.

- Obtain the diskette with the Print Service fonts you want to install. The following fonts are available:

Xerox Required Fonts (300 DPI); Network Services 11.0

  Xerox Basic Classic Fonts
  Printwheel Fonts
  Xerox Math Classic Fonts
  Xerox Modern Fonts
  Xerox Japanese Classic Fonts
  Xerox Japanese Modern Fonts
  Xerox PC Emulation Fonts
  Helvetica 300 TM Fonts

NOTE

The Xerox Required Fonts are supplied with the Print Service software. The remaining fonts are optional and may be purchased separately.

- Ensure that the Multiport Option board is installed.

| NOTE | This step is only necessary if System Software for Multiport will be installed. |

- Run hardware diagnostics to ensure that your hardware is functioning at an optimal level.

  - For medium capacity (fixed disk) servers, run the "Running fault analysis tests" and "Running the media scan test" diagnostics procedures in the Offline diagnostics - 8000 servers chapter of *Test and Diagnostic Tools* of the NAL.

  - For large capacity (removable disk) servers, run either "Running the confidence test to verify a single drive" or "Running the confidence test to verify several drives" diagnostic procedures in the Offline diagnostics - 8000 servers chapter of *Test and Diagnostic Tools* of the NAL.

- Fill out the Services System Software worksheets and the worksheets for the services you are upgrading.

  The *Guide to System Administration Activities* of the NAL contains the worksheets and the instructions for completing them.

- Stop queuing of all Print Services. This allows Print Services to process jobs currently in their respective queues, but not accept any more jobs. See the "Stopping the processing of documents" procedure in the Print Service chapter of the *Services Maintenance Guide* of the NAL for more information.

  If you fail to perform this task, all jobs which are queued when you start the upgrade must be resubmitted after the upgrade is complete.

- Back up data prior to the upgrade.

  If your site has regular backup procedures for all valuable data files and databases, you do not need to engage in extra backup procedures before you start the upgrade procedures.

  If you do not have current backups of the data on your server, perform all of the appropriate regular backup operations before you start the upgrade procedures.

- Expunge the Boot Service.

  If you have a Boot Service, expunge it to remove all 10.x Standard Etherboot Files before you start the upgrade procedures. Services 11.0 contains several updated Standard Etherboot Files as well as the Etherboot Files necessary for the 8090 server.

  To expunge the Boot Service, see the "Expunging a service" procedure in the Services System Software chapter of the *Services Maintenance Guide*.

  After you have expunged the Boot Service, use the **Delete File** command and specify the "BootService.profile" as the file to be deleted.

- After deleting the BootService.profile, type **Proceed** to run the services. Once the services are running, you may go on to "Procedure 1. Booting the Services Installer utility."

Upgrade procedures

The procedures described in this section apply to a complete upgrade, including servers running 10.x software. This section contains these software upgrade procedures:

Procedure 1. Booting the Services Installer utility
Use this step to boot the installer and the server.

Procedure 2. Setting the time and date
Use this step to set the current time and date on the screen.

Procedure 3. Installing system software
Use this step to install the system software on your server.

Procedure 4. Starting the system
Use this step to start the system and elect a non–normal server startup.

Procedure 5. Logging on
Use this step to log on.

Procedure 6. Setting software options
Use this step to set the software options for the services you will be running on the server.

Procedure 7. Installing/upgrading the services
Use this step to install the services on your server.

Procedure 8. Ending non–normal startup and initializing new services
Use this step to end the non–normal startup and initialize the new services.

Procedure 9. Upgrading secondary drives on multiple-drive servers
Use this step to upgrade the secondary drives on multiple-drive servers.

Procedure 10. Backing up newly-upgraded services
Use this step to back up the newly-upgraded services.

Procedure 1. Booting the Services Installer utility

```
┌──────────────┐    ┌──────────────┐    ┌──────────────┐
│    Stop      │ >  │  Insert the  │ >  │    Boot      │
│ all services │    │ installation │    │  the server  │
│              │    │   medium     │    │              │
└──────────────┘    └──────────────┘    └──────────────┘
```
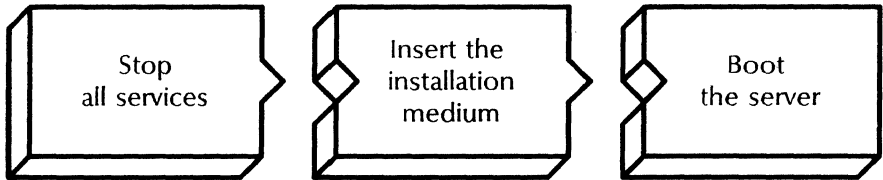
⚠ **CAUTION:** This procedure applies only to upgrading 10.x servers to Services version 11.0. If you have *NOT* yet upgraded your server from 8.0/9.0 to 10.0, do not attempt this procedure. Instead, first perform the major upgrade procedure contained in the Services 10.0 Release Document and then follow this procedure.

⚠ **CAUTION:** Do not begin to upgrade a server that has one or more drives that require scavenging. You must first correct such inconsistencies by successfully running the scavenger before you attempt the upgrade.

Step-by-step

If your server is currently up and running, **skip to step 3** of this procedure.

1. Boot the server.

   a. Hold down the B RESET and ALT B buttons at the same time.

   b. Release the B RESET button.

   c. When the maintenance panel displays 0001, release the ALT B button.

   ┌───┐
   │ Normal startup? (Y/N):   │
   └───┘

2. Type **Y** at the "Normal startup" prompt ⇐|.

   Y   Normally starts and runs the server.

   N   Lets you perform specific tasks before the server is fully operational.

⚠ **CAUTION:** Be sure you type **Y** at this prompt. If you type **N**, the services currently installed will not be registered in the Clearinghouse. The third procedure in this step will have no relevance because no services will be running.

3. Log on and enable at the ">" prompt. The prompt then changes to "!".

4.   Type **Stop Service** ⇐|.

```
Select choices
    1    < service name >
    2    < service name >
    Enter one or more choices, then press RETURN:
```

5.   Type the numbers for all services (for example, if three services are listed, type **1-3**).

```
Stop immediately? (Y/N):
```

6.   Type **Y** at the "Stop immediately" prompt ⇐|.

Y   Stops the service immediately.

N   Stops the service after any user activity has been terminated.

7.   Type **List Services** and press RETURN to verify that all services have stopped.

> **NOTE**
> The Mail Service may take longer to stop because it tries to resend all of the messages it previously had been unable to send.

8.   Insert the floppy disk labeled "Services System Software ... #1" into the floppy disk drive.

Be sure that the drive is closed. On some models it is necessary to pull the door down to close the drive.

9.   Boot the server.

a.   Hold down the B RESET and ALT B buttons at the same time.

b.   Release the B RESET button.

c.   When the maintenance panel displays 0002, release the ALT B button.

At this point, do not remove the floppy disk from the disk drive because it will be needed in Procedure 3.

```
Installer Version 2.2 of 26-May-88 10:58:15
Copyright (C) Xerox Corporation  1984, 1985, 1986, 1987,
1988 All rights reserved.
Processor = < number > = < number > = < number >
Memory size  =  < number >  K Bytes
```

Wrap-up

Go on to "Procedure 2. Setting the time and date." If the server is connected to a network that has the current time and date set, skip to "Procedure 3. Installing system software" when the Main Menu is displayed.

Procedure 2. Setting the time and date

```
Select the          Select the start         Enter the time
time zone           and end of               and the date
                    Daylight Savings
                    Time
```
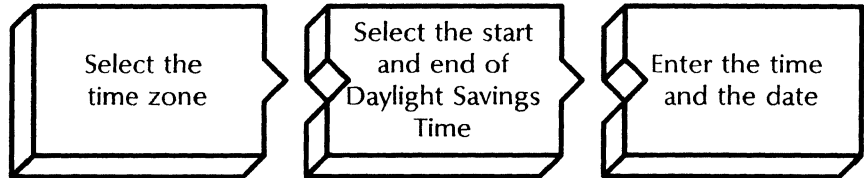
In this step, you set the current time and date for the server.

Prerequisite

Know the correct time and date.

Step-by-step

> Locating Time Server...Time is not set.
>   Time zone offset from Greenwich (-12...12):

1. At the prompt shown above, type the number of hours that your local area is offset from Greenwich time (not including Daylight Savings adjustments) and press RETURN. Select the number for the geographical area where you are installing the server:

    -5   Eastern Standard Time
    -6   Central Standard Time
    -7   Mountain Standard Time
    -8   Pacific Standard Time
    +0   United Kingdom
    +1   Western Europe (excluding the United Kingdom)

    The default time zone is -8.

> Minute offset (0-59):

2. Type **0** at the "Minute offset" prompt ⇐|.

> First day of Daylight Savings Time (0...366):

3. Type the appropriate number at the "First day of Daylight Savings Time (0...366)" prompt ⇐|.

    •   The default value is 98 for states in the United States and Canada using Daylight Savings Time. If the default value is correct, press RETURN.

    •   To change the default value, select the number for the geographical area where you are installing the server:

        0   Parts of the United States not using Daylight Savings Time (parts of Illinois and Arizona)
        91   United Kingdom
        91   Western Europe (excluding the United Kingdom)

> Last day of Daylight Savings Time (0...366):

4. Type the appropriate number at the "Last day of Daylight Savings Time (0...366)" prompt ⇐|.

    • The default value is 305 for states in the United States and Canada using Daylight Savings Time. If the default value is correct, press RETURN.

    • To change the default value, select the number for the geographical area where you are installing the server:

        0 Parts of the United States not using Daylight Savings Time (parts of Illinois and Arizona)
        303 United Kingdom
        274 Western Europe (excluding the United Kingdom)

> Current time: < date time >
> Do you wish to change the time (Y/N)?:

5. Type **Y** at the change the time prompt ⇐|.

    Y Lets you change the date and time to current settings. **Continue with step 6**.

    N Lets you keep the default date and time. **Skip to step 8**.

> Please Enter the date and 24 hour time in form DD-MMM-YY
> HH:MM:SS
> Time:

6. Type the current date and time at the change the time prompt ⇐|.

    Use this format:

    • DD–MMM–YY HH:MM:SS; for example, 20–Jun–88 16:02:30 (24–hour clock).

    MMM stands for the first three letters of any month.

> Set time to < date > < time >
> Okay? (Y/N):

7. Type **Y** at the "Okay" prompt ⇐|.

    Y Confirms the date and time you entered.

    N Cancels the date and time you entered. Return to step 1.

> Select drive to be used for subsequent operations:
>   1   Drive 1
>   2   Drive 2
>   3   Drive 3
> Enter choice number, then press RETURN:

8. Type **1** to select a drive and press RETURN. This prompt appears only if you have multiple disk drives attached to your server.

Wrap-up

With the time and date set, go on to "Procedure 3. Installing system software."

Example

This example shows setting the time and date for Pacific Standard Time. The server is not connected to multiple drives.

```
Locating Time Server...Time is not set.
    Time zone offset from Greenwich (-12...12):  -8
    Minute offset (0-59): 0
    First day of Daylight Savings Time (0...366):  98
    Last day of Daylight Savings Time (0...366):  305
    Current time:  12-May-87 15:06:38
    Do you wish to change the time (Y/N)?: Y
    Please Enter the date and 24 hour time in form
    DD-MMM-YY HH:MM:SS
    Time: 12-May-87 17:06:38
    Set time to 12-May-87 17:06:38
    Okay? (Y/N):  Y
```

Procedure 3. Installing system software

| Insert installation medium | > | Select Multiport or system software | > | Insert additional floppy disks, if necessary | > |
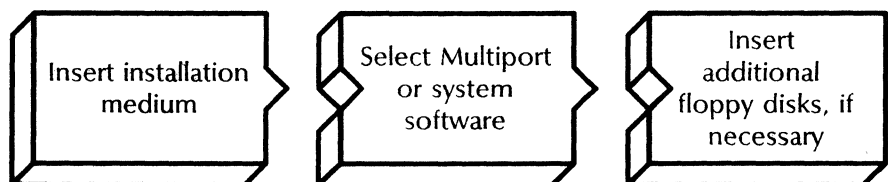
Prerequisites

• If you are upgrading the system software for the Multiport option, ensure that the Multiport Option Board is in place.

• Have handy the other two floppy disks with Services System Software.

Step-by-step

1. At the Main Menu type **1.** The screen will display the "Choices available" menu.

```
Choices available:
    1   Install System Software
    2   Install System Software for Multi Port
    3   Start System
    4   Start System with Remote Debugging enabled
    5   Start System with Special Debugging
    6   Enable Remote Debugging
    7   Disable Remote Debugging
    8   Partition for Services
    9   Return to MAIN MENU
Enter choice number, then press RETURN:
```

2. If you are installing:

    • System software, type the number for the "Install System Software" option ⇐|.

    • The Multiport Option Kit, type the number for the "Install System Software for Multiport" option ⇐|.

```
Ready to Install System Software.
Continue? (Y/N):
```

3. Type **Y** at the "Continue" prompt ⇐|.

    Y Confirms the selected option.

    N Cancels the option.

    CTRL C returns you to the "Choices available" menu.

```
Installing System Software (part 1)...
This floppy disk is labeled "Services System Software <disk
type> #1".
Load into the drive the floppy disk labeled: "Services System
Software <disk type> #2"
Is the requested floppy disk now loaded? (Y/N):
```

4. Remove the floppy disk labeled "Services System Software ... #1" from the disk drive.

5. Insert the floppy disk labeled "Services System Software ... #2."

6. Press RETURN at the "Is the requested floppy disk now loaded" prompt to enter the **Y** default setting.

    Y Confirms that you have inserted the floppy disk.

    N Cancels the operation and redisplays the menu.

```
Installing System Software  (part 2)...
This floppy disk is labeled "Services System Software  # 2".
Load into the drive the floppy disk labeled: "Services System
Software < disk type >  # 3"
Is the requested floppy disk now loaded? (Y/N):
```

7. Remove the floppy disk labeled "Services System Software ... # 2" from the disk drive at the prompt.

8. Insert the floppy disk labeled "Services System Software ... # 3."

9. Press RETURN at the "Is the requested floppy disk now loaded?" prompt to enter the default **Y** setting.

```
Installing System Software  (part 3)...
System Software Installation Complete.
```

10. Once you receive the message "System Software Installation Complete," remove the third installation disk from the disk drive.

Wrap-up

When the system software has been installed, you see the message "System Software Installation Complete." Go on to "Procedure 4. Starting the system."

Example

This example shows upgrading the Services System Software on an 8000 server with a fixed disk.

```
Choices available:
    1    Install System Software
    2    Install System Software for Multi Port
    3    Start System
    4    Start System with Remote Debugging enabled
    5    Start System with Special Debugging
    6    Enable Remote Debugging
    7    Disable Remote Debugging
    8    Partition for Services
    9    Return to MAIN MENU
    Enter choice number, then press RETURN:1
Ready to Install System Software
Continue? (Y/N):  Y
Installing System  Software (part 1)...
This floppy disk is labeled "Services System Software  # 1".
Load into the drive the floppy disk labeled: "Services System Software  # 2"
Is the requested floppy disk now loaded? (Y/N):  Y
Installing System Software  (part 2)...
This floppy disk is labeled "Services System Software  # 2".
Load into the drive the floppy disk labeled: "Services System Software  # 3"
Is the requested floppy disk now loaded? (Y/N):  Y
Installing System Software  (part 3)...
System Software Installation Complete.
```

Procedure 4. Starting the system

After you install the system software, the "Choices available" menu appears so you can start the system.

