SERVICES 10.0 RELEASE DOCUMENT

XEROX

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

The content of this booklet is based on the Services 10.0 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

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1. Overview

The Services 10.0 release includes a variety of performance enhancements to existing services. It introduces two new features:

- The Communications Monitoring Service - A service that aids in the diagnosis of communication problems.
- The Multiport Options Kit - The capability of a server to use multiple local ports.

Services 10.0 is a major network services release requiring all servers to be upgraded with the new software. This release does not impose any special constraints for server upgrade, allowing the servers to be upgraded in any order at a given site and across the internet.

New features

There are two new features available in services 10.0: the Communications Monitoring Service and the Multiport Options Kit.

Communications Monitoring Service

The Communications Monitoring Service (CMS) is a tool that aids in the diagnosis of communication problems which might arise when configuring and operating Xerox communication services. Protocol monitoring at various levels supplies accurate information related to communication and application problems. This information provides better and faster diagnosis of communication service problems.

CMS is designed to co-reside with the communication services and to monitor their use of the RS-232C port. This includes the local port of an 8000 server, 873 ports, or one of the ports on a multiport options board of an 8000 server. The monitoring takes place at one or more of three levels:

- RS-232C which can be used to monitor External Communication Service VT100, TTY, and 3270 BSC emulations, Remote Batch Service, Interactive Terminal Service, and 850/860 Gateway.
- SNA which can be used to monitor External Communication Service 3270 SNA emulation.
- X.25 which can be used to monitor Internetwork Routing Service with X.25.

Communication problems can occur when communication services are configured with parameters that are incompatible with the remote terminal or host with which they are to communicate. These problems are often difficult to diagnose without a means of examining exactly what is transpiring at the data communications levels. CMS is a valuable tool that performs this examination, logs its findings, and optionally stores the information on a File Service. The information can be examined, when necessary, to diagnose troublesome communication problems which would otherwise be difficult to isolate.

Multiport Options Kit

The Multiport Options Kit is a communication hardware option for use on an 8000 server. (Server must be FCC class A compliant and manufactured after October 1, 1983. It can be installed on 10 or 42 Mb servers which meet these FCC regulations.) It contains a multiport options board, which is an alternative to a single RS-232C port (E30 Comm Kit) or the Communication Interface Unit (CIU). It increases the total number of local communication ports to four on the server, and can be used simultaneously with a CIU when up to 12 ports are desired. The Multiport Options Kit supports the following types of communications only:

- Internetwork Routing Service's leased and manually dialed circuits
  - Internetwork Routing Service's X.25 Communications Protocol (X.25 circuits)
  - Internetwork Routing Service's Clusternet Communication
- External Communication Service's 3270 SDLC/SNA Communication Protocol

Enhancements

Services 10.0 provides numerous improvements in the quality and performance of existing services.

Clearinghouse Service

- Services 10.0 provides increased security of passwords stored in the Clearinghouse. Previous releases stored passwords in two formats: clear text and encoded. With Services 10.0, passwords will be stored in encoded format only.

- Organization administrator: In previous releases, organizations could be administered by anyone whose user name or group name was specified in any Domain Administrator list within the organization. With 10.0, an organization will be administrated by individuals or groups that are explicitly granted administrator access to the organization.

- If a Mail Service is co-resident with a Clearinghouse Service, the Clearinghouse Service now alerts the System Administrator about an interruption in the status of this co-resident Mail Service.

External Communication Service

- The 3270 SNA Communications Option of ECS has been enhanced to work with the new multiport options board. An advantage of the multiport hardware option is that it enables 2 or more simultaneous connections to the same or different hosts. A connection can support up to 8 active terminal emulation sessions. If two simultaneous connections are active, there can be no more than 12 active terminal emulation sessions. If three simultaneous connections are active, there can be no more than 8 active terminal sessions.

- Using the Multiport Options Kit with 3270 SNA communications increases the compatibility with IBM hosts. It supports the NRZI encoding scheme which is used as the default on IBM hosts supporting SNA. This advantage is not available when using the local port or a CIU.

- ECS 10.0 has been enhanced to support the emulation of the IBM 3270-5 terminal.

File Service

- The reliability, performance, and storage efficiency of the File Service Backup and Restore feature are improved in Services 10.0. Performance of the incremental backup operation has improved 25 to 50 per cent between volumes, and less space is used by increments in the backup file drawers.

- The new **Report Disk Usage** command allows the System Administrator to request reports about recent file access activity. This report assists the System Administrator in deciding which files are obsolete and can be deleted, or moved to off-line archives.

- The new **Delete Old Versions** command allows System Administrators and users with remove and write access to delete old versions of a file or a set of files.

- The size statistics reported by the **List File Drawer** command are improved because file overhead is now factored in more accurately.

- The new "Desktop Catalog Check" option checks the desktop catalog to ensure that it contains serialized desktops, and that all of the desktops are in a usable state.

Internetwork Routing Service

- The Multiport Options Kit provides an additional way to configure multiple circuits at a single IRS. Previously, only a CIU could be used.

- In Services 10.0, the IRS can utilize the new Server Monitor Service Event Reporting feature. When an IRS is being monitored, it will report leased and dial-up phone line activity to the monitoring Server Monitor Service.

- Several administrative commands have been improved to assist the System Administrator. These include the **List Routes** and the **Status** commands, as well as the **Expunge** command, which now performs all of the required activities automatically without System Administrator intervention.

- The internal data structures for the Internetwork Routing Service (IRS) have been reorganized in Services 10.0 to increase performance and efficiency.

Mail Service

- You can now repair Mail Service databases as long as they do not exceed 65534 pages. The repair option is accessible from the Mail Service's non-normal startup menu.

- The 10.0 Mail Service has been improved to deal more effectively with undeliverable mail. Messages that cannot be delivered are returned to the sender, if possible. If they cannot be returned within 48 hours, they are placed in a Postmaster Mailbox created and maintained by the System Administrator. To insure privacy, the content of the message is removed before the message is placed in the Postmaster Mailbox.

- The **List Mailbox** command has been enhanced so that the number of pages occupied by each mailbox can be displayed. When the need to free up space occurs, this helps the System Administrator locate the mailboxes occupying the most space.

- The External Mail Gateway Service has been enhanced to allow the System Administrator to expunge an External Mail Gateway.

- A new command, **Shutdown Mail Service**, prepares the Mail Service for decommissioning. This new operation transfers all mail currently in the Mail Service's queues to other Mail Services on the same internet, and then stops the Mail Service. Due to the dependency of the co-resident Clearinghouse on the Mail Service, this operation should be followed by an immediate power down when the server is being taken temporarily off-line, or by a restart and Expunge of the Mail Service when the Mail Service is being removed.

- The **Stop** command has been improved to allow the System Administrator to suspend all mail activities when performing a shutdown of all services immediately prior to a boot. When the **Stop** command is used, the Mail Service completely stops taking in new mail and forwarding outgoing mail to other Mail Services. However, with both a gradual or immediate shutdown, it does process the pending queue, which may take a while to complete.

Print Service

- Services 10.0 Print Service running on a server with 1.5 Mb of resident memory will automatically reprint an image that was printed incorrectly. This occurs occasionally when a document contains a complicated image.

- Services 10.0 provides simultaneous queuing and printing. This allows the Print Service to accept new documents while it is printing.

- There have been several enhancements to Print Service commands in 10.0. These include improved clarity and consistency, and the availability of commands to users that were previously available only to a System Administrator. These include the **List Fonts** and **List Test Pattern** commands.

Remote Batch Service

- To aid networked 860 users, any fabricated names generated by the Remote Batch Service (RBS) are shortened before the jobs are placed in the output bins.

- Previously, RBS generated names for received files; now it can extract user specified names from the received files.

- In Services 10.0, RBS has a default partner that it will connect with when started. In past releases, if multiple partners were set, the System Administrator had to select the partner.

- Enhancements to the RBS transmission format options allow compatibility with foreign systems.

- Remote Batch now uses the server software **Stop Services** command, and has improved the **Show** and **Add Partner** commands.

Server Monitor Service

- 10.0 Server Monitor Service (SMS) contains a new feature that allows the service to receive reports from monitored clients. The Event Reporting feature notifies the server it will be monitoring and then the monitored service reports events to the SMS. Currently, the Internetwork Routing Service is the only service that can utilize this feature.

Services system software

- In Services 10.0, RS-232C diagnostics can be run on the server's ports, even if none of the server's communications options have been loaded. Previously, it was necessary to run the service that used the port before diagnostics could be performed.

- The server options control mechanism has been expanded to allow for more combinations of services. This requires users to record three Software Serial Numbers rather than one, and, in some cases, to obtain three passwords for a server from the Software Control Center. The number of passwords is determined by the options to be enabled.