Step-by-step

```
Choices available:
     1   Install System Software
     2   Install System Software for Multi Port
     3   Start System
     4   Start System with Remote Debugging enabled
     5   Enable Remote Debugging
     6   Start System with Special Debugging
     7   Disable Remote Debugging
     8   Partition for Services
     9   Return to MAIN MENU
Enter choice number, then press RETURN:
```

1. Type the number for the "Start System" option and press RETURN.

    A confirmation message will be displayed. Press RETURN.

```
Normal startup? (Y/N):
```

2. Type **N** at the "Normal startup" prompt ⇐|.

    Y   Normally starts and runs the server.

    N   Lets you perform specific tasks before the server is fully operational.

⚠ **CAUTION:** Be sure you type **N** at this prompt. If you type **Y**, and you are upgrading the only server connected to the network, you will not be able to install services later without rebooting and answering **N** to the "Normal startup" prompt.

```
Enter interrupt point
1   Interrupt before opening primary volume
2   Interrupt before processing profile
3   Interrupt before running services
Enter one or more choices:
```

3. Type **3** for the "Interrupt before running services" option ⇐|.

Wrap-up

Go on to "Procedure 5. Logging on."

Example

This example shows starting the system, using a non-normal startup, and interrupting the startup before running services on an 8000 server.

```
Choices available:
    1   Install System Software
    2   Install System Software for Multiport Option
    3   Start System
    4   Start System with Remote Debugging enabled
    5   Enable Remote Debugging
    6   Start System with Special Debugging
    7   Disable Remote Debugging
    8   Partition for Services
    9   Return to MAIN MENU
    Enter choice number, then press RETURN: 3
THIS PROGRAM IS THE BOOT DIAGNOSTICS VERSION 8.0
THIS MESSAGE CONFIRMS THAT THE SYSTEM ADMINISTRATOR DISPLAY IS
OPERATIONAL.
Series 8000 Network Services Executive.  Version  11.0
Copyright (C) 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988 by Xerox
Corporation
All Rights Reserved.  Restart Reason:  Backstop initialized
    Normal startup? (Y/N): N
    Enter interrupt point
    1   Interrupt before opening primary volume
    2   Interrupt before processing profile
    3   Interrupt before running services
    Enter one or more choices: 3
Opening volume...done
```

Procedure 5. Logging on

Step-by-step

```
>
```

1. Log on and enable when the ">" prompt appears.

```
!
```

2. Go on to "Procedure 6. Setting software options."

You may not be able to log on if the server you are upgrading houses the only Clearinghouse in its internetwork, or if it has the only Clearinghouse Service and Internetwork Routing Service on a temporarily isolated network. In this case, you will see the following message:

```
Cannot find Clearinghouse serving this domain
Server has entered Genesis mode
```

CAUTION: Do not continue with the upgrade procedures if your server enters Genesis mode when it should not. If there should be a Clearinghouse Service accessible to it, take steps to bring that Clearinghouse Service back online.

The three acceptable causes for Genesis mode are:

-   The server houses the only Clearinghouse in its internetwork.

-   The server houses an Internetwork Routing Service on a temporarily-isolated Ethernet that is normally interconnected to an internetwork. This site normally does not have a local Clearinghouse Service because it accesses one at a remote, interconnected Ethernet. The site is temporarily isolated because the server you are upgrading has its only Internetwork Routing Service.

-   The server has both the only Clearinghouse and the only Internetwork Routing Service on an Ethernet which is normally a part of a larger internetwork. Since the server being upgraded provides the only means for interconnecting with the rest of the internetwork, it is temporarily unable to reach a Clearinghouse serving its domain.

If any of the above causes for entering Genesis mode apply to your server, continue with "Procedure 6. Setting software options" to set software options for additional services.

Wrap-up

Go on to "Procedure 6. Setting software options."

Procedure 6. Setting software options
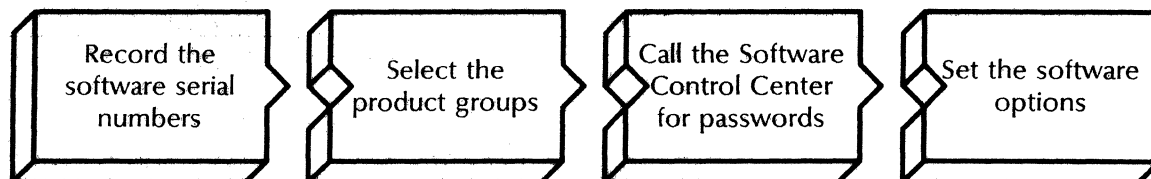
Use this step to enter the necessary passwords to set the software options.

Perform this step only if you are adding one or more services or service options which were not previously running on the server. If you do not plan to add a service that was not previously enabled, skip to "Procedure 7. Installing/upgrading the services."

Software applications are divided into product groups containing software options (services and fonts). In this step you should configure the software options for the services or fonts you are adding.

Prerequisites

• Know the telephone number of the Software Control Center.

• You also need to know:

 - The network number

 - The name of the company where the software is being installed

 - Your telephone number

 - The serial number of the machine on which the software is being installed

 - The current software serial numbers for the groups you want to enable

• Determine the product groups and software options that you need to enable from the list below.

NOTE The following list contains all Services 11.0 products, plus others not in the Services 11.0 release. You should enable only those software options for Services 11.0 products.

Services Group I
Formatting Print Service
Remote Batch Service
Teletex Gateway Service
Server Monitor Service
Electronic Printer Print Service
Write Once Volume Backup
Facsimile Print Service
Boot Service
3270 SDLC/SNA Communication Protocol
Siemens 8171 Emulation Protocol
3270 BSC Communication Protocol
Asynchronous Communication Protocol
Mail Service
   External Mail Gateway with XNS
File Service
850/860 Gateway Service

Internetwork Routing Service
    X.25 Communication Protocol
    Clusternet Communication
Interactive Terminal Service
Laser CP Print Service
Adobe Service
Librarian Service
Communications Monitoring Service
Network Statistics Service

NOTE

The Clearinghouse Service, External Communication Service, Server Monitor Service, Librarian Service, and Multiport Option make up the Standard Services Software.

Services Group II

Fujitsu 6650 Terminal Emulation
Hitachi 560 Terminal Emulation
NEC 6300 Terminal Emulation
Univac 50 Terminal Emulation
PC File Service
SNA Mail Relay
SNA Access
External Mail Gateway with X.400
Telex Service

Printer Fonts

300 DPI Printer Fonts
    Xerox Classic Fonts
    Xerox Japanese Classic Fonts
    Xerox Japanese Modern Fonts
    Xerox Math Classic Fonts
    Xerox Modern Fonts
    Xerox Printwheel Fonts
    PC Emulation Fonts
    Helvetica 300 Fonts

200 DPI Printer Fonts
    Xerox Classic Fonts
    Xerox Math Classic Fonts
    Xerox Modern Fonts
    Xerox Printwheel Fonts
    PC Emulation Fonts

Step-by-step

1. Type **Set Software Options** ⇐|.

    This will display the currently enabled options and software serial numbers.

Standard Services Software
< service name >
< service name >
< service name >

The Software Serial Numbers for this machine are:

Services Group I: < serial number >
Services Group II: < serial number >
Printer Fonts: < serial number >

Software locked on < date > < time >
The processor number is < number >
The software to be configured on this machine is provided under a prearranged agreement with Xerox. Attempts to configure any software not authorized by Xerox will be in violation of the agreement.

Confirm? (Y/N):

---

2. Write down the current software serial numbers displayed. These numbers are of vital importance to the following steps.

3. Type **Y** at the "Confirm" prompt ⇐|.

    Y   Confirms the serial numbers and displays the product groups.

    N   Displays a new set of serial numbers.

Product groups to be configured
1   Services Group I
2   Services Group II
3   Printer Fonts
Enter one or more choices:

---

4. Type the numbers for the groups from which new options are to be enabled ⇐|.

    [NOTE]

    Select multiple groups by separating the numbers by commas or by indicating a range with a hyphen (for example: **1,2** or **1-3**). Note that not all the services within a group need to be installed in order to configure that particular group.

5   Call the Software Control Center to obtain a password for each product group you want to enable.

6. Record the password(s) given to you.

```
<number> passwords are required to configure options in
those product groups.
    Enter password for <product group>:
```

7. Return to the server, and type the appropriate passwords at each prompt ⇐|.

You are then shown the new list of enabled options.

NOTE

The Librarian Service will be displayed in the list although it is part of the Services System Software.

```
<enabled option>
<enabled option>
    Ok to lock this Software now? (Y/N):
```

8. Type **Y** or **N** to lock the software ⇐|.

   Y   Enables the options listed. **Skip to the "Wrap-up."**

   N   Does not enable the options. Returns you to the context you were in before you invoked the **Set Software Options** command. Return to step 1 of this procedure.

9. The screen displays a new set of serial numbers, the processor number, and the number of the connected network. Record these numbers as well.

Wrap-up

When you have set the software options, you see the message "Configuration completed." Continue with "Procedure 7. Installing/upgrading the services."

Example

This example shows setting the software options. The Standard Services Software, File Service, Boot Service, and Remote Batch Services are enabled.

```
Standard Services Software
File Service
Boot Service
Remote Batch Service

The Software Serial Numbers for this machine are:

Services Group I:  X 245Z CQJP 95VB
Services Group II:  Q YXDF ZQKE JZSJ
Printer Fonts:  Q S45B J5QE SV2H

Software locked on 26-Nov-85  23:51:19
The processor number is 2-852-162-714
The software to be configured on this machine is provided under a prearranged
agreement with Xerox.  Attempts to configure any software not authorized by
Xerox will be in violation of the agreement.
    Confirm? (Y/N): Y
    Product groups to be configured
    1    Services Group I
    2    Services Group II
    3    Printer Fonts
    Enter one or more choices:  1
One passwords are required to configure options in those product groups.
    Enter password for Services Group I:  X 4XXX XX44 4XXX

Standard Services Software
File Service
Mail Service
        Okay to lock this Software now? (Y/N): Y
Locking...
The Software Serial Numbers for this machine are:
Service Group I: P M7GE 9SWR 65TF
Service Group II: 6 MRYB 8JJE
Printer Fonts: Y 2LHT JY50 YFAF
Software locked on 12-July-87  15:03:33
The processor number is 2-852-162-714
Configuration completed.
```

Procedure 7. Installing/upgrading the services

```
Insert the floppy       Select the          Run
disk containing     > services to install >  the services
the service to be
installed
```
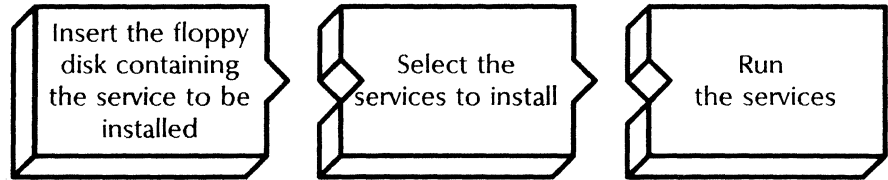
You are now logged on and enabled, or your server is in Genesis mode. You are ready to install services on the server.

You can install or upgrade the services in any order. When you install a service that is currently on the server, you are upgrading it. The old version will be written over by the new version. The configuration of the upgraded service will be the same as the old version unless you specify any changes.

Prerequisite

Have handy the floppy disks containing the services you want to install.

Step-by-step

1. Insert into the drive the floppy disk containing the service you want to install.

2. Type **Install Service** ⇐|.

```
Installation choices
    1   < service name >
    2   < service name >
    3   < service name >
Enter one or more choices:
```

3. Type the numbers for the services you want to install (for example, 1-2 or 1,3) ⇐|.

```
Installing < service name >...done
    < service name >: Activate? (Y/N):
```

4. Type **Y** or **N** at each "Activate" prompt for the services you are installing ⇐|.

    Y   Adds the service to the active services list. The service will be run automatically when the server is restarted.

    N   Does not add the service to the active services list. The service will not run when the server is restarted.

```
< service name > activated.
```

NOTE

If the existing service is activated, the message "Already Activated" appears after the service is installed.

5. To install each additional service, remove the floppy disk from the drive and repeat steps 1 through 4 of this procedure.

NOTE

If you have a Multiport Option Kit installed, install the Multiport Option floppy disk as if it were a service. Until you reboot your server, the Multiport Option will be displayed when the **Run Service** and **List Services** commands are used. When you boot, select a normal startup and wait for the server to complete its restart process.

As each installation is successful, you see the message "Done" followed by the prompt to activate the service. After you install all the services you want on the server:

- For a non-Genesis installation, **skip to step 8.**

- For a Genesis Clearinghouse Service, **continue with step 6.**

- For a Genesis Internetwork Routing Service that is connected to a remote network (containing the Clearinghouse service serving your domain) via the server's RS232C port, **skip to step 11.**

6. If your server is running the only Clearinghouse on the network, type **Run Service** ⇐|.

```
Select choices:
1   Clearinghouse Service
2   <service name>
3   <service name>
4   <service name>
Enter one or more choices:
```

7. Type the number for the Clearinghouse Service ⇐|.

    You may have a short wait for the next prompt.

```
CHS: Normal startup? (Y/N):
```

8. Type **Y** at the "CHS: Normal startup" prompt ⇐|.

    Y   Runs the Clearinghouse Service and initializes the Clearinghouse database.

    N   Lets you perform special tasks before running the Clearinghouse Service.

9. Log on and enable.

10. Type **Register Server** and press RETURN. This will cause the server to validate its Clearinghouse entry.

11. If your server is running the Internetwork Routing Service that is connected to a remote network (containing the Clearinghouse service serving your domain) via the server's RS232C port, type **Run Service** ⇐|.

    Otherwise, **skip to the "Wrap-up."**

```
Select choices:
1   External Communication Service
2   Server Monitor Service
3   Internetwork Routing Service
    Enter one or more choices:
```

12. If the Internetwork Routing Service uses an RS232C port on a CIU to connect to the remote network, type the number for the External Communication Service.

    Otherwise, **skip to step 14**.

```
External Communication Service is run
!
```

13. Type **Run Service** ⇐|.

```
Select choices:
1   Server Monitor Service
3   Internetwork Routing Service
    Enter one or more choices:
```

14. Type the number for the Internetwork Routing Service ⇐|.

```
IRS:  Normal startup? (Y/N):
```

15. Type **Y** at the "Normal startup" prompt ⇐|.

    NOTE Once the Internetwork Routing Service has been run, the IRS circuit will start if it is configured to start automatically.

16. If the circuit is not configured to autostart, change the context to the Internetwork Routing Service and type the **Start Circuit** command.

17. If the Internetwork Routing Service circuit was established via a CIU port, change the context to the External Communication Service and type the **Verify Clearinghouse Entries** command.

18. Log on and enable.

Wrap-up

Continue with "Procedure 8.   Ending non-normal startup and initializing new services."

Procedure 8. Ending non-normal startup and initializing new services

| Proceed with system startup | Boot the server | Enable complex printing if necessary | Initialize new services |
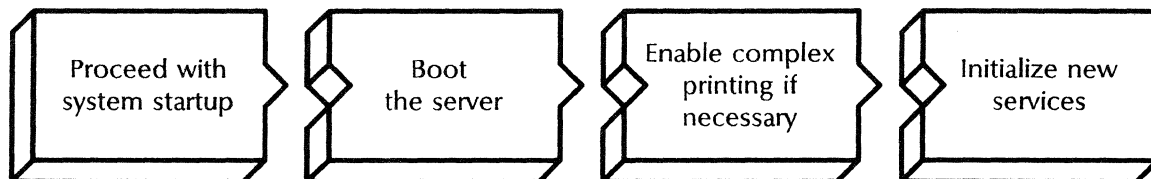
Use this procedure to complete the installation of your services.

Step-by-step

1. Type **Proceed ⇐|**.

    The services that were previously running on this server will now automatically start running. Various status messages will appear during this procedure.

    All File Service volumes on the server will have a new Clearinghouse entry created. This is normal. The existing File Service volume name will be used to create the new Clearinghouse entry.

2. Your upgrade is complete if you installed services which were previously running on the server (upgraded only). **Skip to the "Wrap-up."**

    Otherwise, **continue with step 3**.

3. Type **Stop Service ⇐|**.

    ```
    Select choices
        1   <service name>
        2   <service name>
        Enter one or more choices, then press RETURN:
    ```

4. Type the numbers for all services (for example, if three services are listed, type **1-3**).

    ```
    Stop immediately? (Y/N):
    ```

5. Type **Y** at the "Stop immediately" prompt ⇐|.

    Y   Stops the service immediately.

    N   Stops the service after any user activity has been terminated.

6. Type **List Services** and press RETURN to verify that all services have stopped.

    [NOTE] The Mail Service may take longer to stop because it tries to resend all of the messages it previously had been unable to send.

7. Boot the server.

    a.   Hold down the B RESET and ALT B buttons at the same time.

b. Release the B RESET button.

c. When the maintenance panel displays 0001, release the ALT B button.

```
Normal startup? (Y/N):
```

8. Type **Y** at the "Normal startup" prompt ⇐|.

   Y Normally starts and runs each service loaded on the server.

   N Starts the services, but requires user interaction for the non-normal startup options.

9. To enable the complex printing feature see the "Printing documents with complex pages" procedure in the Print Service chapter of the *Services Maintenance Guide*.

10. Initialize the new services you installed which were not running on the server prior to the upgrade. You will need to stand by to respond to the service prompts for first-time initialization. See the appropriate initialization procedures for each service in the *Services Installation and Setup Guide*.

Wrap-up

If you need to upgrade Services System Software on secondary drives, continue with "Procedure 9. Upgrading secondary drives on multiple-drive servers." Otherwise, skip to "Procedure 10. Backing up newly-upgraded services."

Procedure 9. Upgrading secondary drives on multiple-drive servers

| Go to "Step 1. Booting the Services Installer utility" | Proceed to "Step 2. Installing system software." | Boot the server's primary volume from 0001 |
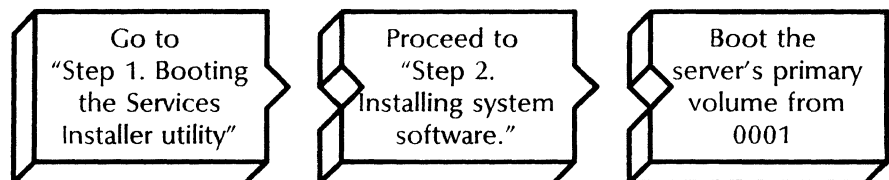
This step describes how to upgrade drives 2, 3, and 4 of your multiple-drive server if the secondary drives contain Services System Software. If your server does not have Services System Software on the secondary drives, you do not need to perform this step.

CAUTION: Do not upgrade a secondary volume that has pre-10.0 Services System Software. Upgrade the secondary volume as described in the 10.0 Release Document upgrade procedures before following this step.

CAUTION: While you are following the 10.0 upgrade procedures to upgrade secondary volumes, do not open any other volume. Doing so can destroy all data on that volume.

Step-by-step

1. To upgrade each secondary drive which contains 10.0 or more recent Services System Software, go to "Step 1. Booting the Services Installer utility" and specify the number for the secondary drive that you want to upgrade.

2. Continue with "Procedure 2. Installing system software."

3. Repeat steps 1 and 2 for each secondary drive which contains Services System Software.

4. Boot the server's primary volume from 0001 after all secondary drives have been upgraded.

   a. Hold down the B RESET and ALT B buttons at the same time.

   b. Release the B RESET button.

   c. When the maintenance panel displays 0001, release the ALT B button.

Wrap-up

Continue with "Procedure 10. Backing up newly-upgraded services."

Procedure 10. Backing up newly-upgraded services

Use this procedure to make sure the services volume(s), specialized databases, and parameter files have been backed up after an upgrade.

Backup ensures that you will not have to downgrade a server in order to restore this information in the event of data damage.

Backup checklist

1. If you have just upgraded a single-drive server (10, 29, or 42 Mb drive) and it has a File Service, resume your normal incremental backup activities.

   Your 10.0 backup increments will be treated as normal increments by the 11.0 backup and restore software.

   Do not delete your pre-upgrade increments until they become obsolete as a part of the normal backup schedule.

2. If you have just upgraded a server which has one or more 300 Mb drives, but has no removable 300 Mb drive to be used in conjunction with the copy volume operation, resume your normal incremental backup activities.

   Your 10.0 backup increments will be treated as normal increments by your 11.0 backup and restore software.

   Do not delete your pre-upgrade increments until they become obsolete as a part of the normal backup schedule.

3. If your server has multiple 80 and/or 300 Mb drives and there is a secondary, removable drive which is as large as each of your drives containing File Service volumes, use the

Copy Volume operation to make duplicates of each of the newly upgraded volumes.

CAUTION: You can use the duplicates you make of your primary pack to quickly bring your server back online. However, doing so can cause damage to your distributed Clearinghouse Service database if your server houses a Clearinghouse Service. If you have to bring your duplicate primary pack containing a Clearinghouse online, follow the special procedure "Restoring a primary pack containing Mail Service or Clearinghouse Service" in the *Backup and Restore Guide*.

4. Back up the Server Monitor Service database. (See the Server Monitor Service chapter of the *Backup and Restore Guide*.)

5. If a domain has only one Clearinghouse Service, back up the database. (See the Clearinghouse Service chapter of the *Backup and Restore Guide*.)

6. Back up the Mail Service database. (See the Mail Service chapter of the *Backup and Restore Guide*.)

3.   Notes and cautions

Introduction

This chapter contains the Network Services 11.0 notes and cautions – short passages which explain the following items:

- Software bugs

- Unanticipated software limitations

- Dangerous server operator activities which could lead to data loss

- Software design characteristics which tend to be counter-intuitive

Services System Software

Cautions

Warning: Correct time is vital

Never operate your server when the time and date are incorrect. Doing so can cause data files of all types to become inconsistent and irretrievably lost.

To check the time, enter the **Show Time** command and ensure that the time and date displayed are correct. Once you have installed services on the first server at your Ethernet site, that server should have the correct time and date. All other servers that you install at that site will learn the correct time from the existing servers. Should you need to power all of your servers down at the site, you must make sure that you properly set the date and time when you power the first server back up.

Warning: Do not operate off of the Ethernet

Never operate your server when it is unplugged from the Ethernet. The Xerox network is a distributed system and the server is designed to operate when continually connected to the Ethernet. Some services, such as the Clearinghouse Service, maintain information which must be consistent with other services distributed on the internetwork. This consistency is impossible if a server is unplugged.

Warning: Do not restart an 8000 server during initialization

Never restart an 8000 server during initialization, particularly when the services volume is being opened or a service is being run. During these times, temporary files are being deleted. If you reboot the server during this time, the NS File Facility may mark the file as deleted, but the space will not be recovered. This problem is most noticeable when services such as the Print Service allocate large numbers of disk pages for temporary files, e.g. 12,000 disk pages for complex printing. You can quickly make the server unusable after a few untimely restarts. These disk pages can be recovered with a non-normal scavenge, selecting the page-level scavenging option.

Administrative practices

Use Install Service only at the third interrupt point

Reinstall a service using the **Install Service** command only when the service is not currently running and when none of its files are loaded. Before using the **Install Service** command, always start the server using the third interrupt point (that is, prior to starting any services). Do not use the **Stop Service** command before reinstalling a service. Although the **Install Service** command is

available after the server has proceeded through a complete startup, the installation will not always complete successfully.

The **Install Service** command attempts to copy (from floppy to the server's primary services volume) all files needed to run a selected service. The **Install Service** command automatically replaces all rigid disk files that are required to operate the selected service, whether or not they are newer, the same date as, or older than, the floppy versions. Some of these files may be used by more than one service. If the install operation attempts to update a file that is currently loaded, the operation will fail. If any service is running at the time of reinstallation, this failure may occur.

When installing, insert floppy first

When installing services and fonts from floppy with the **Install Service** command or the Print Service **Install From Floppy** command, first insert the floppy into the disk drive, then enter the appropriate command. Do not remove the floppy while the install operation is in progress.

After expunge, restart server before adding another service

After using the **Expunge Service** command, restart the server if you are going to install another service. This is necessary because the expunge operation runs the service about to be expunged to delete any files that the service maintains. When the service is run, all files, including common software files that might be shared by other services, are run. When the **Expunge** command deletes the service's program files, these common software files are not deleted because they may be needed by another service on the server. If you then try to install another service which uses that common file without restarting the server, the installation operation will not succeed because it cannot overwrite the common file which has been run and loaded into memory.

For example, the Mail Service, Clearinghouse Service, and the Gateway Service all share a common file called "MailStubConfig.bcd." If you have a Mail Service and Clearinghouse Service on the same server and want to expunge the Clearinghouse and then add a Gateway Service, you must expunge the Clearinghouse, reboot the server, and then install the Gateway Service.

Restoring from a duplicate primary volume pack

Database inconsistency can result from placing a duplicate primary volume pack online in a restore operation. The damage may occur if a server with a Clearinghouse Service suffers a failure of its primary drive, and the primary drive pack is replaced with a duplicate prepared earlier using the **Copy Volume** command.

Using the BREAK key at the local console

Pressing the BREAK key at the local console, (the directly attached terminal) when the server is expecting user input will enter undisplayable characters in the command buffer. Typically,

you will subsequently type in a legal command which will not be recognized.

Cancel the command by pressing the CONTROL key and "C" simultaneously (CONTROL.-C). This will clear the input buffer, allowing you to reenter the command.

Network number format

You can modify the server network number by editing the server profile. The official XNS format for the network number is x–xxx (e.g., 1–234). The server profile edit command (**Change Profile**) does not accept hyphens. To enter the network number, omit the hyphen, e.g., 1234.

Diagnostics

Show Ethernet Statistics restrictions

Incremental Ethernet statistics are not gathered over separate remote executive sessions. The **Show Ethernet Statistics** command (Test context) option for incremental statistics (option 2) only displays Ethernet statistics gathered since the statistics counter was reset (option 3) during that particular remote session.

When the statistics counter is reset, baseline statistical information is recorded with the current executive and used to calculate incremental statistics. When a remote session is closed, the baseline statistical information is lost because the remote executive no longer exists.

Echo test restriction

There is a restriction on terminating the **Echo** command in the Test context when the test is paused at the "(more)" prompt. If you specified no feedback display (that is, you did not select real time feedback), then you cannot terminate the test with a CONTROL-C. Only the BREAK key can terminate the test.

The workaround is to avoid entering CONTROL-C at the "(more)" prompt.

RS232C test failure

When you configure a Communication Interface Unit port for TTY dial-in use, the RS232C test fails with the message "Error: Channel already in use." The workaround is to reconfigure the port for either TTY emulation or TTY emulation and dial-in, and repeat the test.

You can modify the port configuration with the External Communication Service command **Change RS232C Port**. In particular, modify the port usage by responding to the "Type of use for which port is intended" prompt. At this point you can successfully execute the RS232C test. Remember to reconfigure the port back to TTY dial-in use after completing the test.

Aborting the RS232C test

If you use the BREAK key to abort the RS232C test, a control character will follow the next prompt symbol "`>`". Backspace over this character to delete it.

Running the Dialer test

The Dialer diagnostic test (available in the Test context) is intended for use only with the RS366 port that comes with the RS232C Communication Kit, not with the RS366 port that comes with the Multiport Option Kit.

If a server's RS366 port is managed by the External Communication Service, you must stop the External Communication Service before running the Dialer test. If you run the Dialer test while the External Communication Service is started, the server crashes.

Page-level scavenge on 8000 servers may fail

On 8000 servers, the page-level scavenging option occasionally fails with a reason of "Disk Label Check" in the backstop log. When this occurs, restart the scavenge operation, again specifying the page-level option. If subsequent scavenge operations fail for the same reason, contact the Systems Customer Support Center.

"Unrecoverable Disk Error" messages on high capacity 8090 servers

On the 8090 high capacity server, do not log disk pages reported with an "Unrecoverable Disk Error" (UDE) message in the server's backstop log into the disk drive's bad page table without first running disk diagnostics. The disk diagnostics should confirm that the page is bad and that no other problem exists. Log this page in that disk drive's bad page table only when the disk diagnostics confirm that a disk page is bad, and the hardware is otherwise in order.

Multiport Option Kit

Required software and hardware

Three components are required on the server in order for the Multiport Option to operate: the Multiport hardware, the correct version of Services System Software (selected from Services Installer menu), and additional software installed from the Multiport Option floppy (part of the Services System Software package). The following incorrect configurations result in error conditions:

*   *Installing the Multiport hardware and selecting the incorrect Services System Software.* This results in server failure and an unknown error. Boot from the installation floppy and install the correct Services System Software option.

- *Installing the Services System Software Multiport option before installing the Multiport hardware.* This results in server failure and an unknown error. Have the Multiport hardware installed by the Xerox technician.

- *Installing Multiport hardware and Services System Software Multiport option without installing the Multiport software.* This results in varied failures relating to the absence of required memory. The remedy is to install the software from the Multiport Option floppy.

- *Installing Multiport option software without installing Services System Software for Multiport, or Multiport hardware.* This results in a portion of memory being permanently allocated to the Multiport, even though it is not installed. The symptom of this problem is reduced server performance. Enter the **Delete File** command and delete the "MultiportSDF.BCD" file from the server's working directory.

Incompatible debugging options

Two debugging options, available in the menu provided by the Installation Utility (booted from the Services System Software floppy #1) are incompatible with the Multiport Option. If you select these options, you are warned that the server will crash. They are:

- Start System with Remote Debugging enabled

- Start System with Special Debugging

Note that the "Enable Remote Debugging" option works; it enables remote debugging permanently until you select the "Disable Remote Debugging" option.

Print Service/Multiport incompatibility

The Print Service and the Multiport Option cannot coreside because both must reserve the same portion of memory. If both are present, the Multiport Option will reserve memory first. The Print Service will attempt to run if it is activated, and will notify you that it cannot run because the memory it needs is being used by another service.

The option to resolve this incompatibility problem is reasonable only if the Multiport hardware and System Software are not installed. In the unlikely event that the Multiport option can not reserve the memory it needs, you will receive the following error message:

"Configuration Error! Another service has control of special memory. Multiport Option cannot run. Reboot Server."

If this message is ever displayed, it is likely that the server is incorrectly configured. No other instance is known which would allow another service to reserve memory first.

Multiport Option initially appears as a service

When you install the software from the Multiport Option floppy or cartridge tape, it initially appears as a service. You are prompted to activate it, and it appears in any display which lists services, (i.e. the **Run Service** or **List Services** command).

Reports of the Multiport Option as a service cease after you restart the server.