- Enhancements to the Scavenger operation allow the user to request a normal scavenge, or to specify that a page-level or extended scavenge be done, in addition to a normal scavenge operation. The normal scavenge repairs inconsistencies in the file system, a page-level scavenge checks each page, and an extended scavenge rebuilds the entire directory. The benefit of these enhancements is primarily that the normal scavenge is faster than any of the optional scavenges. Formerly, all three scavenge operations were done each time the user specified a scavenge.

Firmware Upgrade Kit

Support of the SIU half duplex option has been discontinued in Services 10.0. The communication problems addressed by this option can be resolved more efficiently by installing the Version 1.6 SIU Firmware Upgrade Kit (601K60420) for half duplex modems. (This firmware also improves operation of full duplex modems.)

Deliverable items

Services 10.0 software is delivered on 8" floppy disks with installation instructions and the release document.

System documentation

Services 10.0 Instructions can be found in the Network Administration Library.

Software compatibility chart

The software compatibility chart shown on the following pages lists the products that can communicate with Xerox Network servers running Services 10.0. This chart includes the software version the product must have and the available network services.

The "Client" heading represents the product, "Ver #" represents the product version, and the 2- and 3-letter abbreviations represent specific network services. The "X" placed within the columns designates the network service available to the product.

Example The Memorywriter 620/630CX can access MS (Mail Service), PS (Print Service), and FS (File Service) through the ITS (Interactive Terminal Service). In contrast, the Memorywriter 620/630C can only access the Mail Service.

Software Compatibility with Network Services 10.0

Client	Ver #	CHS	FS	MS	ECS	IRS	ITS	RBS	FPS	PS	BS	GWS
DEC Vax	3.0	X	X	X	X	X			X	X		
DEC Vax	3.1	X	X	X	X	X			X	X		
IBM PC	1.0	X	X	X		X			X	X		
IBM PC XTerm	1.0	X			X							
Star	3.4	X	X	X	X	X		X	X	X	X	
ViewPoint	1.X	X	X	X	X	X		X	X	X	X	
XDE	4.0	X	X	X	X	X			X	X	X	
820 Enet	10.0	X	X	X		X			X	X		
860/3270		X			X	X						
860 Enet	10.0	X	X	X		X			X	X		
860 SIU	10.0	X	X	X		X			X	X		
860 ETTY	10.0	X			X	X						
860 TTY	10.0	X			X	X						X
860 XMdem/ITS		X	X	X	X	X	X					
Memwrtr 620/630	CX	X	X	X	X	X	X		X	X		
Memwrtr 620/630	C	X		X	X	X	X		X			
Memwrtr 645/ITS		X	X	X	X	X	X		X	X		
Memwrtr 645/Direct		X	X	X		X			X	X		
6064		X	X	X		X			X	X		
Expert	2.4	X	X		X	X			X	X		
Expert	2.5	X	X	X	X	X			X	X		
XPS 700	2.0	X	X			X			X	X		
Interlisp	Koto	X	X	X	X	X			X	X		
OCR		X		X								X

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2. Upgrade procedures

This document provides the step-by-step procedure recommended by Services Software for upgrading an 8.0 or 9.0-based server with Services 10.0 Software.

A fully upgraded server can co-reside on the same Ethernet or within the same Internet with a Services 8.0 or 9.0 server and with an OS 5.0 or OS 6.0 workstation. There is no recommendation that the servers within a given internet or site be upgraded in any particular order. However, because Services 10.0 is a general release, it is necessary that every server is eventually upgraded.

See the "Overview" section for a description of Services 10.0.

Essential preparation for all upgrades

There are a number of tasks you must do before upgrading your server. These tasks are described below. Make sure you complete them before continuing to the next section.

Note: The multiport options board must be installed before installing the System Software for multiport.

Read the *Server Operation and Maintenance* booklet

The instructions in the "Upgrade procedures" chapter assume that you are familiar with the basic techniques described in the *Server Operation and Maintenance* booklet available in the Network Administration Library.

Develop and post a schedule

Although the upgrade is fairly easy to perform, your network community is likely to notice a delay if the task is done during peak hours and a Clearinghouse Service, Mail Service, Print Service, or File Service is being upgraded. A server with none of these services might take as little as 15 minutes to upgrade; one with one or more of these services could take 45 minutes to three hours or more.

The additional delays on servers with these services are due to the time spent upgrading the page and file system data structures, or opening Clearinghouse Service or Mail Service databases. These are very general estimates based on an average of 30 to 45 minutes per Clearinghouse Service, Mail Service, Print Service, or File Service. (There would be an additional 45 minutes to three hours for each of the secondary drives associated with a File Service.)

The additional task of installing printer fonts adds up to five minutes for each new printer font during the upgrade process.

Obtain the appropriate set(s) of diskettes

Make sure you have the necessary diskettes. Note that a different set is needed for a server configured with a fixed disk than for one configured with removable disks:

Services System Software #1 (10, 29, 42 Mb Disks)
Services System Software #2 (10, 29, 42 Mb Disks)
Services System Software #3 (10, 29, 42 Mb Disks)

or

Services System Software #1 (80, 300 Mb Disks)
Services System Software #2 (80, 300 Mb Disks)
Services System Software #3 (80, 300 Mb Disks)

The removable disk set is also used for servers configured with 300 Mb fixed disk drives.

In addition, you must obtain the diskettes necessary to install the services options you need. The titles of the available floppies are listed below:

850/860 Gateway Service
Boot Service
Clearinghouse, External Communication, and Server Monitor Services
Communications Monitoring Service
File Service
Interactive Terminal Service
Internetwork Routing Service
Mail Service
Print Service
Remote Batch Service
Multiport Option

All 8.0 or 9.0 fonts are all compatible with Services 10.0 Print Service applications. Therefore, upgrading fonts by installing new font files from floppy is not necessary. However, you may wish to add a new font style at the time of the upgrade.

300 DPI printer font floppies

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
Xerox Required Fonts

200 DPI printer font floppies

Xerox Basic Classic Fonts
Printwheel Fonts
Xerox Math Classic Fonts
Xerox Modern Fonts
Xerox Required Fonts
Xerox PC Emulation Fonts

If you are upgrading or adding a server housing a Print Service, you may need to add memory to your server if you are enabling the new image-gap reprinting feature. See the "Overview" section for information about this feature and its special memory requirements.

Run hardware diagnostics

It is important to ensure that your hardware is functioning at an optimal level before you begin this procedure. To run fixed disk diagnostics, refer to the "Running fixed disk diagnostics" section in the *Basic Troubleshooting of Network Services* booklet. To run removable disk diagnostics, perform Procedures A and B in the "Running removable disk diagnostics" section in the *Basic Troubleshooting of Network Services* booklet.

Fill out necessary forms

There are several forms in Appendix A that are useful for pre-upgrade planning. It is recommended that the appropriate forms be filled out before starting the upgrade procedure. The forms include:

SSI Form 1: Directory of Services on a Specific Server
IRS Form 1: Registering an X.25 Network
IRS Form 2: Registering an IRS Auto-dialed Circuit
IRS Form 3: Registering an IRS Dedicated Circuit
IRS Form 4: Registering an IRS Manually Dialed Circuit

SSI Form 1 is used to list the services on the server that are being upgraded. The IRS forms identify the circuits available for use on the server. Refer to the Internetwork Routing Service booklet for more information.

Enter the List Volumes command at each server you plan to upgrade and note the current usage figures

All Services Volumes must contain at least 1,000 free pages or have 3% free space. (Use the figure that represents the largest portion of the volume you are examining.) You should never operate any server when any one of its connected drives is more than 97% full. Any upgrade to Services 10.0 may fail due to lack of space for scavenger logs and to the anticipated 1% overall increase in filing overhead.

Stop queuing by all Print Services

This allows Print Services to process jobs currently in their respective queues and not accept any more jobs. If you fail to perform this preparation, all jobs which are queued when you start the upgrade must be resubmitted after the upgrade is complete.

Perform necessary backup activities

Use the following check list to make sure the Services Volume(s) and specialized databases and parameter files have been backed up. This must be done prior to upgrading each server.

Backup Checklist

1. Back up the Server Profile. (See the *Server Operation and Maintenance* booklet.)

2. Back up the Server Monitor Service database. (See the *Server Monitor Service* booklet.)

3a. If there are multiple Clearinghouses in your internet, verify that each domain in your Clearinghouse Service database has been replicated at least once. Use the

Clearinghouse Service **Show Status** command to determine which domains are resident on the server you are upgrading. Then enter the **Show Domain** command. The resulting display shows which Clearinghouses are believed to contain the specified domain. Write each of them down.

To verify whether the Clearinghouses that were displayed actually serve the domain, log on at one of them and enter the **Show Status** command. If the display shows the domain in question, the domain is replicated.

If one or more domains are not replicated to at least one other Clearinghouse, use the **Add Domain** command at the appropriate Clearinghouse. Refer to the "Replicating domains" section in the Clearinghouse booklet for the procedure.