Cartridge tape

Removing a cartridge tape when it is being accessed

Pulling the cartridge tape out of the drive before the process to open the tape completes can result in one of two undesirable situations:

- When software installation (i.e., **Install Service** command) is in progress, the server will crash. In this case, restart the installation.

- When the system is up and running (e.g., when loading fonts), attempts to access the tape drive result in a message indicating that the tape drive is "in use" even though the drive is not being used by any service application. In this case, reboot the server.

The workaround is to wait until the tape is "Open" before you remove it from the drive. Once the tape is open, the system will respond appropriately. During **Install Service** command the open processing is complete when the menu of services appears. The correct procedure for removing a tape before the open processing completes is to terminate the command and only then remove the tape from the drive.

High capacity online diagnostic commands availability

The high capacity online diagnostic commands are accessible within the Test context only when the High Capacity Tape Utilities menu or any of its commands are not in use by another executive. Initiate the high capacity online diagnostic commands only from the server's local executive. Or, wait until the other executive has completed the high capacity online diagnostic commands before accessing the High Capacity Tape Utilities menu again.

Compatibility issues

Memorywriter 645E on Ethernet must use compatible software

Memorywriter 645E workstations on the Ethernet must be compatible with Services 11.0. If your network includes Memorywriter 645E workstations connected to your Ethernet, you must upgrade them to version 4.0 or the Memorywriter software before you install Services 11.0, or they will not operate on the network. Memorywriter software version 4.0 is identified by part number 12R80884 ("SOFTWARE ASSY – 645E"), and can be ordered from the Software Telemarketing Center at 1-800-822-8221.

Clearinghouse Service (CHS)

Cautions

Downgrading a Clearinghouse

To downgrade a Clearinghouse Service from Services 11.0 to any earlier version, you must expunge the CHS and follow normal installation procedures. You will not be able to reuse the original CHS name for 30 days, and you must add each original domain to the CHS using the **Add Domain** command when the installation is complete. If you simply attempt to downgrade the CHS software using the **Install Service** command, the CHS database will be deleted when the CHS is run because the older CHS software will not recognize the new database.

Incompatible versions

If a Clearinghouse displays the message "Problem: can't downgrade software on this server," the CHS database has been changed by a later version of software and the earlier version cannot interpret it. If you absolutely need to use the older version, expunge the Clearinghouse and rebuild it.

Do not operate Clearinghouse Services off the Ethernet

Do not operate the Clearinghouse Service while it is unplugged from the Ethernet. Doing so poses an extreme hazard to the integrity and consistency of the entire Clearinghouse Service database. Refer to the "Dependencies and limitations" section in the Clearinghouse Service chapter of the NAL *Guide to System Administration Activities* for more information.

CHS backup is disabled in multiple-CHS configurations

If there are two or more Clearinghouses in a single internetwork, the Clearinghouse Service **Backup** command is automatically disabled. You must replicate all Clearinghouse Service domains with the **Add Domain** command. Replication is the only backup mechanism provided in a configuration that has more than one Clearinghouse.

Rebuilding a damaged Clearinghouse database

If the Clearinghouse database is damaged or erased, do not expunge and then reinstall it. Refer to the "Expunging a Clearinghouse" section in the Clearinghouse Service chapter of the NAL *Guide to System Administration Activities* for more information.

Explanations of unusual error conditions

After CHS database restore, 8090 25 Mb servers may crash

The **Restore** command may, on rare occasions, crash at the point where the name for the restored CHS is confirmed. This is believed to occur only on 8090 servers with 25 Mb disks. Boot the server after the crash to bring the Clearinghouse up with the restored database undamaged.

Cannot contact other CHS during administrative commands

Some administrative commands such as the **Compare Database** or **Add Domain** commands require the Clearinghouse Service receiving the command to contact another Clearinghouse Service. When contact with the other Clearinghouse Service cannot be made, one of the following error messages may be displayed:

"Clearinghouse Problem. Code = [?(120B), first]"

"Bad return code while enumerating sibling domain"

If you receive such a message, retry the operation later.

Using aliases in groups

Using aliases as group members sometimes causes incorrect results when you use the **List Members** command to list the group with the aliases.

Example   If "DocCtrl:Baltimore" is an alias for the group called "Documentation Control:Baltimore," and if "DocCtrl:Baltimore" is a member of the group "Everybody:New York," inaccurate results may occur when the **List Members** command is issued and the group "Everybody" is specified. This problem occurs because "DocCtrl" and "Documentation Control" are in a different domain than "Everybody."

Existing CHS asks for its name when it is registered

It is abnormal for an established Clearinghouse Service to ask for its name when it is run. If this happens, reboot the server, select a non-normal startup, interrupt before running services, and enter the **Show Backstop Log** command.

If the last entry in the log is an uncaught signal from the module "CHAdminAlmple" and either the signal index is 14B (12 in decimal) or the program counter is within 10 of 6414B or 6561B, enter **Proceed**. When the Clearinghouse prompts for its name, enter a new name. If this uncaught signal is not mentioned in the backstop log, enter **Proceed**. When the Clearinghouse Service prompts for its name, enter its old name.

Group access

Although group administrators can add or delete other users to and from the groups which they administer, they cannot add or

delete themselves without first giving themselves self-access privileges. If the add or delete operation is attempted and the logged on group administrator is specified to be added or deleted from the group, the operation fails if the logged on user is not on the self access list.

Clearinghouse Service database

Database entry disappearance

This is a rare occurrence that may immediately follow a power failure or an incorrect server shutdown during a Clearinghouse Service database change. You can determine the difference between lost Clearinghouse entries and the symptoms of normal propagation delay as follows:

1. Log on at a server which has a Clearinghouse Service that serves the domain of the object in question.

2. Type **Change Default** and specify the Domain: Organization containing the object in question.

3. Type the appropriate **Show** command and specify the first part of the object's fully-qualified name.

4. Repeat these steps at each server in the internetwork which contains a Clearinghouse Service that serves the object's domain. If any one of the Clearinghouses has the object, it is not lost. Rather, it is in the process of propagating.

The only way to accelerate propagation is by comparing databases. Compare an up-to-date Clearinghouse Service with one which is out-of-date. (You can do the above steps while using Remote System Administration, but be sure to connect specifically to each different server which houses a Clearinghouse Service that serves the domain.)

If the entry does not appear on any of the Clearinghouse Services which are supposed to have it, then the object is lost. It can be reentered by a System Administrator.

Continuous server operation

The Clearinghouse Service depends on continuous server operation and continuous internetwork routing in order to keep its database consistent with all other Clearinghouses in its internetwork. Refer to the "Maintaining domains" section in the Clearinghouse Service chapter of the NAL *Guide to System Administration Activities* for more information about maintaining consistency in the distributed Clearinghouse Service database.

CHS address changes

Should more than one Clearinghouse Service be moved or gain a new processor ID, compare databases at each affected Clearinghouse Service. Target the operation at a Clearinghouse Service which has not just received a new address. If all Clearinghouses in the internetwork have just received a new address, pick one Clearinghouse to be the target of multiple compare operations. Log on to each of the other Clearinghouses,

enter the **Compare Database** command, and specify the target Clearinghouse in response to the prompt.

If the compare database operation does not finish normally, it did not do its job. Repeat the operation and make sure that a completion message is posted.

If a domain contains entries but has 10 pages or fewer, re-add the domain

If a Clearinghouse domain copy appears to be 10 disk pages or fewer, and that domain should contain entries, delete that copy of the domain and add it again. Refer to the "Replicating domains" procedure in the Clearinghouse Service chapter of the NAL *Services Maintenance Guide* for more information.

Never delete the last copy of a domain unless it is absolutely no longer needed

Never delete a domain unless you have made absolutely sure that it is served elsewhere, or it is no longer needed in your internetwork. Refer to the "Maintaining domains" section in the Clearinghouse Service chapter of the NAL *Guide to System Administration Activities* for more information.

Cautions about the expunge procedure

Before expunging a CHS, check for domain copies

Use the **Show Status** command to list all the domains which are served locally. Be absolutely sure that they are all replicated at one or more Clearinghouse Services, or are no longer needed in the internetwork. Once the expunge operation is complete, the entire database which was maintained by the expunged Clearinghouse Service is deleted.

Expunging a CHS coresident with an MS

Before expunging a Clearinghouse Service from a server which has a public Mail Service, use the **List Files** command and enter **MailServiceSDF.BCD** after the prompt for file name. If this file is on the disk, it is safe to expunge the Clearinghouse Service.

If it is not on the disk, as would be the case only if an operator error has occurred, boot the server, specify a non-normal startup, and interrupt before running services. Then install the Mail Service, activate it, and boot again. Specify a non-normal startup again, interrupt before running services and then expunge the Clearinghouse Service.

CHS expunge interrupted by a server crash

Occasionally, a Clearinghouse Service expunge is interrupted by a server crash. When this happens, you cannot assume that the expunge operation has completed normally. You must repeat it.

If you allow the server to recover automatically, it will resume the Clearinghouse expunge operation instead of restarting the

Clearinghouse Service. Occasionally, and only in very large networks where there are 50 or more Clearinghouses, this second expunge attempt can take a very long time (as long as two hours or more.) Allow the second expunge attempt to complete normally.

After the Clearinghouse Service is selected to be expunged, and you approve the initial confirmation prompt, the Clearinghouse Service prompts for an additional confirmation. If you enter **N** to abort the expunge at this stage, the Clearinghouse Service cannot be run or expunged until you restart the server. If you make a second attempt to run or expunge the Clearinghouse Service before the server is restarted, the server will crash.

Administrative practices

Genesis Change Domain Access reports "No such domain"

If you enter an incorrect user name while changing domain access with the server in Genesis mode, the following error message is displayed: "Problem: No such domain." It is usually the case that the user name was mis-typed.

Show Domain may report incorrect CHS status

The command **Show Domain** will occasionally report that a remote Clearinghouse is down when it is in fact up and reachable. This can occur when there are sporadic internetwork communication problems. One symptom of this type of problem is that some internetwork communication succeeds while other communication such as showing domains and forwarding mail do not complete successfully.

Access list structure effect on performance

If groups are used for access controls, then the way they are structured can greatly impact the performance of access control verification. Use this guideline to construct access lists. Place users in one or a small number of groups rather than listing users individually on the access list. Refer to the "User groups" section of the Clearinghouse Service chapter in the NAL *Guide to System Administration Activities* for more information.

Do not use wild card characters when specifying domains during Show Domain

It is inefficient to type **Show Domain** and use asterisks (wildcards) in your domain specifier. If you do this, the command may take 15 minutes to three hours to complete. The information that is finally displayed will correspond to an unidentified domain with a name matching the pattern.

After manually backing up the CHS, disable and enable to regain access to local files

When the Clearinghouse backup operation runs, the logged on and enabled System Administrator loses some of his or her local file access privileges. This problem is evident after the backup operation has run and the System Administrator tries to perform an operation requiring access to a file stored on the server. To regain the required access, the System Administrator must disable and then enable again.

Not all services have List or Show < Service > commands

The Clearinghouse Service does not have commands to list or show the following services and products:

Adobe Service

Librarian Service

Foreign Gateway Assistant

PC File Service

Server Monitor Service

Operating Clearinghouses in multiple-Ethernet configurations

Dial-up internetwork links

The Mail and Clearinghouse Services rely on continuous internetwork links in order to maintain a consistent distributed Clearinghouse database. If internetwork links are not continuous, the various Clearinghouse databases become inconsistent and may not have a chance to correct themselves. Details on maintaining a consistent CHS database can be found in the "Comparing Clearinghouse databases" section in the Clearinghouse Service chapter of the NAL *Guide to System Administration Activities*, or in the appendix "Maintaining the CHS Database" in the Clearinghouse Service chapter of the *Technical Reference Manual*.

It is important not to bring up new dial-up internetwork links without considering the consequences. Dial-up links have been used in situations where sites require only a minimum of data exchange. The External Mail Gateway adequately supports this minimum need. If a dial-up link has ever been brought up between two sites, those two sites cannot be connected by an External Mail Gateway because the establishment of the dial-up link causes the two networks on either end of the dial-up link to be automatically and irrevocably merged. There is currently no automatic or manual procedure for splitting an internetwork.

Mail Service (MS)

Cautions

Deactivating and/or stopping a Mail Service

Do not deactivate a Mail Service which is coresident with a Clearinghouse unless you have read and fully understood the information in the "Stopping the Mail Service" procedure in the Mail Service chapter of the NAL *Services Maintenance Guide*. The Mail Service should never be deactivated unless the coresident Clearinghouse Service is also deactivated. The Clearinghouse database may become inconsistent, or the Mail Service database may be deleted by Clearinghouse operations.

If the coresident Mail Service is stopped for a long period of time, the Clearinghouse will not receive the update messages which keep its database consistent with the rest of the Clearinghouse system.

If you reboot the server after deactivating the Mail Service, the Clearinghouse automatically maintains transparent Mail Service activities, using the existent Mail Service database. Although users' mail is no longer processed by this transparent Mail Service, it does process the incoming and outgoing Clearinghouse update messages. Since the Clearinghouse Service requires an active and operating Mail Service, and since in this case the Mail Service is transparent, the Clearinghouse Service will initialize the Mail Service database if necessary to recover from an inconsistency in the Mail Service database. This destroys all contents of the Mail Service database, including all user mail left there before the Mail Service was deactivated.

Monitoring free space

Closely monitor the amount of free space on primary services volumes which support a Mail Service. This amount should always be adequate to cover these special recovery needs:

- For a restore to succeed, the free space in the services volume to which the database is being restored must be equal to at least 1/16 of the total size of the database that is to be restored.

- A database repair operation may require that 7% of the services volume be available as free space.

Caution: Upper limit on database size

The Mail Service no longer allows you to initialize a new database larger than 65,534 pages. The new database repair capability will not operate successfully if the database being repaired is larger than the new maximum size.

Since database repair may be necessary at some time during the life of your Mail Service, you should consider phasing out your

NOTES AND CAUTIONS

Mail Service(s) with databases which already exceed this new maximum.

Mail Service databases cannot be reduced in size. You will not be able to overcome this somewhat risky configuration unless you move your Mail Service to a new server as documented in the procedure "Moving the Mail Service" in the Mail Service chapter of the NAL *Services Maintenance Guide*.

Caution: Expunging

Do not expunge the Mail Service unless the **Show Status** command indicates that all queues are empty, or you will lose undelivered messages. Use the **Shutdown Mail Service** command before you expunge a Mail Service to empty the queues. Be sure to follow the procedures in the Mail Service chapter of the NAL *Services Maintenance Guide*.

Failure conditions

Expunge aftereffects

Occasionally, the Mail Service does not remove itself from the Clearinghouse as a part of its expunge. Refer to the "Deleting a Mail Service from a server" section in the Mail Service chapter of the NAL *Guide to System Administration Activities* for more information.

New Mail Service

If the Clearinghouse database is inconsistent about the fact that a new Mail Service has been installed, mail may be returned with the misleading message "NoSuchRecipient." This erroneous error report can be avoided if you wait 2 days or so after installing a new Mail Service and before adding mailboxes to it. This delay allows the new Mail Service entry to propagate to all Clearinghouse Services which serve the Mail Service's domain.

In most smaller network communities, where all sites are continuously interconnected, and all servers are operating around the clock, propagation is likely to occur in far less than 2 days. Verify propagation with the Clearinghouse Service **List Mail Service** command at every Clearinghouse Service that serves the new Mail Service's domain.