3b. If there is only one Clearinghouse serving your internet, use the Clearinghouse **Backup** command to make a copy of the Clearinghouse database.

4. Back up the Mail Service database. (See the *Mail Service* booklet.)

5. If your server has a File Service you must make sure that you are prepared to restore your File Service volume(s) to their pre-10.0 state in the rare event of a failure of the upgrade to 10.0. Each of your File Service volumes will undergo an upgrade scavenge, and it is essential that you be prepared to return to the pre 10.0 version of that File Service Volume should that upgrade scavenge fail to complete successfully. Should the upgrade fail to complete successfully, consult your Analyst before attempting any recovery procedures.

Fixed Disk Procedure

Preparing for an upgrade of the File Service volume on a fixed-drive (10, 29, or 42 MB) server. To be fully prepared for an upgrade to 10.0, do the following:

1. Enter the **Offline Volume** command

2. Force an incremental backup, using the **Backup File System** command, so that all of the changes which have been made to your File Service volume since your last manual or automatic incremental backup are captured.

   Warning: If you have never used incremental backup, you must not begin this upgrade procedure, until you have completely backed up every File Service volume on the server. Refer to the OS 5.0 System Administrator Library File Service booklet and follow the instructions there for backing up your File Service. If you have any questions about how to achieve a complete backup, contact your Xerox Analyst.

Removeable Disk Procedure

Preparing for an upgrade of a File Service volume which is on an 80 or 300MB drive on a server which has a removable drive that can be used for backup. If your File Service volume(s) resides on an 80 or 300 MB drive, and there is an auxiliary removable drive of the same size or larger, do as follows:

1. Partition, if necessary, a disk pack that is to contain the duplicate of your File Service Volume.

   a. If the File Service to be backup up resides on an auxiliary volume, enter the **Offline Volume** and **Close Volume** commands for that auxiliary volume.

   b. If the File Service to be backed up resides on the primary volume, you must **Stop Services**, boot the server, specifying a non-normal startup. Select the number corresponding to the option "Interrupt before Opening the Primary Volume."

2. Enter the **Copy Volume** command and respond to the prompts by specifying the Source and Destination volumes.

3. If it is appropriate for your site to install the Services System software onto the newly copied volume: boot the server from the MP Panel Code (ie. 1,7,8,9) corresponding to the drive on which Services System Software is to be installed. Use the OS 5.0 (Services 8.0) or Services 9.0 Services System Software floppy #1, selecting the Install System Software option.

4. Finally, remove the duplicate pack from the server and store it away.

Backup to another File Service

Preparing for an upgrade of the File Service volume on a 300 MB drive that does not have a removeable auxiliary drive and is therefore being backed up to another File Service. Preparation for the upgrade to 10.0 requires the following for each of the volumes that contains a File Service:

1. Enter the **Offline Volume** command and select the File Service to be backed up when prompted to specify which File Service is to be taken offline.

2. Force an incremental backup, using the **Backup File System** command, so that all of the changes which have been made to your File Service volume since your last manual or automatic incremental backup are captured.

   Warning: If you have never used incremental backup, you must not begin the 10.0 upgrade procedure, until you have completely backed up every File Service volume on the server. Refer to the OS 5.0 System Administrator Library (File Service booklet) and follow the instructions there for backing up your File Service. If you have any questions about how to achieve a complete backup, contact your Xerox Analyst.

Summary of upgrade procedures

The procedures described in the "Step-by-step server upgrade instructions" section apply to a complete upgrade, including servers running 8.0 or 9.0 software or servers already running 10.0 software. The following descriptions summarize the upgrade steps.

Steps 1-3

Insert and boot from the Services System Software #1 floppy. If your server is the only server on the Ethernet, you are prompted to set the time. Select the option to install the System Software. After System Software installation is complete, start the server by either selecting the "Start System" option or booting the server.

Steps 4 and 5

Elect the non-normal server startup and confirm that you want to interrupt before running services. Scavenge the services volume at each server that is being upgraded from 8.0 to 10.0. Log on or confirm the start of Genesis Mode if one of the following conditions apply:

- The server houses the only Clearinghouse and Internetwork Routing Service on its network and is normally interconnected to one or more other networks by means of that Internetwork Routing Service.
- The server houses the only Internetwork Routing Service on its network which is normally interconnected to one or more other networks by means of that Internetwork Routing Service. There is no Clearinghouse on the temporarily isolated network.

Steps 6 and 7

If necessary, you set software options to enable new or additional service applications for use on the server. Install (from floppy) and activate all service applications which you want to run on that server. If your server is in Genesis Mode (because it houses the only Clearinghouse Service on an isolated Ethernet) and you are introducing one or more service applications to the server for the first time, you should run only the Clearinghouse Service and log on to end the Genesis Mode. This enables the new services to complete self-registration during their first-time initialization.

Step 8

Terminate server initialization by entering the **Proceed** command. Stand by to ensure that all services successfully complete validation, or first-time initialization in the case of newly added services.

Step-by-step server upgrade instructions

CAUTION: Make sure you have completed the tasks in the "Essential preparation for all upgrades" section. In particular, complete any backups, since this is your protection against permanent data loss that might occur as a result of an unsuccessful upgrade. Read the following instructions before you begin the upgrade procedure. Do not begin the procedure unless you understand the instructions as presented.

- To complete an upgrade from Service 8.0 or 9.0 to 10.0, perform steps 1 through 8, and then perofrm the upgrade follow-up steps that are relevant to the server.

- Step 9 is an upgrade step which is necessary on all multi-drive servers where the secondary drives are accessible as File Services.

- Step 10 is a post-upgrade reminder for server operators to check the scavenger log.

- Step 11 is a post-upgrade procedure which instructs the user to increase the limit on the maximum size of a file drawer, if necessary.

- Step 12 is a post-upgrade step that instructs the server operator to immediately backup the appropriate newly-upgraded services.

- Step 13 is an optional yet recommended post-upgrade reminder for changing all user passwords once all Clearinghouses have been upgraded.

Proceed to "Step 1 - Booting the Services Installer utility" to start a complete upgrade.

Step 1 - Booting the Services Installer utility

1. Log on, enable, and stop all services by entering the **Stop Services** command. (You must not begin to upgrade a server that has one or more drives that require scavenging. The 10.0 software cannot successfully correct inconsistencies in 8.0 or 9.0-based file systems. Such inconsistencies must be corrected by successfully running the 8.0 scavenger before attempting the upgrade.)

2. Type **Y** to stop services immediately and press <RETURN>. Verify that all services have stopped (by entering the **List Services** command) before continuing.

   Note: The Mail Service may take a while to stop even though you elected to stop it immediately. It does this because it attempts to resend all of the messages it previously had been unable to send.

3. Boot the Services Installer utility by inserting and booting the floppy labeled "Services System Software #1." Boot the server from 0002 by pressing both the ALT B and B RESET buttons. Release B RESET while still pressing the ALT B button. Wait for the maintenance panel to cycle to 0002 and then release the ALT B button.

```
Installer Version 1.0
Copyright (C) 1984, 1985 by Xerox Corporation. All rights reserved.
Processor=0AA00786AH=25200074152B=2-852-157-546
Memory size = 768K Bytes
```

Note: The memory size varies depending on the configuration of your server.

Before you see the above display, you may have to respond to a series of prompts which ensure that the clock-calendar card is set properly. This occurs if you have just booted your server and there is no other server on its Ethernet which is already powered up and on-line.

Note: On the prompt for time zone offset, type -5 for Eastern Standard time, -6 for Central Standard time, -7 for Mountain Standard time, and -8 for Pacific Standard time. In most cases, type 0 for the minute offset. Type the appropriate numbers for the Daylight Savings time prompts. (The values 121 and 305 are default values for those states using Daylight Savings time. For those states without Daylight Savings, type 0 for both entries.)

```
Locating Time Server...Time is not set.
Time zone offset from Greenwich[-12..12]: -8RETURN
Minute offset[0..59]: 0RETURN
First day of Daylight Savings Time[0..366]: 121RETURN
Last day of Daylight Savings Time[0..366]: 305RETURN
Correct time 16-Oct-85 19:29:50
Do you wish to change the time? (Y/N): YRETURN
Please Enter the date and 24 hour time in form
    MM/DD/YY HH:MM:SS
Time: 10/18/85 17:06:38RETURN
Set time to 18-Oct-85 17:06:38
Okay? (Y/N): YRETURN
```

Note: If you are upgrading a server with multiple drives, you see a menu displaying the drive selection. Select the drive (usually drive 1) which houses the primary volume.

```
Select drive to be used for subsequent operations:
    1  Drive 1
    2  Drive 2
    3  Drive 3
Enter choice number: 1RETURN
```

4. Next, the installer prompts with:

```
MAIN MENU:
    1  Services (for FD) or Services TRI (for RD)
Enter choice number: 1RETURN
```

The Services Installer menu appears on the screen. Proceed to "Step 2 - Installing system software."

Step 2 - Installing system software

```
Choices available:
    1   Install System Software
    2   Install System Software for Multiport Option
    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: 1RETURN
```

1. Type the number corresponding to "Install System Software" or "Install System Software for Multiport Option" if you have the Multiport Options board installed.

Note: The Multiport Options board must be installed before installing the System Software for the Multiport option.

3. Type **Y** to confirm.

```
Ready to Install System Software.
Continue? (Y/N): YRETURN
Installing System Software (part 1)...
Floppy closed
This Floppy Disk is labeled "Services System Software (Fixed Disk or RD) #1".
Insert Floppy Disk labeled "Services System Software (Fixed Disk) #2" in Floppy Disk drive.
```

You are asked to insert floppy disks #2 and #3 as they are needed.

```
Is the requested Floppy Disk now loaded? (Y/N): YRETURN
Installing System Software (part 2)...
Floppy closed
This Floppy Disk is labeled "Services System Software (Fixed Disk) #2".
Insert Floppy Disk labeled "Services System Software (Fixed Disk) #3" in Floppy Disk drive.
Is the requested Floppy Disk now loaded? (Y/N): YRETURN
Installing System Software (part 3)...
Floppy closed
System Software Installation Complete.
```

After installing System Software, proceed to "Step 3 - Starting the system."

Step 3 - Starting the system

1. You should now be at the Services Installer menu.

2. Type the number corresponding to the "Start System" option and press <RETURN>.

```
Choices available:
    1  Install System Software
    2  Install System Software for Multiport
    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: 3RETURN
```

After the system has been started, proceed to "Step 4 - Scavenging the services volume."

Step 4 - Scavenging the services volume

1. After starting the system using the installer utility, you are prompted to select a normal or non-normal server startup. Specify a non-normal startup.

2. Select "Interrupt before Running Services."

Your Services Volume must now be converted to work with the new 10.0 System Software.

```
User File System not Valid.
    Normal Scavenge? (Y/N): Y<RETURN>
```

3. Type **Y** to confirm a normal scavenge, and confirm the start of the operation. The scavenge operation can take nearly an hour for large (300 Mb) and full volumes.

Note: If you are using a removable disk, then the following message appears: "The File System on drive 1 will be scavenged."

```
User File System will be scavanged.
    Confirm (Y/N): Y<RETURN>
Scavenge started 16-Oct-85 20:44:21
Scavenging directories...done
Building data structures...done
Rebuilding directories...done
Writing log...done
118 files found.
Total elapsed time for scavenge: 1 minutes 1 seconds
See scavenger log for problems found
```

4. When the scavenge is complete, proceed to "Step 5 - Logging on."

Step 5 - Logging on

1a. Log on and enable after the Services > prompt appears. The prompt then becomes an exclamation point (!). Proceed to "Step 6 - Setting software options."

1b. You may not be able to log on if the server you are upgrading houses the only Clearinghouse in its Internet, or if it has the only Clearinghouse Service and Internetwork Routing Service on a temporarily isolated network. In this case, you see the following message.

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

CAUTION: Do not continue with the upgrade procedure if your server enters the Genesis Mode when it should not. If there should be a Clearinghouse Service accessible to it, take steps to bring that Clearinghouse Service back on-line

The three acceptable causes for Genesis Mode are:

- The server houses the only Clearinghouse in its Internet.
- The server houses an Internetwork Routing Service on a temporarily isolated Ethernet that is normally interconnected to an Internet. This site normally has no 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 onlyInternetwork 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 Internet. Since the server being upgraded provides the only means for interconnecting with the rest of the Internet, 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, you can continue to the next section ("Step 6 - Setting Software Options") to product factor new additional services.

Step 6 - Setting software options

Perform Step 6 only if you are adding one or more services or service options which did not run on the server previously, or if your server previously ran any of the following options: Formatting Print Service, 8000 Laser CP Print Service, or Boot Service.

The Software Serial Number (SSN) currently valid on your pre-10.0 server no longer allows Formatting Print Service, 8000 Laser CP Print Service, or the Boot Service to run. You need to enable them by obtaining one or more new SSNs. If your server isn't running any of these services and you do not plan to add a service that was not previously enabled, proceed to "Step 7 - Installing the services."

1. Type **Set Software Options** and press <RETURN> to display currently enabled options and current SSNs.

2. Type **Y** to confirm. You are then prompted to pick one or more product groups from which new options are to be enabled.

Note: Write down the current SSNs and then select one or more groups that contain options which you need to enable.

```
Standard Services Software
File Service
Communications Monitoring Service
200 DPI Printer Fonts

The Software Serial Numbers for this machine are:

Services Group I:  X 245Z CQ1P 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<RETURN>
    Product groups to be configured
    1  Services Group I
    2  Services Group II
    3  Printer Fonts
    Enter one or more choices:  1-3<RETURN>
```

3. Select multiple groups by separating the numbers by commas or by indicating a range with a hyphen (for example; 1,2 or 1-3). Determine the groups you need to select by looking at the following list of products:

Services Group I

Standard Services Software
Formatting Print Service
Remote Batch Service
Teletex Gateway Service
Electronic Printer Print Service
PassThru Print Service
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
File Service
850/860 Gateway Service
Internetwork Routing Service
  X.25 Communication Protocol
  Clusternet Communication
Interactive Terminal Service
Laser CP Print Service
Librarian Service
  Adobe Service
Communications Monitoring Service
Network Statistics Service

Note: The Clearinghouse Service, External Communication Service, Server Monitor 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

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

4. Next, you are prompted to enter up to three passwords, depending on the number of groups you selected. For example, if you specified all three groups, you would be prompted for three passwords as follows:

```
Three passwords are required to configure options in those product groups.
    Enter password for Services Group I:
    Enter password for Services Group II:
    Enter password for Printer Fonts:
```

Call the Software Business Center (1-800-835-9013) and report the current software serial numbers for the groups you wish to enable. Obtain the necessary password(s.) Return to the server and enter the passwords after the prompts. You are then shown the new list of enabled options. If it matches the list you intended to enable, type **Y** after the "Okay to Lock Options now?"prompt.

Note: If you type **N** to the prompt to lock the options, the software takes you back to the context you were in before you invoked the **Set Software Options** command. Return to step 1 under the "Step 6 - Setting software options" section.

Step 7 - Installing the services

1. You can install the services in any order.

   Insert the service floppy, type **Install Service**, and select the number for that service from the menu. The message, "Already Activated" appears after each existing service is installed. Any additional new services will prompt you to confirm activation of that service. Repeat this process for each service you are installing.

   Note: If you have a Multiport Options board installed, you install the multiport application floppy as if it were a service. Insert the application floppy, type **Install Service**, and select the number for the option from the menu.

   Note: Until you reboot your server, the Multiport Option will appear on the **Run Services** option list. When you boot, select a normal startup and wait for the server to complete its restart process.

2a. If your server was not in Genesis Mode, proceed to "Step 8 - First-time initialization requirements."

2b. If your server was in Genesis Mode and you just installed a service which was not running on your server prior to the upgrade, you need to end Genesis Mode, because a Clearinghouse must be accessible for first-time initialization of a service.

- If your server is in Genesis Mode because it is running the only Clearinghouse on the network, type **Run Service** and enter the number corresponding to the Clearinghouse Service. Specify a normal startup. Log on and enable, then type **Register Server**. This will cause the server to validate its Clearinghouse entry. Proceed to "Step 8 - First-time initialization requirements."

- If your server is in Genesis Mode because it is running the Internetwork Routing Service that is connected to a remote Clearinghouse Service, type **Run Service** and enter the number corresponding to the Internetwork Routing Service. If the Internetwork Routing Service is on a CIU, then run the External Communication Service first before running the Internetwork Routing Service. In both cases, specify a normal startup.

  Change the context to Internetwork Routing Service and type **Start Circuit**, if it is not configured to autostart. If the Internetwork Routing Service circuit was established via a CIU port, switch the context to External Communication Service and type **Verify Clearinghouse Entries** command. Log on and enable. Proceed to "Step 8 - Ending non-normal startup and initializing new services."

Step 8 - Ending non-normal startup and initializing new services

1. Type **Proceed** and press <RETURN>.

2a. Your upgrade is complete if you installed services which were previously running on the server. Do any of the normal activities that are required of you (described in the service-specific booklets) in order to restore your server to its normal working order.

Note: Until you re-boot your server, the Multiport Option appears on the **Run Services** options list.

2b. If you have installed one or more services which were not running on the server prior to the upgrade, you need to stand by to respond to the service prompts for first-time initialization. Below is a list of all of the services in the order in which they are run and the first-time initialization requirements.

Note: When you are naming a service, you only enter a "proper" name, not a fully-qualified name. The maximum number of characters allowed for a name is 40 characters. When entering a description of a service, you are allowed up to 80 characters.

Note: English characters are one byte each. Some foreign characters require additional bytes for accents, tildes, etc.