Force backup operation

The prompts that appear as a result of the **Force Backup** command may be displayed in the wrong order.

For example:

> "MS!
> Backup started.
> Backup finished."

may appear as:

"MS!
Backup finished.
Backup started."

In addition, the "MS!" prompt does not return automatically after the backup is completed. To ensure that backup is finished, type ?. If backup has completed, a list of available commands will be displayed, and the "MS!" prompt will return.

Administrative practices

Server crash restart

If a Mail Service with a coresident, activated Clearinghouse Service is interrupted during Mail Service restart, and there is no operator in attendance when the server tries to start again after the interruption, then the Clearinghouse Service runs automatically. The Mail Service prompts for a confirmation of its restart, and the Clearinghouse Service begins sending warnings to the console indicating that the Mail Service is not started. These Clearinghouse Service warnings cause the Mail Service prompt to scroll from the top of the screen.

Nevertheless, the server is still waiting for confirmation that the Mail Service should be restarted. If the screen is completely filled with Clearinghouse warnings, type **Y** to respond to the out of sight Mail Service prompt. After entering **Y**, stand by to make sure the Mail Service restart succeeds. Check the backstop log to determine the cause of the server restart which interrupted the Mail Service restart.

List mailboxes

The sum of all the mailbox sizes given by the "show mailbox sizes" option of the **List Mailboxes** command may add up to more than the total size of the database. Refer to the "Displaying mailbox storage space" section in the Mail Service chapter of the NAL *Guide to System Administration Activities* for more information.

Moving mailboxes

Once you have added an existing mailbox to a new or different Mail Service, it may take up to two days for the messages in the old mailbox to be transferred to the new mailbox, for all Clearinghouse Services to learn of the change in the user's mailbox location, and for the old mailbox to be deleted from the Mail Service database. Refer to the "Change the Mail Service location" section in the Mail Service chapter of the NAL *Guide to System Administration Activities* for more information.

Monitoring database fullness

You should carefully monitor and take corrective action to prevent Mail Service databases from approaching 95% full. Refer to the "Monitoring the Mail Service database" section in the Mail Service chapter of the NAL *Guide to System Administration Activities* for more information.

Undeliverable mail

Users who send messages to user groups which have one or more invalid users usually do not receive an undeliverable message notice. Refer to the "Monitor undeliverable mail" section in the Mail Service chapter of the NAL *Guide to System Administration Activities* for more information.

Reading the postmaster mailbox

Currently, no workstation or server mechanism allows System Administrators to view all of the information in a dead letter when it is deposited in the postmaster mailbox. A dead letter does not have the "Bad Group Member" message.

In a healthy internetwork, the incidence of dead letters should be very low. Consequently, you should be concerned about the state of the system when a large number of dead letters are deposited.

If the ViewPoint interface is used to display the dead letters, you may be able to tell something about why the message could not be delivered or returned by noting the intended recipients and the original sender. The critical Mail Services--those of the recipients and those of the sender--may have been out of service. Or, the necessary internetwork links may have been down. If a message is directed to a group, you cannot determine exactly which recipients did receive a message, and which ones did not.

Mail Service backup and restore operations

Show Status command

If a Mail Service backup operation finds that the designated file drawer is full, it will delete the previous backup to obtain space. If there is still insufficient space, the backup will fail and no backup copy will remain on the File Service. Use the Mail Service **Show Status** command to monitor the backup process, and free up space on the File Service if necessary.

The value for the field "Outcome of last attempted backup" in the **Show Status** command will be "none" between one upgrade and the next attempted backup.

Warning: Restore deletes the Mail Service database first

As a part of a restore, any existing database, whether good or bad, is deleted to make room for the restored database.

Canceling the restore operation once it has started (for example, because no backup file can be found) leaves the server without a database. You can either retry the restore, or re-initialize. The Mail Service database repair operation will be useless since the old database has been deleted. Attempting to repair a nonexistent database may cause the server to crash.

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Restore in Genesis mode

Do not attempt the Mail Service restore operation while the Mail Service server that is being restored is in Genesis mode. The restore operation deletes the existing database and then consults the Clearinghouse Service to find the address of the File Service containing the backup copy.

If the Clearinghouse Service is inaccessible, the Mail Service restore can not occur, but the database will already be deleted. Therefore, always make sure that a Clearinghouse Service is accessible to the Mail Service server.

In single Clearinghouse Service configurations, where the Clearinghouse Service is coresident with the Mail Service being restored, boot the server. Select a non-normal startup and the "Interrupt before running services" option. Enter the **Run Service** command to run only the Clearinghouse Service, log on and enable, and then use the **Run Service** command to run only the Mail Service. Specify a non-normal startup for the Mail Service, and then do the restore operation.

Post backup

After you have repaired the Mail Service database, it may re-deliver many messages that it had delivered just prior to being repaired. These are messages that were queued for delivery at the time of the backup. These may appear as duplicates in the recipient's mailboxes.

External Mail Gateway

Delete commands

Do not use the **Delete Foreign Gateway** and **Delete Foreign Domain** commands while there is mail in the mail gateway queue (as shown by the **Show Status** command). Refer to the "Moving a foreign domain" section in the Mail Service chapter of the NAL *Guide to System Administration Activities* for more information.

Expunging

Be sure to apply the recommended procedure for expunging the External Mail Gateway. Refer to the "Changing External Mail Gateway information" section in the Mail Service chapter of the NAL *Guide to System Administration Activities* for more information.

If you do not apply this procedure, mail destined for the Mail Gateway will accumulate in the Mail Gateway queues and remain there indefinitely.

After you have expunged the External Mail Gateway, you may notice that the External Mail Gateway message file is still present in the working directory. The Mail Service cannot load and run without it.

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External Mail Gateway error conditions

The server housing the Mail Service will lock up if one calling interval has a starting time of midnight, and you attempt to add another calling interval which starts before midnight and ends after midnight.

After attempting to remove an existing and configured Mail Gateway, you may notice symptoms indicating that it has not been completely removed. Refer to the "Changing External Mail Gateway information" section in the Mail Service chapter of the NAL *Guide to System Administration Activities* for more information.

Print Service (PS)

General notes for all Print Service options

"Parse failure, no such command" often means that document contained Interpress 3.0 operators

"Parse failure, no such command" on the banner page can often mean that the Interpress operators found in the document are not yet supported by the Print Service. The Print Service supports version 2.2 of the Interpress standard. Check the source that generated the Interpress master to see what level of Interpress it emits (3.0, 2.2, etc). If possible, have the document source use an earlier Interpress version.

When installing from floppy, scroll screen, then insert next floppy

When installing a font that uses multiple floppies, the messages that are displayed prompting you to insert the next floppy may fill up the display, after which the "(More)" prompt is displayed. This prompt may appear immediately after the message to insert the next floppy disk.

Installation will not proceed until you scroll the screen by typing any character. If you changed the floppies before scrolling the screen, the new floppy will not be noticed. To proceed, you must remove and reinsert the new floppy. When the "(More)" prompt appears, scroll the screen first, THEN insert the new floppy.

Disk space and memory requirements for collated documents

The disk space and memory requirements are higher for collated documents than if they are sent individually.

Do not select new printing option if there are uncompleted documents in queue

Do not select a new printing option at startup while there are uncompleted documents in the queue. The results will be unpredictable when the documents are processed.

Catalog fonts before printing

Enter and complete a request for a test pattern before changing fonts, or after the fonts have been changed and printing has been restarted (i.e., the **Start Printing** command has been executed). If done out of sequence, you may see messages such as "Cataloging fonts, this may take awhile," "Cannot catalog fonts, test pattern printing in progress," "Missing default font, install font and Start Printing to continue." You may also lose your request to print the test pattern.

NOTES AND CAUTIONS

Installing or deleting fonts causes all fonts on the server to become uncataloged. Test patterns, like all documents, can use only cataloged fonts.

Electronic printers (8040 and 4045)

Correcting band overruns (image gaps)

With the 8040 Series and the NS 8000 Laser CP Electronic Printers, you can correct the problem of aborted pages with band overruns (image gaps) on documents with complex objects by installing more memory and enabling slow page printing. Refer to the Print Service chapter of the NAL *Guide to System Administration Activities* for more information.

PS with slow or complex page printing may freeze while processing complex documents

When slow page and complex page printing are enabled, large or complex documents may not be processed, and the server will stop functioning (although it will not display the 915 maintenance panel code). Since the slow page and complex page printing features reserve a large amount of the server's memory, the server may use all remaining memory and quit functioning when a large or complex document is processed.

To print the document, restart the server, take a non-normal startup, disable either slow page or complex page printing, complete normal initialization of the Print Service, and send the document again.

PS with complex page printing sometimes takes up to 30 minutes to process very complex documents

With complex printing enabled, the Print Service is able to print documents that would otherwise fail, but can take a long time to format. Refer to the "Complex and slow page printing features (version 11.0 only)" section in the Print Service chapter of the NAL *Guide to System Administration Activities* for more information.

Slow page printing with less than 2650 free pages is not enabled, although it reports that it is

Slow page printing requires 2650 free disk pages in order to be enabled. If you enter **Y** to enable slow page printing and there are fewer than 2650 pages available, the Print Service does not enable this feature. However, the Print Service **Show Status** command will incorrectly report that the feature is enabled.

Full-sized images cannot be printed on legal or B4 size paper

The maximum length of image size for electronic printer output (i.e., 300 spots per inch resolution) is 13.65 inches or 34.67 cm. This is measured from the bottom edge of the paper parallel to the long edge. Characters and graphics which are placed near

the upper boundary may not print. Note that this means that a full sized image cannot be printed on a legal size or B4 size page.

Some characters within text frames may not print

Some characters within text frames near (touching) graphics frames may not print, especially those with the graphics frames to their left on a portrait page. The letter J, for example, is known to do this.

Characters that touch the boundary of their frames, especially table captions, also do not print. Correct this problem by inserting a space or carriage return to move the characters away from the boundary. Changing margins may also help.

8040 electronic printers

Do not enter repair mode while using Start Diagnostic

The Print Service will crash if you try to enter the repair mode on an electronic printer while you are executing the **Start Diagnostic** command.

The Print Service must be started in order to enter the repair mode. The server will crash if you enter the **Stop Service** command before entering the repair mode using the printer keypad. Printing and queuing can be either stopped or started.

When changing from a B2 to B1 printer, set the staking option to aligned

In the 8040 Series Electronic Printer, before changing from a B2 model to a B1 model, use the **Set Parameters** command to set the stacking option to "aligned" before rebooting. If you do not change the parameter, the printer will not print.

Laser CP Print Service

Communication problems between server and printer

Occasionally, the 4045 printer may encounter a communication problem with its server that is not reported. The symptoms include a blank page in the middle of a job, a long pause before printing resumes normally, the last page (usually the banner page) printed twice, the printer is idle while the server reports that a job is being printed, and the system does not resume printing until you turn the printer off and on.

Facsimile Print Service

The following notes and cautions apply to the 10.x versions of the Facsimile Print Service.

Upgrade the Telecopier 495-1 to the current RS232C version

You must upgrade the standard Telecopier 495-1 attached to a Facsimile Print Service to the RS232C version. This is done with a hardware and a firmware kit available through and installed by Xerox IPD Field Service. The first is RSM upgrade 86S21809, containing RSM PWB, cables, and switches. The second is kit number 86S21810, called Network Interface. It changes the revision level of the firmware. It contains DTIM<SL11, and SL3 PWBs and EPROMs for G2DM PWB (chips GD1E and GD3G).

Opening the cabinet may turn off the machine

Opening the Telecopier 495-1 cabinet may turn off the unit and result in a misleading status display at the Print Service console. The message "Offline. Please call the System Administrator to check power supply and RS232C cable" is displayed. Typing **Show Status** displays the error message "Offline" rather than "Close Door."

Formatting Print Service (Services 10.3 only)

The following notes and cautions apply to the 10.x versions of the Formatting Print Service.

ViewPoint folders sent to a 9700 series printer via FPS

If you send a ViewPoint folder to a 9700 series Electronic Printer with collation enabled, the output printed in duplex (double-sided) mode may be different depending on whether it is sent directly to the printer or via the Formatting Print Service. If it is sent directly to a 9700 series Electronic Printer, the first page of each document in the folder will start on a new sheet of paper. If it is sent via the Formatting Print Service, the first page of a document could be printed on back of the last page of the previous document. If you want each document in the folder to start on a new sheet, send the documents in the folder to the FPS individually or with collation disabled.

File Service

File drawers and files

File names alphabetized by first 34 characters

Only the first 34 characters (34 English characters; possibly fewer foreign language characters) of the file name are used when it is sorted alphabetically within a directory or file drawer. Refer to the "File drawer hierarchy" section in the File Service chapter of the NAL *Guide to System Administration Activities* for more information.

Deleting old versions of files

Misleading number of freed disk pages

When you use the **Delete Old Versions** command, the operation does not correctly count the page size of a folder and its contents that it deletes. The figure shown will always be less than the actual number of disk pages that were freed.

Delete Old Versions limitations

The **Delete Old Versions** command does not delete old versions of files or folders with names longer than 34 characters (possibly fewer when the name contains foreign characters). You must delete these files manually.

Expunging a File Service

Before expunging a File Service, delete all file drawers

The File Service does not provide a complete expunge capability. Refer to the "Expunging a File Service" section in the File Service chapter of the NAL *Services Maintenance Guide* for more information.

File Service volumes

Placing a FS volume online after a scavenge

If the local copy of a volume's registered name is lost during a scavenge operation, the volume might be named "VolumeRoot" when it is placed online. Instead of prompting the user to reenter the name, the File Service deletes the current Clearinghouse entry for that volume and then tries to register "VolumeRoot." The File Service then reports that "VolumeRoot"

is not a valid File Service name and prompts the user to enter the valid name, which is registered.

Scavenge may change access to the FS volume root directory

Sometimes after a scavenge has run, the access to the File Service volume root directory is lost because the scavenge operation created a new root directory. This has no visible effect for ViewPoint workstation users, but other File Service clients (e.g. EVMS [XCHANGE], XNS PC [XFILE], ITS Filing, and XDE FileTool) will be able to create files at the file drawer level. These files cannot be deleted by the System Administrator.

Always check the scavenge log after a scavenge to see if a new root directory was created. Whenever the scavenger log contains a "new root created" problem entry, or if you have non-file drawer files at the file drawer level, contact the Systems Customer Support Center.

Server crashes

Very high simultaneous usage may crash server

When a File Service is accessed by the maximum number of users (15) and all connections are in the process of store or retrieve operations, and other activity occurs at the server, for example File Service backup or other services operations, the server may crash with the error message "out of VM." To alleviate this problem, access ViewPoint 2.0 or later versions of workstation software, do not run backup during peak hours, or do not run other services on this server. If the problem persists, a package called File Service Controls software is available from the Systems Customer Support Center to reduce the maximum number of allowed connections. Note that this problem has been significantly improved over Services 10.0.

Coresidency issues

Restrictions for FS coresidency with communication services

The File Service can coreside with communication services with the following restrictions:

• No communication service that employs the local RS232C port can be running on a server during any floppy disk or cartridge tape operations. These operations include online diagnostics, backup, restore, copy container, or restore container to cartridge tape or floppy disk. This restriction does not apply to CIU or Multiport Option Board configurations.

• For 8090 servers only, no communication service can be running while a cartridge tape is being formatted. Note that Xerox provides only pre-formatted cartridge tapes as a supply item.