Clearinghouse Service

The first-time initialization of a second or subsequent Clearinghouse Service in an internet consists of the following:

- There is a pause while the Clearinghouse Service initializes its database.
- The Clearinghouse Service prompts for a name. You are only asked for a "proper" name, not a fully-qualified name (enter up to 40 characters).
- There is a pause while the new Clearinghouse Service is added to the distributed Clearinghouse Service database.
- The Clearinghouse Service reports that it is available to the network.

Communications Monitoring Service

- You enter the first component of the fully-qualified name (enter up to 40 characters). It is not necessary to include the domain and organization names, as these default to the server's domain and organization.
- You are prompted for a description of the service. You can use up to 80 characters.

Mail Service

- Enter the number of pages for new database. You must specify a number between 1500 and the maximum, which is 65,534. It is recommended that you multiply the number of users you need to support by 100 pages.

- Enter the first component of the fully-qualified name (enter up to 40 characters). It is not necessary to include the domain and organization names, as these default to the server's domain and organization.

- You are prompted for a description of the service. You can use up to 80 characters.

- If you enabled the External Mail Gateway option, you are asked for the line speed of the modem and the phone number for the local port.

External Communication Service

- Enter the first component of the fully-qualified name (up to 40 characters). It is not necessary to include the domain and organization names, as these default to the server's domain and organization.

- You are prompted for a description of the service. You can use up to 80 characters.

- You are warned that no ports have been assigned to theExternal Communication Service. This is normal. You can assign them later when all co-resident services have completed initialization. Refer to the first-time startup instructions in the *External Communication Service* booklet.

- Notice that the External Communication Service validates the entry twice. This is normal for a first-time External Communication Service initialization.

Internetwork Routing Service

- Enter the first component of the fully-qualified name (up to 40 characters). It is not necessary to include the domain and organization names, as these default to the server's domain and organization.

- You are prompted for a description of the service. You can use up to 80 characters.

- You are warned that no X.25 networks or circuits have been defined. This is normal. You can define them later when all co-resident services have completed initialization. Refer to the first-time startup instructions in the *Internetwork Routing Service* booklet.

850/860 Gateway Service

- Enter the first component of the fully-qualified name (up to 40 characters). It is not necessary to include the domain and organization names, as these default to the server's domain and organization.

- You are prompted for a description of the service. You can use up to 80 characters.

- You are warned that no configuration data exists. This is normal. You can supply this information later when all co-resident services have completed initialization. Refer to the first-time startup instructions in the *Gateway Services* booklet.

Interactive Terminal Service

- You are asked to supply the number of users allowed. The number you supply (1-8) will impose a maximum on the number of users which Interactive Terminal Service can support simultaneously.

- You are asked to specify the number of file pages per user. The number you supply (40-1250) will be an upper limit on the number of pages allocated from the primary Services Volume to each active user. (Refer to the *Interactive Terminal Service* booklet for more information.) This workspace is only used while the user connection is active.

- Enter the first component of the fully-qualified name (up to 40 characters). It is not necessary to include the domain and organization names, as these default to the server's domain and organization.

- You are prompted for a description of the service. You can use up to 80 characters.

File Service

- Enter the first component of the fully-qualified name (up to 40 characters). It is not necessary to include the domain and organization names, as these default to the server's domain and organization.

- You are prompted for a description of the service. You can use up to 80 characters.

  Note: This name is applied to the filing volume on the primary drive. When you confirm, the File Service software registers this name. It is applied to drive #1 filing volume, which is brought on-line and is accessible to network clients as a File Service.

If your server has secondary drives, each of them must be upgraded as well. Proceed to "Step 9 - Upgrading drives on multi-drive servers" section after all services have initialized.

Remote Batch Service

- Enter the first component of the fully-qualified name (up to 40 characters). It is not necessary to include the domain and organization names, as these default to the server's domain and organization.

- You are prompted for a description of the service. You can use up to 80 characters.

- You are told that the Remote Batch Service has failed due to lack of a port entry, a communication partner, and other profile information. This is normal. You can supply this information later when all co-resident services have completed initialization. Refer to the first-time startup instructions in the *Remote Batch Service* booklet.

Server Monitor Service

- The Server Monitor Service does not verify registration since it does not have a fully-qualified name.

Print Service

- You are asked to specify the printing device that is attached to your server.

- Depending on first choice, you may be asked to specify which version of the device you have.

- Enter the first component of the fully-qualified name (up to 40 characters. It is not necessary to include the domain and organization names, as these default to the server's domain and organization.

- You are prompted for a description of the service. You can use up to 80 characters.

Step 9 - Upgrading drives on multi-drive servers

Upgrading drives 2, 3, and 4.

If your server has more than one drive, you need to upgrade the Services Volume file system on each of these secondary drives.

1. Type **Open Volume** and specify the secondary drive(s) you wish to upgrade. As each drive is opened, you are prompted to approve a normal scavenge of that drive. Doing so causes the drives to be upgraded.

```
User File System not Valid.
    Normal Scavenge? (Y/N): Y<RETURN>
```

2. Type **Y** to confirm a normal scavenge, and confirm the start of the operation. The scavenge operation can take nearly an hour for large (300 Mb) and full volumes.

Note: If you are using a removable disk, then the following message appears: "The File System on drive (n) will be scavenged."

```
User File System will be scavanged.
    Confirm (Y/N): Y<RETURN>
Scavenge started 16-Oct-85 20:44:21
Scavenging directories...done
Building data structures...done
Rebuilding directories...done
Writing log...done
118 files found.
Total elapsed time for scavenge: 1 minutes 1 seconds
See scavenger log for problems found
```

3. Type **Online Volume** to make each drive accessible to the network community.

Step 10 - Checking the scavenger log

Type **Show Scavenger Log**. The "invalid modifedBy/filedBy/createdBy or readBy" attribute values are not a problem. The Scavenger changes these attributes if the name has a null domain and/or organization.

Also, there may be entries similar to the following example:

```
File ID: 0 0 0 6356B 0
Type: Star File type - 4365 (or 4366 or 4389)
Total problems: 1
Error 8--invalid attribute value
    attribute type:position
```

These entries are not normally a problem. If, however, any of them have the numbers 4365, 4366, or 4389 next to "Type:," you should read the note below. It contains recovery instructions for Viewpoint Record File users.

The Scavenger reports all name changes in the Scavenger log. Only files that were created or modified by software such as the Scavenger or Common Software files have name changes. The number of changes vary with the characteristics of the volume being converted.

If you find any errors other than the ones discussed above, refer to the *Server Operation and Maintenance* booklet.

Note: A possible side-effect of the upgrade to 10.0 may be experienced by users of VP List Manager Record Files. The sort order of views within a record file may be incorrectly rearranged.

List Manager software requires that the folders within a List Manager record file be ordered as follows:

Forms Folder
Error Folder
Base View
Other Views

Due to the possible side-effect of the upgrade, users who copy List Manager record files from newly upgraded File Services may need to rearrange the folders and views within the record file to achieve the required order shown above. If users do not rearrange the folders and views correctly, the workstation will crash when the user closes the record file.

Step 11 - Increasing the limit on file drawer size

In previous software versions, the **List Volume** and **List File Drawer** commands did not accurately report the number of used pages within the Services Volume file system. Now the server reports more accurately on overhead used by files.

A file drawer which was nearly full before the upgrade may be full or too full after the upgrade.

Type **Change File Drawer** to increase the limit on the maximum size of the drawer if this occurs.

Step 12 - Backing up newly-upgraded services

Use the following checklist to make sure the Services Volume(s) and specialized databases and parameter files have been backed up after an upgrade. Backups of the following items insure that the server operator will not have to downgrade a server in order to restore these items in the event of data damage.

Backup Checklist

1. If you have just upgraded a single-drive server (10, 29, or 42MB drive) and it has a File Service, you can resume your normal incremental backup activities. Your 8.0 backup increments will be treated as normal increments by the 10.0 Backup and Restore software. Do not delete your pre-upgrade increments until they become obsolete as a part of the normal backup schedule.

   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 Copy Volume, resume your normal incremental backup activities. Your 8.0 backup increments will be treated as normal increments by your 10.0 Backup and Restore software. Do not delete your pre-upgrade increments until they become obsolete as a part of the normal backup schedule.

   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: Even though your upgrade to 10.0 may appear to have been successful, keep the packs which have duplicates of each of your 8.0 volumes. Do not re-use these packs to make 10.0 duplicates. After 2 weeks of successful operation of your 10.0 servers, you can consider re-using these 8.0 duplicates.

   CAUTION: The duplicates you make of your primary pack, can be used to bring your server back on-line quickly. However, doing so can cause damage to your distributed Clearinghouse Service database if your server houses a Clearinghouse Service. In the event that you have to bring your duplicate primary pack online and it contains a CHS, follow the special procedure titled "Restoring a Primary pack containing Mail Service or Clearinghouse Service" in the Server Operation and Maintenance booklet.

2. Back up the Server Monitor Service database. (See the Server Monitor Service booklet).

3. If a domain has only one Clearinghouse Service, back up the database. (See the Clearinghouse Service booklet).

4. Back up the Mail Service database. (See the Mail Service booklet).

Step 13 - Changing user passwords

Changes in the 10.0 Clearinghouse software have increased the security of password storage. Once all Clearinghouse Services at a site have been upgraded and have had about three days to stabilize, you have the option to instruct all network users to change their password. This can be done by logging on to a Clearinghouse and typing **Change Password** as described in the *Clearinghouse Service* booklet.

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 possibly irretrievably lost.

To check the time, enter the **Show Time** command and make sure 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: Don't Operate off of the Ethernet

Never operate your server when it is unplugged from the ethernet. The Xerox network is designed as a distributed system and the server is designed to operate when continually connected to the ethernet. Some services, the Clearinghouse Service for example, maintain information which must be consistent with others distributed around the internet. This consistency is impossible if a server is unplugged.

Administrative practices

The Install Service command

Always use the **Install Service** command while the server is at the 3rd interrupt point. Although the command is available after the server has completed a non-normal startup, it won't always complete successfully. **Install Service** attempts to copy all files which are necessary in order to run a selected service from floppy to the server's primary Services volume. It does this if that service has been enabled for use on the server and if the service is not currently running.

When installing services and fonts from floppy by means of the server **Install Service** command or the Print Service **Install From Floppy** command, insert the floppy into the disk drive

first, and then enter the appropriate command. Do not remove the floppy while the install operation is in progress.

A service can be reinstalled as long as it is not currently running. **Install Service** automatically replaces all rigid disk files that are required for operation of the selected service, whether or not they are newer, the same date as, or older than, the floppy versions. If the install operation attempts to update one or more files that are currently loaded, the operation will fail to complete. This failure might be confusing in cases where the service being installed is not actually running.

Some services have files in common. If you attempt to install a service that shares files with a service already resident on the service, you must stop that service before installation, or the common file will not be updated.

Restoring from a duplicate primary volume pack

There is a new procedure in the *Server Operation and Maintenance* booklet that safeguards against database inconsistency which can result from placing a duplicate primary volume pack on line in a restore operation. The damage may occur if a server with a Clearinghouse Service suffers a failure of its primary drive, and the operator replaces the primary drive pack with a duplicate prepared on an earlier occasion by means of Copy Volume.

Local Console

At the local console, (the directly attached terminal) pressing the <BREAK> key when the server is expecting input from the user will enter undisplayable characters in the command buffer. Typically, the user will subsequently type in a legal command which will fail to be recognized.

The workaround is to cancel the command by pressing the CONTROL key and 'C' simultaneously. This will clear the input buffer, permitting the user to reenter the command.

Network Number Format

The network number of a server can be modified by editing the server profile. The official XNS format for the network number is x-xxx (e.g., 0-066). This format is not supported in the server profile. The server profile edit command (**Change Profile**) only accepts the decimal format (e.g., 66). Any attempt to input the official format will not be honored.

Show Scavenger Log

8.0 Scavenger logs can be displayed with the 10.0 software, but some of the Scavenger information is not available in the old format. When displaying an 8.0 Scavenger log in 10.0, the total number of problems will be 0 if there are no problems and -1 if there are problems. In addition, the elapsed time to Scavenge will always be 0.

Diagnostics

Show Ethernet Statistics Restrictions

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

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

Echo Test Restriction

There is a restriction for executing the **Echo** command in the Test context. At the "(more)" prompt, displayed after the "Echo test is started, press BREAK key to stop" message, if the user enters **CONTROL-C**, control will be transferred back to the command processing level, causing one of the following problems. If the user specified no feedback display, then the test will not let the user start another echo test for 5 minutes. If the user specified feedback to be displayed, then one of the following two problems may occur:

- Feedback continues to be displayed for 5 minutes and the test will not let the user start another echo test for 5 minutes.
- The server crashes with an Address Fault.

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

RS-232C Test Failure

When a Communication Interface Unit port is configured for TTY-Dialin use, the RS-232C test will fail with the message "Error: Channel already in use." The workaround is to re-configure the port for either TTY-Emulation use or TTY-Emulation-and-Dialin use, and repeat the test.

The port configuration can be modified by executing the External Communication Service command **Change RS-232C Port**. In particular, the port usage is modified by responding to the "Type of use for which port is intended" prompt. At this point the RS-232C test can be executed successfully. Remember to re-configure the port back to TTY-Dialin usage after completing the test.

Multiport Option Kit

Required software and hardware

There are 3 components which must be present on the server in order for the Multiport Option to operate. They are: the Multiport hardware, the correct version of Services System Software, (selected from Services Installer menu) and additional software which is installed from the Multiport Options floppy, a part of the Standard Services 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 Services System Software for Multiport prior to installation of 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 for Multiport without installing the Multiport Software:* Varied failures relating to the absence of required memory will result. The remedy is to install the software from the Multiport Options 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 performance of the server. Enter the **Delete File** command and specify "MultiportSDF.BCD" to be deleted 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 board. 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 the "Disable Remote Debugging" option is selected.

Print Service/Multiport incompatibility

The Print Service and the Multiport option cannot co-reside 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 only remedy for this predicament is to expunge the Print Service, or to delete the Multiport option (MultiportSDF.BCD). Note that deletion of the Multiport option to resolve this incompatibility problem is only reasonable if the Multiport hardware and System Software are not installed. In the unlikely event that the Multiport option can't reserve the memory it needs, you will receive the following error message:

> Configuration Error! Another service has control of special memory. Multiport Option can not run. Reboot Server.

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

Multiport option initially appears as a Service

When the software is installed from the Multiport options floppy onto the server, it initially appears as a service. This means that the operator is prompted to activate it, and that it appears in any displays which list services, i.e. the menu which results when the operator enters **Run Service**, or the display which results when the operator enters **List Services**. Erroneous reporting of the Multiport option as a service ceases after the server is restarted.

Boot Service

After invoking either of the floppy commands registered by the Boot Service (**List Floppy Files, Retrieve Floppy Files**), it is imperative to leave the floppy disk inserted in the drive for the duration of the command execution. Failure to do this can cause either a System Restart or an unresponsive server executive.

Although information about the Boot Service is displayed in the server.profile, it cannot be changed by the System Administrator. This information is drawn from a special Boot Service.profile which is a part of the Boot Service package as purchased.

Clearinghouse Service

Cautions

Upgrade Restriction

Upgrading an OS 4.x (Services 5.0, 6.0, or 7.0) Clearinghouse Service to Services 10.0 will result in the deletion of the OS 4.x (Services 5.0,6.0, or 7.0) database. DO NOT under any circumstances upgrade an OS 4.x Clearinghouse with Services 10.0 software. Upgrade OS 4.x Clearinghouses to Services 8.0 (OS 5.0) first, and then upgrade to 10.0.

Do not operate Clearinghouse Services off the Ethernet

Do not administer 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. For example, an entire domain or organization can be inadvertently destroyed, or rendered unusable for 30 days. The only safe exceptions to this policy result from explicit instructions from the Network Support Center, and these are made strictly on a case-by-case basis.

CHS backup is disabled in Multi-Clearinghouse Service configurations

If there are two or more Clearinghouses in a single internet, the Clearinghouse Service **Backup** command is automatically disabled. Administrators must replicate all Clearinghouse Service domains by using 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. Doing so causes unnecessary global database updates since a new name must be given to the new Clearinghouse Service. Follow the instructions in the *Clearinghouse Service* booklet for recovering a lost or damaged database.

Explanations of Unusual Error Conditions

Administrative commands

Some administrative commands such as **Compare Database** or **Add Domain** 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

Aliases

Use of aliases as group members sometimes causes incorrect results when the group with the aliases is listed using the **List Members** command.

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."

Names

It is abnormal for an established Clearinghouse Service to ask for its name when it is run. If this happens, reboot the server, select the 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 "CHAdminAImple" 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 signal is not mentioned in the Backstop Log, enter **Proceed**. When the Clearinghouse Service prompts for its name, enter its old name.

Groups

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.

If groups are used for access controls, then the way they are structured can greatly impact the performance of access control verification. The average time required to determine membership information increases with the number of names contained directly or indirectly (by nesting) in the group. Structures to avoid are:

- membership lists containing 100 members or more
- Heavily nested groups (having groups as members and having those groups contain more groups as members, etc.)

The closer a group membership gets to 100 individually specified names, the less acceptable the verification performance will be. If access control groups are constructed such that there is heavy nesting of groups, the Clearinghouse

which is consulted to perform the access verification may crash and the Backstop Log will have the "Out of VM" entry.