File Service backup and restore

Backup media

Reset backup parameters after replacing a removable disk pack

When a removable disk pack that is being used as a File Service volume is replaced by another File Service volume, you must use the **Set Backup Parameters** command to enable automatic backup operations for the new volume (assuming the backup parameters for the new volume correctly specify automatic backup). The backup of the new volume will begin automatically at the proper time.

Since each File Service volume (including those which are repartitioned) has a unique identification, the existing automatic backup parameters will not recognize the new File Service volume and report the error "Trouble accessing volume." Automatic backup of that volume will be canceled. Resetting backup parameters will put the correct identification number in the automatic backup parameters.

Cartridge tape formatting by backup cannot be aborted

During foreground backup to cartridge tape, you are given the option to format the tape. This option cannot be aborted. If a tape requires formatting, it is recommended that you use the format command for cartridge tape found in the Test context to format the cartridge tape before using it for backup. This command can be aborted.

Do not load or unload a high capacity tape during any backup command

Do not use the Load/Unload buttons to load or unload the high capacity cartridge tape before or during any backup command. This confuses the low-level software and may cause an error condition or crash. Press the Unload button ONLY when you are removing a tape and ONLY when ALL backup commands have terminated. Do not press the Unload button to remove a tape if the "load" light is lit or flashing.

The backup commands will automatically unload the tape at the end of the command. When a command ends, you will see the Load light begin to flash and then go out and the Unload light will be lit. You may then press Unload to remove the tape.

Control-C crashes server when formatting cartridge tapes that are already labeled

The **Cartridge Tape Format** command executes in the background (i.e., asynchronously -- in order to free the server executive while the long-running command executes). However, the format process cannot be aborted in response to a

CONTROL-C. Specifically, the format process detects if a tape is already labeled; you have 30 seconds to confirm the destruction of the data on the media before you are returned to the executive, leaving the prompt on the terminal. However, regardless of the time lapsed, a "Yes" or "No" response is accepted. If you wait for more than 30 seconds before responding to this prompt and then abort using CONTROL-C, the services command processor cannot interpret this particular input and the system crashes. You must reboot if this happens.

When using the **Cartridge Tape Format** command, answer only "Yes" or "No" when the message "Tape is already labeled" is displayed.

High capacity cartridge tape capacity varies from 70 to 130 Mb

The capacity of the high capacity cartridge tape varies from 70 to 130 Mb due to the nature of streaming tape devices. If the tape movement stops between writes, there will be a gap on the tape. The more gaps there are, the less data can be written to the tape. The minimum is about 70 Mb. If the software is able to write data continuously and keep the tape streaming, the capacity will be at its maximum of about 130 Mb.

Copy Container or foreground backup on full cartridge tapes

When writing to a full cartridge tape using either the **Copy Container** command or during a foreground backup, another tape may be requested rather than the "Append, Format, and Initialize" options. If this happens and you want to overwrite this tape, use the **Online Diagnostics Erase** command to erase the tape before writing to it.

Backup error conditions

Backup will not complete for folders with more than 100 parents

Backup may fall into an infinite loop when backing up folders nested more than 100 levels. The only recovery is to reboot the server, reduce the number of nested folders, and start backup again.

Daylight Savings Time change causes an incorrect automatic backup time

The time reference that is used by automatic backup is in 24-hour increments. The reference does not synchronize to Daylight Savings Time changes. When automatic backup is set to run, a Daylight Savings Time change in the spring will cause backups to start one hour later than the local clock. Reset the backup parameters or reboot the server to fix the problem.

Erroneous Show Backup Index error message

If you select more than one increment to be displayed with the **Show Backup Index** command and there is an error when

displaying one of the increments, a "Command Cancelled" message will be displayed even though the command continues to process the next increment selected.

Foreground backup may crash if RSA window is disconnected

If you run backup or copy container in the foreground from a Remote System Administration (RSA) window and you disconnect the window while the operation is still running, there is a remote possibility that the server will crash. To guard against this, stop backup before disconnecting the RSA window.

Background or automatic backup may not update the tape chain

If busy tapes are encountered before a background or automatic backup starts writing its data, the tape chain in the parameters will not be updated correctly. Whenever a busy tape is encountered before background or automatic backups occur, check the parameters after the backup completes and, if necessary, update them manually using the **Set Backup Parameters** command.

Copy Volume does not give an error message if volume is open

When you use the **Copy Volume** command and the source volume is open, the command returns without giving an appropriate error message. If this happens, check the status of the volume using the **List Volumes** command. The **Copy Volume** command can only be used on closed volumes.

Restoring a File Service volume

Do not use older version of Services to restore data backed up with Services 11.0

You cannot restore Services 11.0 incremental backup data using Services 10.x software. Although the Services 10.x software will not prohibit the restoration outright, restored files will not be accessible to users following the restoration. Users will experience "insufficient access" errors when attempting to access Services 11.0 files restored with Services 10.x software. Always use Services 11.0 or later software to restore backup data generated by Services 11.0.

Make sure automatic backup is not set to run during restore

Before restoring an entire volume using the **Restore File System** command, ensure that backup is not set to run automatically. Since the restore process may continue running after the specified backup start time, automatic backup could start before the restore operation finishes. This complicates the restore process and may cause files to not be restored.

Right parenthesis in volume name presents problems

The **Restore Container** command does not work if the source volume has a right parenthesis,), in the volume name. The workaround is to offline the volume, change the volume name, run **Copy** or **Restore Container**, change the volume name back to the original, and place the volume online.

Restore may malfunction when a folder and a document have the same full pathname

The **Restore** command may malfunction when an object on the destination volume has the same full pathname as an object of a different type in the backup data.

For example, if a folder on the destination volume has the same pathname as a document in the backup data, the **Restore** command will transform the folder into a document and any objects within the original folder will become inaccessible.

Conversely, when the document is on the destination volume and the folder is in the backup data, the restore will crash.

In the second case, the workaround is to run restore with the feedback option, note which container is displayed immediately before the crash, move that container off the File Service (using ViewPoint), and then restart the restore operation.

In the first case, the folder-document can be used as if it were a normal document, but the icons that were previously accessible within the folder will be inaccessible. The folder-document may also consume a large number of disk pages due to the hidden icons contained "within it." These icons will be copied whenever the folder-document itself is copied. The contents of the folder-document may be copied into a Blank Document on a workstation and the folder-document deleted. In some cases, a System Analyst may be able to regain access to these "lost" documents using special tools.

Restore Container may offer increments not valid for a volume

When using the **Restore Container** command and restoring from a specific tape rather than from the increments log, the given menu includes all increments on the tape. This lets you restore from copy container data as well as incremental data. However, you cannot restore from another volume's incremental data. Selecting such an increment results in a message stating that the volume is not available at this time, try again later.

PC File Service (PCFS)

PCFS name character limitations

The PC File Service will accept the non-ASCIIZ characters of slash (/), backslash (\), and period (.) in the service name. However, PC File Services with names containing these characters will be inaccessible to XC20 clients. To change the service name, stop the service, change the service name with the **Change Profile** command, and restart the service.

PCFS is not registered in the CHS

There are no **List PC File Services** or **Show PC File Service** commands at the Clearinghouse Service.

The PCFS cannot be located through the Clearinghouse because it does not register itself with the Clearinghouse. The PCFS communicates only with the XC 20 network, and the XC 20 clients do not use the Clearinghouse to locate the PCFS. Also, the Clearinghouse is not used to authenticate the PCFS users. The PCFS requires no authentication from the user except for a valid network name, and a password, if a password is associated with the shared resource.

Access and security issues for PC clients

When the PC File Service is configured with the File Service on the same server, always specify a "Directory pathname:" parameter when using the **Add Net Share** command. If you do not provide a "Directory pathname:" input, this will offer the top level volume root directory as a network resource. (Essentially the entire volume, including all file drawers will be accessible to PC clients.) Because PC File Service clients are subject only to the password and access controls that are specified when a directory is offered as a network resource, any file drawer access controls that are specified via the File Service would not be enforced on PC clients. Be sure to limit the offered network resources to a subset of the available file drawers.

Administrative commands

Respond to message during Remove Net Share to continue PCFS operations

If you use the **Remove Net Share** command to remove a shared resource that is currently in use from the list of available resources, the following message will appear: "The network name is currently in use. Disconnect Active Users (Y/N):" Respond to this message promptly. The XC 20 personal computers connected to the PC File Service and PC File Service commands issued at other remote executives or at the server console will not complete until the message is answered.

Deleting a directory that is in use

Before deleting a directory from the PC File Service, use the **Remove Net Share** command to remove the directory from the list of network resources.

If you use the **Delete Directory** command on an offered directory that is currently in use by a PC client, the message "The directory is in use. Try again later. Directory not deleted" will appear. To delete the directory, use the **Remove Net Share** command to remove all net shares on the directory and its descendants. Next, stop the PC File Service. Then use the **Delete Directory** command to delete the directory.

If the directory is still reported to be in use, stop all the other services on the server and reboot the server. Then, start the PC File Service and use the **Delete Directory** command to delete the directory.

Misleading responses to translating an existing file pathname

Option 2 of the **Show Name Translation** command may not correctly display the translated name of an existing path. Some of the directory names in the path may display as translated names when translation was unnecessary. Any translated names will be displayed with lowercase characters if the characters were lowercase in the Xerox filename. A file will still be accessible by a PC, even if the (unnecessarily) translated name is used.

If a file and a directory in the same component of the pathname given have the same name but the non-directory file has a higher version number, option 2 may report that the path does not exist.

Use options 1 and 3 of the **Show Name Translation** command to work around option 2.

Misleading file count displayed by List Directory

The last message of the **List Directory** command is "Total number of files in directory: < number >." The number displayed with this message is the number of files listed, not the total number of files in the specified directory.

Error conditions

A slash preceding a Xerox pathname gives misleading error message

If you precede a Xerox pathname with a slash (/) to a PCFS command, the error message "Unexpected error while accessing file" will appear. This message means that an illegal pathname was supplied. Preceding slashes (/) are not allowed in Xerox pathnames.

PCFS performance

Limit network sessions and use MS DOS applications on PCFS

The response time of the PC File Service is influenced by the level of activity of the shared resources (net shares), and by the coresident services and their use of the processor. To improve the performance of the PC File Service, consider reducing the number of simultaneous connections that are allowed, or distributing the actively-used shared directories equally among the PC File Services installed on the local area network. Refer to the "Monitor activities and network sessions" sub-section of the "Planning for maintenance" section of the PC File Service chapter of the NAL *Guide to System Administration Activities* for procedural details.

You can also improve the PC File Service performance by restricting the use of MS DOS applications stored on the PC File Service, or by relocating one or more of the active coresident services (except for the File Service) to another server. It is not recommended that MS DOS applications be installed on the PC File Service for downloading to personal computers. Configure an XC 20 server if shared access to MS DOS applications software is required.

Librarian Service (LS)

Database issues

Creating a database with full user volume causes crash

Executing the **Create Database** command when the server's user volume is full will crash the Librarian Service. The new database will not be created. If this happens, either free up some space on the server or do not create the database.

Character restrictions in Librarian database names

When you create a Librarian database you give it a name. You can use any alphanumeric character in the name you give it. However, there are certain restrictions on using non-alphanumeric characters in a database name. The set of non-alphanumeric characters available on a server's terminal keyboard is:

	space character	!	exclamation mark
"	double quote	#	number sign
$	dollar sign	%	percent
&	ampersand	'	single quote
(	open parenthesis	)	close parenthesis
*	asterisk	+	plus sign
,	comma	–	hyphen
.	period	/	slash
:	colon	;	semicolon
<	open angle bracket	=	equal sign
>	close angle bracket	?	question mark
@	at sign	[	open bracket
\	backslash	]	close bracket
^	circumflex	_	underscore
	grave	{	open brace
|	vertical bar	}	close brace
~	tilde		

This set of non-alphanumeric characters and their behavior when naming Librarian databases can be categorized in three ways:

1. You may use this subset of the non-alphanumeric characters freely in Librarian database names. You will be able to create the database and register it in the Clearinghouse. Librarian Service clients will be able to query the Clearinghouse and obtain the database location as long as they are using the ASCII character set (i.e. using the ASCII keyboard when keying in the database name).

	space character	"	double quote
%	percent	&	ampersand
+	plus sign	,	comma
–	hyphen	.	period
;	semicolon	<	open angle bracket
=	equal sign	>	close angle bracket
?	question mark	@	at sign

[	open bracket	\	backslash
]	close bracket	^	circumflex
_	underscore	´	grave
{	open brace	|	vertical bar
}	close brace	~	tilde

2. You cannot use the dollar sign ($) freely in Librarian database names. Although you can create the Librarian Service database with this character in the name, Librarian Service clients will not be able to query the Clearinghouse and obtain the database location, and will not be able to use it.

3. You cannot create a Librarian database with any of the following characters in the name:

!   exclamation mark
number sign
´   single quote
(open parenthesis
)   close parenthesis
*   asterisk
/   slash
:   colon

If you find you have created a database with any of the characters from (3) in it, you should unregister and destroy that database and create a new one which does not use any of the characters in the name.

Each Librarian database consumes pages on the server's system volume

Each Librarian database supported by a given Librarian Service consumes 120 pages on that server's system volume when it is either accessed by a client or listed using the **List Databases** command (in verbose mode). The Librarian Service allocates these pages as a work area when it is accessing the database. When this disk space is allocated, the database is referred to as "loaded." Because of this use of space on the system volume, you can create more Librarian databases than a given server/service configuration can handle, and the server may run out of room in its system volume if many or all of the databases are loaded at any given time.

Regardless of the configuration, you can have up to 10 databases on a 42 Mb server. (This is not an absolute limit.) Of course, on a server with few installed services, or services that do not heavily use backing store, many more databases are easily supported (e.g., 40, 50). As always, when the combination of hardware, installed services, and client requests cause the server to crash, you need to review the configuration and take action to remedy the overload. By experimenting in a controlled environment (so as not to crash the server when important work is in progress) you can determine the upper limit for a particular server's configuration (installed software and hardware). When doing this, be sure to simulate use of the other services and use the **List Databases** command in verbose mode to exercise the Librarian Service usage.

Set Backup Path adds slash character to end of backup path

When you enter a database backup path, do not terminate the path with a slash (/). The **Set Backup Path** command automatically does this for you. If you do inadvertently terminate the path with a slash, a second slash is automatically appended. The path will be invalid, causing backups of that database to fail. (The backups will retry every half hour until the path is fixed.)

To correct the situation, enter the **Set Backup Path** command again. The path with the extra slash will be recognized as invalid and will be deleted. You will receive a null prompt. Then retype the previous path without terminating it with a slash.

Administration

Expunging LS successfully depends on CHS availability

The Librarian Service must be able to unregister itself and its databases when it is expunged. If the Clearinghouse is not available, the expunge operation will not succeed.

The following procedures are grouped according to whether or not the Clearinghouse (with which the Librarian Service is registered) exists on the same server as the Librarian Service.

• Clearinghouse is not on the same server as Librarian Service

Verify that the Clearinghouse with which the Librarian Service is registered is available. If it is, expunge the Librarian Service. Otherwise, bring the Clearinghouse online, referring to the appropriate documentation as necessary. Then expunge the Librarian Service.

• Clearinghouse is on the same server as Librarian Service

Logon and enable, then stop and deactivate the Librarian Service. Make sure the Clearinghouse Service on that server is activated. Stop the other services running on the server as necessary. Reboot the server, and take a normal startup. Expunge the Librarian Service.