The Clearinghouse Service Database

Database entry disappearance

This is a rare occurrence that may immediately follow a power failure or an incorrect server shutdown which occurs during a Clearinghouse Service database change. Operators 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. Enter **Change Default** and specify the Domain:Organization containing the object in question.

3. Enter 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 internet 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 through use of the **Compare Database** operation. Compare an up-to-date Clearinghouse Service with one which is out-of-date. (You can do the above steps while using remote 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.

The Compare Database command

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 internet.

If you notice inconsistencies that last more than 24 hours, they may be due to failure to operate all of the servers continuously. The *Clearinghouse Service* booklet explains how to maintain consistency of the distributed Clearinghouse Service database through use of the **Compare Database** command.

Address changes

Should more than one Clearinghouse Service be moved or gain a new processor ID, it is necessary to invoke the Clearinghouse Service **Compare Database** operation at each affected Clearinghouse Service and target the operation at a Clearinghouse Service which has not just received a new address. If all Clearinghouses in the internet 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.

Domain considerations

If a Clearinghouses' copy of a domain appears to be 10 disk pages or less, and that domain should contain entries, then delete that copy of the domain and add it again.

Before deleting a domain: Never delete a domain unless you have made absolutely sure that it is served elsewhere, or unless you are sure that it is no longer needed in your internet. To ensure that a domain is replicated, connect to each server that is listed by the **Show Domain** command and use the **Show Status** command to list the domains that are actually served by those Clearinghouses. If one or more of them has a copy of the domain in question, it is replicated and can therefore be deleted.

Cautions about the Expunge Procedure

Before expunging

Enter the **Show Status** command to view a list of all domains which are served locally. Be absolutely sure that they are all replicated at one or more Clearinghouse Services, or that they are no longer needed in the internet. Once the expunge operation is completed, the entire database which was formerly maintained by the expunged Clearinghouse Service will have been deleted.

Before expunging a Clearinghouse Service from a server which has a public Mail Service, enter 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 only be the case 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 then boot again. Specify a non-normal startup again, interrupt before running services and then expunge the Clearinghouse Service.

Running CHS after MS expunge

If the Clearinghouse Service and Mail Service are co-resident and the Mail Service has been expunged, you must reboot the server before attempting to run the Clearinghouse Service. The Mail Service expunge operation has temporarily decommissioned data files which are essential to the Clearinghouse.

Partial expunges

Occasionally, Clearinghouse Service expunge operations are interrupted by server crashes. When this happens, the expunge operation can't be assumed to have completed normally. You must repeat it.

If the server is allowed 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 (even 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 the user approves the initial confirmation prompt, the Clearinghouse Service prompts for an additional confirmation. If the user enters **N** to abort the expunge at this stage, the Clearinghouse Service cannot be run or expunged until the server is restarted. If a second attempt is made to run or expunge the Clearinghouse Service before the server is restarted, the server will crash.

Administrative Practices

Change Domain Access

If you enter an incorrect user name during the **Change Domain Access** procedure, and the server is in Genesis Mode, the following error message will be displayed: "Problem: No such domain." It is usually the case that the user name entered was mistyped.

Naming conventions

When you create a primary user name, use only those characters accessible through the default keyboard. This excludes these characters:

Neutral double quote (")
Apostrophe (')
Back slash (/)
Circumflex (¢)
Grave (`)
Vertical bar (|)
Tilde (~)

If the above characters are included in a name, then an alias must be created that does not use them.

Wild Cards

It is inefficient to enter **Show Domain** and then to use asterisks (wildcards) in your domain specifier. If this is done, the command may not show progress from 15 minutes to three hours. The information that is finally displayed will correspond to an unidentified domain with a name matching the pattern.

Clearinghouse backup

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 accomplish an operation which requires access to a file stored on the server. To regain the required access, the System Administrator must disable and then enable again.

Operating Clearinghouses in multi-Ethernet Configurations

Manual updates

Inconsistency between instances of a domain is sometimes caused by slow update propagation. When inconsistency is noticeable, System Administrators have made the mistake of concluding that they should manually update out-of-date copies of a domain by going to each Clearinghouse Service

that serves the domain and adding or changing the same piece of information.

System Administrators who apply this manual method of repeating an update at each copy of a domain could actually cause cancellation of earlier updates concerning this piece of information.

Example The user's mailbox location, which is automatically recorded in the Clearinghouse Service by the Mail Service, will be canceled due to a later reentry of the same user. The mailbox must be added again before the new user can receive mail. The only useful remedy for slow update propagation is for System Administrators to manually invoke the **Compare Database** operation.

Dial-up internetwork links

The Mail and Clearinghouse Systems 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. The section entitled "Manually updating Clearinghouses connected via dial-up links" in the *Clearinghouse Service* booklet details the procedure for maintaining consistency of the distributed database when transient links are employed.

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 only require 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.

Common domain names

Two internets which have one or more domain names (domain:organization) in common cannot be merged.

Communications Monitoring Service

Change profile

The **Change Profile** command allows the user 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. The user is strongly recommended to use the commands available through the Communications Monitoring Service to manipulate values in the server profile associated with it.

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

Auto-logging messages

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 cannot begin until the first log 1 has been successfully stored on a remote disk.

Show Statistics

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

Automatic logging

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.

External Communication Service

Show RS232C Port Statistics

If the **Show RS232C Port Statistics** command is entered 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.

3270 SDLC software

When the Viewpoint or BWS 1.0 versions of 3270 terminal emulation software are used to connect to an IBM host via the ECS 3270 SNA option, the host's SSCP must send messages that can be displayed in 23 lines or less. If the host sends a 24-line message, it causes the entire terminal emulation screen to become a protected field, leaving no place for the user to type.

This restriction does not exist in the BWS 1.1 version of 3270 terminal emulation.

3270 SNA option

There can be up to eight simultaneous sessions when there is one connection to a host. There can be up to 12 simultaneous sessions when there are two 3270 SNA connections to the same or different host. There can be up to eight simultaneous sessions when there are three connections to the same or different host. There can be no more than three ports used for 3270 SNA at one time.

The 3270 SNA Communications Protocol option tends to use a specific type of server resource (processes) quite heavily. When there are many simultaneous emulation sessions active it is possible for the External Communication Service to usurp this limited resource and then attempt to use more with the result that the server crashes.

Since this type of resource is allocated, freed and reallocated constantly, depending on what services are running and what they are doing, it is impossible for administrators to be aware of when the limit is going to be exceeded or to take corrective action. Therefore, they must take care to configure the server such that the services are highly unlikely to exhaust this resource.

The **Add IBM 3270 Host** command prompts for a number of ports on the controller. The sum of these values for each active IBM 3270 SNA connection should not be greater than 12 if two ports are configured for use, and eight if three ports are configured for use. However, this sum should be less if other

services, other than the Communications Monitoring Service are co-resident.

Another problem that results from server overload is that 3270 emulation clients might lose their connection with the server housing the External Communication Service (the GAP connection is dropped due to lack of sufficient processor power). These sporadic failures can be avoided if servers which are heavily used for multiple, simultaneous 3270 SNA sessions do not house other services which tend to add a heavy load on the processor.

Do not place a heavily used 3270 SNA on a server with a Print Service, Interactive Terminal Service, Mail Service, Clearinghouse Service, or File Service. Adding memory to servers that support heavy use of 3270 emulation should reduce the problem of server overload.

The ECS Greeter

The External Communication Service Greeter's sign-on message ("Services 10.0 Greeter. Type CR to begin.") might not display on a remote terminal that is connected via a modem to an External Communication Service managing an 873 CIU for asynchronous dial-in or interaction with Interactive Terminal Service. If after five seconds of dialing or auto-dialing, the Greeter does not display its message, the terminal user should press <RETURN> to establish normal operation.

As an alternative to waiting five seconds following dialing, a user can wait until the Data Receive indicator on his modem is on, then press <RETURN>.

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

Access failure conditions

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

1. 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 it is possible to access other network services.

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

To verify the External Communication Service Clearinghouse entry, a System Administrator should issue the **Verify Clearinghouse Entries** command at the External Communication Service. The System Administrator should answer **Y** to the "Should all entries be verified? (Y/N)" prompt.

Ven-Tel modems

The External Communication Service supports Ven-tel modems on the RS-232C lines controlled only by Communication Interface Units. Ven-tel modems are not supported on local server RS-232C ports. The following problems may occur when using Ven-tel modems or other "smart modems" on the local port:

1. For dial-in lines, the Greeter will always detect that there is an active connection. This can lead to the Greeter and the Ven-tel modem continuously exchanging lines. This condition can be detected as continuously blinking send and receive indicators on the modems even when no connection is active.

2. For dial-out lines, the External Communication Service may not notice that a dial-out connection has been terminated. In addition, all dialing must be done through the Ven-tel user interface rather than using, for example, the Viewpoint emulation property sheet.

Access control group

When entering the access control group for terminal emulations, the System Administrator should be careful that the group name entered is valid. The External Communication Service does not check the validity of the name.