External Communication Service (ECS)

Administration

Avoid using two ViewPoint RSA windows at the same time to issue commands

Avoid simultaneously executing service commands. If you use ViewPoint's Remote System Administration (RSA) to enter commands at an ECS server, you may experience degraded performance if another System Administrator uses certain ECS commands at the same ECS server (or at another RSA session). Thie ViewPoint RSA window may lock up until the ECS command used at the server completes.

3270 communications

2.0 ViewPoint/3270 terminal emulation software wraps if message from host is more than 24 lines

When you use version 2.0 of the ViewPoint or BWS 3270 terminal emulation software to connect to an IBM host via the ECS 3270 SNA option, the host's SSCP must send messages that can be displayed in 24 lines or fewer. If the host sends a 25-line message, the terminal emulation screen wraps, displaying the 25th line at the top of the screen. Ensure that the host has the ViewPoint SNA 3270 emulation set for mod 2, and the host application is correctly defined in its template.

3270 terminal emulation users may not receive a greeting screen or system menu

ViewPoint 3270 terminal emulation users will occasionally not receive a greeting screen upon opening a terminal emulation window. The workaround is to press ENTER to obtain the prompt from the host. The user can then log on to any available application. A similar situation can occur after a user has logged off from one application with the intention of logging on to another application. On rare occasions, between logoff and logon, the user does not receive a system menu. Again, simply press ENTER to obtain a prompt and log on.

Stop command always disconnects 3270 users

The **Stop** command always disconnects any active 3270 terminal users even if you type **N** at the "Disconnect active users?" prompt.

Change IBM 3270 Host does not change host name

The ECS command **Change IBM 3270 host** does not change the name of the host. To change the name, delete the port

completely, then add it to the database with its correct or new name.

RS232C port issues

Show RS232C Port Statistics user information

If you enter the **Show RS232C Port Statistics** command at a server while a remote workstation user has dialed into the CIU port, the remote workstation user will be shown as "User:" because credentials for authentication are presented to the service which is accessed via the CIU port, not the External Communication Service. However, when the port is being used for TTY emulation and credentials were passed at the beginning of the session, the External Communication Service will know the remote user credentials and will display the remote user as the current user of the local port.

Using CIU RS232C ports for Interactive Terminal Service

If an RS232C port configured for Interactive Terminal Service is on a Communication Interface Unit, the port cannot be reconfigured for TTY emulation. Refer to the "Dependencies and limitations" section for the CIU in the External Communication Service chapter of the NAL *Guide to System Administration Activities* for more information.

Using an RS232C port for IBM 3270 emulation

An RS232C port configured for IBM 3270 emulation, if it is on a multi-drop line, should be described as half-duplex, even if the modem and communication line attached to the port are full duplex.

Specify a dialing protocol for all asynchronous ports

When you use the **Add RS232C Port** command to configure RS232C ports connected to modems using the dialing protocols listed below, you must specify the dialer type. You should do this regardless of the port's use: dial-in, dial-out, or both.

- Ven-Tel
- Racal-Vadic
- V.25bis
- Hayes command set on pulse dialed line
- Hayes command set on a touch-tone dialed line
- RS366

This allows the software to communicate with each specific kind of modem correctly.

ViewPoint workstation may hang if RS232C port is not "up"

A workstation will hang if you use the TTY window when the RS232C port is not up (for example, the local or remote modem is not functioning correctly, the physical communication line is not sound, or there is a communication hardware failure). The cursor will move around but will not select any of the icons. Reboot the workstation to make it usable again.

Single port RS232C not released after RSA session, may hang server

8090 servers with a single RS232C port do not release the port for other connections after being used once for a dial-in Remote System Administration (RSA) session. There are three symptoms that point to this condition:

- Users attempting to dial in to this port will not be able to connect.

- The External Communication Service **Stop Service** and **List Service** commands will show the ECS as "Stopping," not "Stopped." The message will not change to "Stopped."

- Using the **Stop Service** command from any other context (e.g., Clearinghouse) will hang the server.

If this behavior becomes a problem, use the Multiport Option Kit, or multi-port Communication Interface Unit instead of the single-port RS232C kit.

Greeter

Beginning an ITS or asynchronous dial-in session using ECS

The External Communication Service Greeter's sign-on message "Services 11.0 Greeter. Type CR to begin" might not display on a remote terminal that is connected by modem to an External Communication Service that manages an 873 CIU for asynchronous dial-in or interaction with an Interactive Terminal Service. If the Greeter does not display its message within five seconds after the remote user has dialed or auto-dialed, the user should press RETURN to establish normal operation.

As an alternative to waiting five seconds following dialing, the user can wait until the Carrier Detect indicator light on the local modem is on, and then press RETURN.

If the CIU port is configured to connect automatically to the local Interactive Terminal Service and the user does not press RETURN within 30 seconds after the establishment of a connection, the connection will be dropped.

Error conditions

Access failure conditions

If you experience the following External Communication Service access failure conditions, the External Communication Service's Clearinghouse entry may need to be validated.

* The error message "The communication server could not verify your identity" is displayed while attempting to open a 3270 emulation window on a workstation, yet you can access other network services.

* You cannot copy a 3270 emulator icon from the workstation directory.

To verify the External Communication Service Clearinghouse entry, use the **Verify Clearinghouse Entries** command at the External Communication Service. Answer **Y** to the "Should all entries be verified? (Y/N)" prompt.

Misleading error message when changing ECS port name

If you run the ECS after executing a non-normal server startup, perform a non-normal service startup, then use the **Change RS232C Port** command to change an External Communication Service RS232C port name, you receive a message: "Name could not be updated in Clearinghouse: Clearinghouse reports server default domain is invalid." This message is misleading. In fact, the command continues to prompt for information and, assuming you make valid responses, the RS232C port name is changed. However, the old port name, which would normally be deleted from the Clearinghouse, remains in the Clearinghouse until you use a Clearinghouse Service command to explicitly delete it. To avoid this situation, you must start and stop the ECS before using the **Change RS232C Port** command.

Modem and dialing cautions

Use only Hayes modems with the Hayes dialing protocol

The ECS has been fully tested only with modems manufactured by Hayes. "Hayes-compatible" modems have not been fully tested with the ECS and may not perform equally well.

ECS clients using XModem protocol should turn off flow control

When using the XModem protocol, clients, including XTerm with PC on the net and TTY emulation on 6085 and 8010 workstations, should not have flow control turned on. If flow control is turned on, the data blocks are not transmitted correctly. Refer to the "Planning for setup" section for asynchronous communication in the External Communication Service chapter of the NAL *Guide to System Administration Activities* for more information.

Entering modem commands directly in VP TTY window not supported

For autodialing in ViewPoint, the ECS supports entering the phone number only in the appropriate spot in the TTY option sheet. The ECS does not support entering modem commands to dial a phone number directly in a ViewPoint TTY window.

Cannot dial out from RS232C ports of Multiport connected to older Hayes 1200 Smartmodems

Workstation terminal emulation users cannot use the option sheet in a TTY window to dial out via an RS232C port that is connected to an older Hayes 1200 Smartmodem model. Use the following guidelines to determine if you have a newer, supported model:

- The essential distinction between the supported and unsupported modems is the number of internal dip switches. The unsupported model has eight; the supported model has ten. To determine the number of switches on a Hayes 1200 Smartmodem, remove the modem's front panel. The switches are plainly visible and clearly marked.

- The newer, supported Hayes modems come in boxes that indicate that the modem is CCITT (V.22) compatible. These modems usually (but not always) have the numbers 153 in their serial numbers.

- The older, unsupported Hayes modems usually (but not always) have the numbers 212 in their serial numbers.

Close and reopen TTY window between sessions when dialing out through a Hayes modem

If you use a Hayes modem attached to an RS232C port configured for asynchronous use, workstation users must close and reopen their TTY windows after disconnecting from one host (Interactive Terminal Service or remote computer) and before connecting to the same or a different host.

Limitations with 4-switch Ven-Tel 1200-31 modems that are configured as "Hayes-compatible"

You cannot use the TTY option sheet to dial out over a port on a Multiport Option Kit that is connected to a 4-switch Ven-Tel 1200-31 modem when the modem has been configured to be "Hayes compatible." (See the following note for more information on 4-switch versus 10-switch versions of this modem.)

You can dial out under these conditions:

- Default configuration (Ven-Tel mode)

    Single port on RS232C Communication Kit
    Communication Interface Unit ports (CIU)
    Multiport Option Kit ports

- Hayes-compatible configuration

    Single port on RS232C Communication Kit

In order to use a 4-switch Ven-Tel 1200-31 modem with a Multiport Option Kit, use the modem in its default (Ven-Tel) configuration.

ECS on server with Multiport may dial slowly if using early Ven-Tel 1200-31 modem

The Ven-Tel 1200-31 modem is shipped with one of two styles of DIP rocker switches on the communications board located inside the modem casing. Earlier versions have a 4-switch DIP; later versions have a 10-switch DIP. When configured as "Hayes compatible," and used in conjunction with an 8000 or 8090 server with the Multiport Option, the earlier 4-switch version dials out much slower than a real Hayes modem.

Ven-Tel MDS212 Plus modem needs a pause character after the final phone number digit

The Ven-Tel MDS212 Plus modem requires extra time to process each digit. To accommodate this behavior, the user should place a pause symbol (percent sign, %) after the last digit of the phone number in the ViewPoint workstation TTY window.

ECS on single-port server can hang with modems using Hayes Smartmodem protocol

A problem can occur on servers with a single RS232C port when dial-in calls are attempted in rapid succession with a Hayes (or Hayes-compatible) modem using the Smartmodem protocol. The error condition occurs due to the time required to initialize the modem, resulting in a "confused" port. The initial symptom of this problem is that the modem will not answer the dial-in user. If this occurs, power the modem off and on. If this does not correct the problem, stop and restart the ECS.

ECS name

Do not enter a Control-C after using Rename Service

Do not enter a CONTROL-C after using the **Rename Service** command.

After you enter the **Rename Service** command, the ECS calls the Clearinghouse to delete the existing name and prompts you for a new name. If you cancel the command by entering a CONTROL-C before entering a new name, the ECS will be left without a name and the **Rename Service** command will be unavailable to you. At this point, to name the ECS, you must restart it (using the **Stop** and **Start Service** commands). At restart, you will be prompted for a new name.

Foreign Gateway Assistant (FGA)

Administrative issues

Cannot list or show FGA at Clearinghouse server

At a Clearinghouse server, you cannot use Clearinghouse Service commands to list or show the Foreign Gateway Assistant.

Coresidency issues

FGA cannot coreside with the Communications Monitoring Service

Do not install the Foreign Gateway Assistant and External Mail Gateway on a server with a Communications Monitoring Service. The Foreign Gateway Assistant cannot coreside with the Communications Monitoring Service.

Internetwork Routing Service (IRS) 3-43

X.25 issues

X.25 lines on Multiport periodically disconnect

X.25 communication lines on Internetwork Routing servers (8000 or 8090) with the Multiport Option may periodically disconnect. This tendency increases as transmission speed increases. Workstation users who transfer large documents are more likely to experience this than those who transfer small ones. If this behavior becomes a problem, install the X.25 links on a server with the single RS232C port hardware instead of the Multiport Option.

Interactive Terminal Service (ITS)

Using the Mail Service via Interactive Terminal Service

Returned messages do not provide reasons for return

When an Interactive Terminal Service user receives an undeliverable message, there will be no indication, as there is for 6085/8010 users, of why the message is being returned or to whom it was not delivered. Interactive Terminal Service users can discern that a given message is returned to them because their name is not in the "To:" or the "Copy:" field.

ITS will not provide access to more than 200 mail messages

If a user's mailbox has more than 200 messages, the Interactive Terminal Service will not provide access to messages above 200. To access those messages, the user must delete some messages in the 1 to 200 range, log off, and log on again.

Availability of Mail Service commands

If the user's Mail Service is not available at logon, no mail-related commands will be available, even when the Mail Service becomes available later in the session. To make these commands available, log off then log on after the Mail Service is available.

Xmodem Options do not stay set

The value for "Set XModem Options" is returned to "Checksum" when a phone line connection is lost during file transfer with the option set to CRC.

Using the ITS editor

ITS editor does not support editing files of the type "Text"

This feature of the ITS editor is currently not implemented. Only files or documents of the Xerox 860 file type can be edited, although "Text" files can be created.

New paragraphs are displayed as control-] to 6085/8010 users

New paragraph codes in mail notes are displayed as control-] rather than as new paragraphs. 6085/8010 users should use SHIFT RETURN (new lines) to start new lines and paragraphs in mail notes.

6085/8010 para-tabs are displayed as vertical bars on ITS screens

The Interactive Terminal Service displays 6085/8010 para-tabs as vertical bars. To insert tabs that will display correctly on Interactive Terminal Service screens, as well as on other TTY-type interfaces, 6085/8010 users should use the regular tab key.

ITS editor may fail searching for accented characters

The Interactive Terminal Service editor used when creating mail messages and files sometimes fails when searching for accented characters.

Set Formatting Option does not work

The **Set Formatting Option** command does not work. Formatting is set to "Justify" at boot time, and any subsequent use of the **Set Formatting Option** command has no effect on the application's behavior even though the ITS User Profile will indicate that the option has been changed. If you look in the ITS User Profiles drawer you will find that AutoCR is set to TRUE, but the output will be justified.

820 ITS users

In ASCOM set protocol to CPMUG

When transferring files from the Xerox 820 to the Interactive Terminal Service, use the ASCOM communication package. Set the protocol in the configuration to "CPMUG." This sets the 820 up for XModem file transfer, the same protocol that the Interactive Terminal Service uses. See the ASCOM user's manual.

Using a Print Service via ITS

If a default PS is not available at logon, no printer status is displayed

If the user's default Print Service is not available, no printer status information is displayed when logging on and retrieving user profile information.

Memorywriter files may have different word centering when printed

The centering of a word or phrase when printing Memorywriter documents is not exactly the same as the output from a Memorywriter. The difference is generally a one character deviation or less.

Memorywriter tables with decimal alignment may be off when printed

If the current column in a table is a decimal column, and the content of the previous column overflows into the current column, a tab will move to the next column rather than decimal align in the current column. This only occurs when the content of a column exceeds the maximum length of the column.

Using a File Service via ITS

Timeout problem with transfer of long files

If a file transfer to a File Service that is not coresident with the ITS takes longer than 10 minutes, the File Service terminates the filing session and the file is not transferred. The workaround for this situation is to install the ITS on the same server as the File Service.

Remote Batch Service (RBS)

Remote filing and code conversion statistics are not accurate

The following statistic message reported by the **Show Statistics** command is incorrect. The operation which records the time spent fetching and storing a file does not accurately reflect the actual amount of time used to transfer the file.

"REMOTE FILING AND CODE CONVERSION
XXXX bytes were converted & filed remotely at a rate of XX bytes/sec"

2780 Multi-Record BSC protocol is supported when RBS is receiving

The 2780 Multi-Record BSC protocol feature is supported only when the Remote Batch Service is receiving.

RBS recreates connection if time and job number conditions are met

The RBS will recreate a connection to a host if specified time conditions are met and the specified number of jobs are waiting. You can specify time conditions and number of jobs waiting with the **Add Partner** and **Change Partner** commands. The RBS will not reconnect if you specify only one of these conditions.

If RBS is not set to autostart, the RS232C port can be preempted

If the RBS is not set to autostart when it is run, it displays the message:

"RBS: RS232C Port is owned by other service. Running RBS is risky!!"

This message is misleading. If the RBS is not autostarted, the RS232C port can be preempted by another communication service. If there is no coresident service that uses the RS232C port, there is no risk in running the RBS.

Server Monitor Service (SMS)

If Start Service is used, SMS database cannot be restored

You may use the **Start Service** command to start the Server Monitor Service, but you will not be able to restore the Server Monitor Service database from a remote location. If you use the **Start Service** command to start the Server Monitor Service, the Server Monitor Service will always use the local database file. If no database file is found, an empty database is created.

The Server Monitor Service has an additional command. The **Start** command, available in the Server Monitor Service context to enabled System Administrators, prompts you with the option to restore the database from a remote location. Use this command rather than the **Start Service** command.

Backup location can be address or name when restoring database

When removing a monitored server from the Server Monitor Service database with the **Remove Monitored Server** command, specify the server being removed by its address if its name has already been deleted from the Clearinghouse. Generally, you can specify addresses instead of server names in response to Server Monitor Service name prompts.

Cannot remove user name once it is deleted from the CHS

You cannot remove a user's name from the list of users to be notified of monitoring, if the user is not currently registered in the Clearinghouse. For example, you must remove a name from the SMS notification list before you delete the name from the Clearinghouse.

Boot Service (BS)

Etherboot installation media

Do not remove floppy during Etherboot file installation

After using either of the Boot Service floppy commands (**List Floppy Files** or **Retrieve Floppy Files**), you must leave the floppy disk inserted in the drive for the duration of the command. Failure to do this can cause either a system restart or an unresponsive server executive.

Commands will copy any file found on the floppy disk or cartridge tape

The **Retrieve Floppy Files** and **Install Etherboot Files** commands will copy any file found on the Standard Etherboot Installation media. Always check to see which cartridge tape or floppy disk is in the drive before issuing these commands.

Boot Service profile

BS server profile section changes are lost when the BS or server is restarted

You may change Boot Service profile information stored in the server profile using the **Change Profile** command. However, when you restart the Boot Service or the server, the Boot Service copies all information found in the default file called "bootService.profile" into the Boot Service section of the server profile. Any changes that you may have made to the Boot Service portion of the server profile are lost. To make changes to the Boot Service profile that is reinstalled when the server or service is rebooted, you must edit the file called "bootService.profile," put it back on the server, and specify the name of the new Boot Service profile in the Boot Service section of the server profile.

The BS profile is not deleted with expunge

The file called "bootService.profile" is not automatically deleted when the Boot Service is expunged. To delete this file, use the **Delete File** command after expunging the Boot Service.

Boot Service error conditions

Multiple Boot Services on network must match

You may experience intermittent problems when multiple Boot Services serve the same network, and there is a mismatch of Etherboot files on the various servers. For example, the server

with the earlier versions of microcode, germ, and boot files may respond to a workstation's requests in an early phase of Etherbooting, and provide it with the old microcode and germ files. The server with the newer version might respond during a later phase of this workstation's Etherboot and supply it with a newer and incompatible version of the boot file.

To avoid this problem, ensure that each Boot Service on the network is the same version. Boot Services do not automatically update each other.

Communications Monitoring Service (CMS)

CMS portion of the server profile

Changing server profile entries for the CMS

The **Change Profile** command allows you to change values in the server profile, including those associated with the Communications Monitoring Service. These changes will not be registered with the Communications Monitoring Service unless the service is stopped. You are strongly recommended to use the commands available through the Communications Monitoring Service to manipulate the server profile values associated with it.

After expunging, delete CMS entries from server profile

The **Expunge** command does not delete entries in the server profile that are associated with the Communications Monitoring Service. You must explicitly delete these entries with the **Change Profile** command.

Auto-logging

Auto-logging messages may be out of order

Under rare circumstances, the Communications Monitoring Service can display a confusing series of messages like the following if auto-logging is in effect (italicized letters are not part of messages):

CMS: Log 1 Started   *(A)*

CMS: Log 2 Started   *(B)*

CMS: Log 1 Started   *(C)*

CMS: Log 1 Stored   *(D)*

You might interpret these messages to mean that the log file (Log 1) referenced in line A is being overwritten by the operation in line C. It is not. The actual sequence of events is:

(A)   CMS starts writing to log 1.

(B)   Log 1 fills and is stored locally. CMS begins writing to log 2 and begins writing log 1 to a remote disk.

(C)   Log 2 fills and is stored locally after log 1 has been written to a remote disk. CMS begins writing to a second log 1.

(D)   CMS displays the message that log 1 has been written to a remote disk.

Potential confusion arises from line C being displayed before line D. In fact, writing to the second log 1 does not begin until the first log 1 has been successfully stored on a remote disk.

Do not start CMS logging until auto-dialing has completed

If you use the CMS to monitor an auto-dialed line, do not start CMS logging until after dialing is complete. If CMS is logging when dialing occurs, the connection may fail immediately after being established.

CMS logs are not always stored

Occasionally, when many active emulation sessions and connections with remote computers are being sustained, the CMS automatic logging may not occur as it normally would. This is because the server places a higher priority on maintaining the communications activities than it does on storing the logs.

Statistics

CMS statistics available only for SNA

The **Show Statistics** command is available only for SNA monitoring.

Coresidency issues

CMS cannot coreside with the Foreign Gateway Assistant

Do not install the CMS on a server that already has a External Mail Gateway and a Foreign Gateway Assistant. The CMS cannot coreside with the FGA.

Store Log may cause server to hang

While using CMS to monitor SNA communications (i.e., protocol level set to SDLC or ALL) there is a slight chance that using the **Store Log** or **Stop Logging** commands will cause the terminal on the server to hang. The server and all its services will still function. Only the terminal will not function. Remote System Administration is still possible, but as soon as convenient, reboot the server to make the CMS release the console.

A.   Services 10.3 overview

Xerox Network Services 10.3 is an optional release, covering enhancements and additions to the 10.0 software. Services 11.0 is a mandatory release, and includes all of the 10.3 additions. If you did not upgrade to 10.3, this appendix provides an overview of the 10.3 Services software.

Multiport Option Kit

Services 10.3 contains software enhancements to expand the functionality of the Multiport Option Kit. These enhancements support the Asynchronous Communication Option, connections from a workstation to a remote host (TTY), and dial-up connections from remote ASCII terminals or personal computers acting in TTY terminal mode. There are no changes to the MPOK hardware.

The 10.3 enhancements supported by the MPOK include the following dialing protocols for asynchronous communications:

- Hayes® Smartmodem 2400 Command Language (supports Hayes 300, 1200, and 2400 modems)

- Racal-Vadic dialing protocols

- Ven-Tel dialing protocols

- V.25bis dialing protocols.

The Multiport Option Kit is an alternative to the 873 Communication Interface Unit (CIU), and, with Services 10.3, now provides greater reliability and the same functionality as the CIU at a reduced cost. Refer to the comparison table on the next page for more information on the types of communication software supported. The Multiport Option Kit also provides an opportunity to extend the useful life of 10 and 42 Mb 8000 processors by turning them into communication servers.

Services 10.3 MPOK enhancements provide the following expanded server support:

- Four concurrently operating RS232C ports at line speeds of 300 bps to 19.2 Kbps (full duplex with flow control), in any mix of asynchronous services: External Communication Service (dial-in or dial-out) or Interactive Terminal Service (dial-in).

Prerequisites

The prerequisite is a 10 or 42 Mb server which meets FCC requirements for Class A EMI certification. (Class A compliant processors were manufactured after October 1, 1983, and display a silver label with black lettering on the back of the processor.)

Service improvements

Many of the service applications have been modified to correct reported problems. The following improvements increase performance or support the new MPOK features in Services 10.3 (Refer to Table A-3 for additional information).

3270 SNA

- Now, in conformance with SNA protocols, the software delays sending user data after receiving a Receiver-Not-Ready indication from the host.

- In previous releases, 3270 SNA software occasionally detected an SNA bracketing error when there was none, with the result that the workstation user's terminal emulation session would be terminated. This problem has been corrected.

- In the past, some users did not receive the greeting screen when they opened a 3270 terminal emulation window. As a result of the way Services 10.3 informs the host of the connection, the user will now receive the greeting screen.

- The **Show RS232C Port Statistics** command now reports all types of SDLC errors.

Asynchronous Communication Protocol

- The Ven-Tel MD212-3E modem can be used to dial out via a local RS232C port.

- The software now will arbitrate correctly between applications competing for the use of an RS232C port configured for dialing in and dialing out when the port is connected to a Ven-Tel MD212-3E modem.

Clearinghouse Service

- Improved performance reduces the time to propagate information and results in more reliable operation of the Clearinghouse.

External Communication Service

- Changed to support asynchronous communication on the MPOK and for additional modem dialing support through the local ports.

- Software for the Multiport Option Kit and RS232C Communication Kit supports the Hayes Smartmodem, Racal-Vadic, Ven-Tel, and V.25bis protocols for autodialing for asynchronous uses.

Table A-1. **RS232C port comparison**

	RS232 Communication Kit	873 CIU	Multiport Option Kit

Communication Software Supported	Internetwork Routing Service
	Clusternet Communication
	3270 SDLC/SNA Communication
	   Protocol
	-
	X.25 Communications Protocol
	ECS for Asynch Communication
	   (i.e., dial-in for ITS and dial-out
	   for TTY)
	Asynchronous Communications
	   Protocol
	External Mail Gateway
	Gateway Service (850/860)
	3270 BSC Communication
	   Protocol
	Remote Batch Service
		Internetwork Routing Service
		Clusternet Communication
		3270 SDLC/SNA Communication
		   Protocol
		-
		-
		ECS for Asynch Communication (i.e.,
		   dial-in for ITS and dial-out for TTY)
		-
		Asynchronous Communications Protocol
		-
		-
		-
		-
		-
			Internetwork Routing Service
			Clusternet Communication
			3270 SDLC/SNA Communication
			   Protocol (supports NRZI
			   encoding scheme)
			X.25 Communications Protocol
			ECS for Asynch Communication
			   (i.e.,dial-in for ITS and dial-out
			   for TTY)
			Asynchronous Communications
			   Protocol
			-
			-
			-
			-

Speeds	1 port @ 75 bps to 19.2 Kbps
	   asynchronous
	   or
	1 port @ 1.2 Kbps to 56 Kbps
	   synchronous
		4 Port Version **8 Port Version**
		1 port @ 9.6 Kbps 2 ports @ 9.6 Kbps
		2 ports @ 4.8 Kbps 4 ports @ 4.8 Kbps
		4 ports @ speeds 8 ports @ speeds
		up to 2.4 Kbps up to 2.4 Kbps
			2 ports @ 56 Kbps synchronous*
			   and 2 ports @ 1200 bps
			   asynchronous
			1 port @ 56 Kbps synchronous* and
			   3 ports @ speeds up to 19.2
			   Kbps for synchronous or
			   asynchronous
			4 ports @ speeds up to 19.2 Kbps
			   for synchronous or asynchronous

* IRS is the only service that runs at a line speed of 56 Kbps.
Note: Throughput on synchronous ports degrades when using asynchronous communications for the other ports.

File Service

- The **Restore File System** and **Restore Container** commands can now be used to retrieve the log or file desired by specifying the date and time of the most recent increment. This restore date is likely to contain the log or file.

- Previously, a volume upgrade from Services 8.0 to Services 10.0 format may have failed. This problem of validation and upgrade of file attributes has been corrected.

- Timing-dependent problems between the File Service and the authentication software when executing incremental backup over the net have been corrected. This fix eliminates intermittent crashes with an "internal error" and duplicate desktops stored on the file server.

- Services 10.3 allows Interactive Terminal Service users to use aliases to refer to File Services.

Internetwork Routing Service

- ViewPoint users can now dial into a different Clusternet without rebooting ViewPoint.

- Now, X.25 software:
  - Does packet and window size negotiation

- Transfers large blocks of data without timeout errors and erratic Echo test results

- Allows a public data network to bring up the HDLC link when the "Passive DTE" option is selected in the **Add X.25 Network** command

Mail Service

- The External Mail Gateway option of the Mail Service is modified to prevent disruptions in the flow of mail over the gateway (via the modem).

Print Service

- Previously, a "0-page" document sent to the printer, with the banner page suppressed, would cause the Print Service to hang. Now, when such a master is detected, a banner page is produced with a message.

Remote Batch Service

- Modified to support multinational messages and IBM World Trade variants for EBCDIC.

- The RBS software now allows another service to use the RS232C port when the autostart option is set to "No" with the **Add Partner** command.

- File transfers will complete if the user responds with an **N** at the **Stop Service** "Stop immediately?" prompt.

- Page break characters are handled correctly in transferred ViewPoint documents.

- Communication errors that occur while the Remote Batch Service is logging on to a host no longer require a server restart.

- Loss of access to an "output bin" no longer results in loss of information. The next time the Remote Batch Service is started, it will detect that it did not complete the file transfer and will retry the transfer.

System Administrator interface changes

Several changes have been made to the Systems Administrator user interface.

External Communication Service

- The **Add RS232C Port** command displays a choice of autodialer types when configured for asynchronous use.
- The **Show RS232C Port** command lists the autodialer types.

Internetwork Routing Service

- The **Add X.25 Network** command includes two new network types to support Japanese and Belgian data networks.

Remote Batch Service

- Three new messages are added for Remote Batch Service:
  - If autostarting is set to NO, the Remote Batch Service (RBS) displays:

WARNING - The port is NOT dedicated to RBS; conflicts may arise.

  - If the RBS cannot reach a File Service for storing output if the output bin is full, the RBS displays:

Unable to finish BackUp for Remote Batch Service.

  - If you attempt to install Multinational RBS and cannot, RBS displays:

Unable to install the Conversion Table.

Services 10.3 deliverables

Xerox Network Services 10.3 software is available on 8" floppies and contains the following:

- Standard Services Software, which includes:
    - Services Systems Software
    - Clearinghouse Service
    - External Communication Service
    - Server Monitor Service
- Internetwork Routing Service
- File Service
- Mail Service
- Communication Monitoring Service
- 850/860 Gateway Service
- Print Service
- Remote Batch Service

Software compatibility

On any single server, the following services must all be from the same release, that is, all 10.0 or all 10.3:

- Communications Monitoring Service
- 850/860 Gateway Service
- Internetwork Routing Service
- Remote Batch Service
- External Communication Service
- Mail Service

Table A-2 shows which services were modified for 10.3, and also indicates any interdependencies.

Table A-2. **10.0 to 10.3 software compatibility**

Service	10.3 differs from 10.0?	Will 10.0 Svcs software run on 10.3 server?	Will 10.3 Svcs software run on 10.0 server?
System Software	yes	N/A	N/A
Clearinghouse	yes	yes	yes
External Communication	yes	yes*	no
Server Monitor	no	yes	N/A
Internetwork Routing	yes	yes*	yes*
File Service	yes	yes	yes
Mail Service	yes	yes*	yes*
Communications Monitoring	yes**	yes*	yes*
Boot Service	no	yes	N/A
Interactive Terminal	no	yes	N/A
850/860 Gateway	yes**	yes*	yes*
Print Service	yes	yes	yes
Remote Batch	yes	yes*	yes*

*　On any single server, all services from the set (CMS, GWS, IRS, RBS, ECS, MS) must be from the same release, that is, all 10.0 or all 10.3.

** The change is for compatability only; there is no functionality change.