If an invalid group name is entered, all client connection attempts will return an error indicating that the client could not be authenticated.

RS-232C ports

The **Show RS232C Port Statistics** command does not count all transmission errors on IBM 3270 SNA links. In particular, only checksum errors are counted. Data-lost errors and invalid-frame errors are not counted. These are available through the **Show Statistics** command and in the Communications Monitoring Service booklet in the "SNA Driver Statistics" section.

If an RS-232C Port configured for Interactive Terminal Service is on a Communication Interface Unit and no auto-dialer is attached, the port cannot be preempted for TTY emulation even if it is marked as allowing such preemption.

A break (initiated by pressing the break key) cannot be received through RS-232C ports on a Xerox Communication Interface Unit (CIU).

When an RS-232C port on a Communication Interface Unit is assigned to TTY emulation or Interactive Terminal Service usage (that is, asynchronous communication), and a character is received with bad parity, this character is simply discarded by the Communication Interface Unit. The workstation or Interactive Terminal Service user receives no explicit indication

of this event, and will only be aware of the missing character if its absence is noticed.

An RS-232C 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.

Stop command

The **Stop** command always disconnects any active 3270 terminal users even if the System Administrator responds "No" to the "Disconnect active users?"prompt.

File Service

Read every note in the Backup/Restore section below. You need to know all of these issues before you can successfully carry out the backup and restore procedures. Do not wait until you run into a problem to read these very important notes over for the first time.

File drawer names

In 10.0, the File Service does not allow file drawer names with asterisks in them. The **Change File Drawer** command forces the user to change the drawer name, if this name contains an asterisk, before the operator is presented with the subsequent prompts provided by the **Change File Drawer** operation.

When entering names in a file drawer access control list after creating the file drawer, the names should be ordered with wildcard entries first, group entries second, and individual entries last to make access evaluation more efficient. Order the group names so that groups giving the most widespread access in the most efficient fashion appear first. The order of the wildcard and individual entries themselves does not matter.

Only the first 34 characters (34 English characters; possibly fewer foreign language characters) of the file name are relevant when it is sorted alphabetically within a directory or file drawer. Consequently, some longer files might appear to be out of order. This is a change in Services 10.0. Formerly, the first 48 characters were significant in determining the order of alphabetically sorted files within a directory or file drawer.

Expunging

The File Service does not provide a complete "expunge" capability. To fully expunge a File Service, use the **Delete File Drawer** command to eliminate any file drawers on the volume, and the Clearinghouse Service **Delete** command to delete the service name from the appropriate domain.

In addition, expunging a File Service does not automatically change or delete the field in a user's Clearinghouse entry which identifies a user's home File Service. Administrators should be careful to update all of the user entries manually. When the home File Service entry is obsolete, it is very difficult for users to determine what is wrong in storing/retrieving desktops.

Another irregularity in the File Service expunge operation is its failure to delete privately stored names of Services Filing Volumes which it has managed. The instances of volume names which it does not delete are stored by the File Service in a private location in the Services Filing Volume to which the name applies. Consequently, subsequent installation of a File Service on a server, which has one or more drives that were formerly managed by a File Service, results in the former names of the Services Filing Volumes being automatically applied by the new File Service.

This may be confusing to operators who have no knowledge of the previous File Service and who are expecting to enter a new name for each volume and to standby while the new fully-qualified names are registered in the Clearinghouse. Instead, the operator is not prompted for a name, but is told that validation of the existing name is being accomplished. This validation may, or may not succeed, depending on whether or not the Clearinghouse Service **Delete** command was used to delete the old names from the Clearinghouse Service.

Placing a volume on-line 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 on-line. 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". Next, the File Service reports that "VolumeRoot" is not a fully-qualified File Service name and prompts the user to enter the valid name, which it finally registers.

Backup/Restore

Removable disk pack

When a removable disk pack that is being used as a File Service volume is repartitioned or replaced by another File Service volume pack, the System Administrator must reboot the server and reset the backup parameters if automatic backup operations for the new File Service volume are to continue.

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

Backup data

Backup data created by 10.0 servers cannot be examined or restored on 8.0 servers. The following messages occur when an 8.0 File Service is presented with backup data created by a 10.0 File Service:

Floppy **Restore** and Floppy **Restore Container**:
The message "Not a backup floppy" is displayed and you are prompted to supply another floppy disk.

Rigid disk **Restore**:
After the first increment, the server displays the message "Done" and stops. No error message is displayed.

Rigid disk **Restore Container**:
The messages "container not found in this increment" and

"Done" are displayed, and the Restore Container operation stops.

Copy volume

If a damaged file is detected during backup, the message "Damaged file backed up *file-path-name*" will appear. If rigid disk has been selected as the backup medium, this message is misleading; the damaged file is not backed up and cannot be restored. For floppy backup, the damaged file is backed up, but cannot be restored.

Copy Container and **Restore Container** won't work if the source volume has a right parenthesis in the volume name. The workaround is to take the volume off-line, change the volume name, run the **Copy Container** or **Restore Container** operation, change the volume name back, and put the volume on line again.

Before restoring an entire volume using the **Restore File System** command, be sure backup is not set to run automatically. Since the restore process may take more than one day, automatic backup could start before the restore operation finishes. This complicates the restore process and may cause files not to be restored.

It is possible for the restore operation to fill a file drawer to capacity before it has succeeded in restoring all of the files to it. If this happens, the following message is displayed:

```
Allocation exceeded. Container:(file drawer name)
Continue with next file drawer (Y/N):
```

If you confirm the prompt to continue with the next file drawer, the server crashes. Don't confirm the prompt. Instead, apply the following workaround:

1. Note the name of the file drawer.

2. Boot the server and bring the File Service in question on line.

3. Enter the **Change File Drawer** command and remove the limit on the file drawer size; set the limit to 0. To prevent the same problem from occurring with other file drawers, remove the limits on all of them at this time.

4. Start the **Restore** operation again. Be sure to specify the current date as the restore date; otherwise the file drawer limit will be reset to its original value with the result that the drawer will overfill again.

5. Elect to restore from the most recent complete increment. After restoring from this increment, you can opt to skip restoration from previous increments until you are presented with the increment which overfilled the file drawer. Restore from that increment again and continue with the rest of the restore procedure.

When restoring from more than one backup volume, the current backup volume may not be removed from the drive until processing has begun on an increment on another volume. The easiest way to run Restore with this restriction is to have two backup volumes on-line at the same time, either on two servers or on two drives of the same server.

If it is not possible to have two backup volumes on-line at the same time, users must stop the Restore process, switch to the new backup volume, and then start the Restore operation again. When restarting, enter the same Restore-To date and skip the increments that have already been processed. Note that when Restore is restarted, information in the first increment is lost. Some deleted files will be restored in subsequent increments and space allocation limits or available volume space may be exceeded.

Interactive Terminal Service

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

Over 200 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.

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

Tabs 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 (→).

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

File Transfer from 820 Transferring files from the Xerox 820 to the Interactive Terminal Service using the SEND command and the PROTOCOL OFF option of ASCOM is not completely reliable. Users should use a communication package that implements the XModem protocol and file transfer operations when creating files (rather than file capture).

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

Memorywriter Printing 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.

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

Mail Service

Caution: Deactivating and/or stopping a Mail Service

Do not deactivate a Mail Service which is co-resident with a Clearinghouse unless you have read and fully understood the information in the Mail Service procedure titled "Stopping the Mail Service." The Mail Service should never be deactivated unless the co-resident Clearinghouse Service is also deactivated. The Clearinghouse database may become inconsistent, or the Mail Service database may be deleted by Clearinghouse operations.

If the co-resident 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 the server is rebooted after the Mail Service has been deactivated, 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 it has to in order to recover from an inconsistency in the Mail Service database. This would destroy all contents of the Mail Service database, including all user mail left there before the Mail Service was deactivated.

Caution: Aborting the Mail Service non-normal startup

There are some operations which are only accessible through the Mail Service non-normal startup choice list. After running the Mail Service explicitly and specifying **N** to the prompt to confirm a normal startup, the non-normal startup choice list is displayed. This list does not include an option which allows you to reverse your decision to apply a non-normal startup. Rebooting the server is the safest recovery, if you don't wish to accomplish any of the non-normal startup options.

Caution: Monitoring free space

Care should be taken by System Administrators to monitor the free space figure on primary Services Volumes which support a Mail Service. This figure should always be adequate to cover these special recovery needs:

a. In order for the **Restore** operation 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.

b. 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 some time during the life of your Mail Service, you should consider phasing out your Mail Service(s) which have databases which already exceed this new maximum.

Mail Service databases can't be reduced in size, therefore, you won't be able to overcome this somewhat risky configuration unless you move your Mail Service to a new server as documented in the *Mail Service* booklet procedure "Moving the Mail Service."

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. The **Shutdown Mail Service** command will empty the queues. Run it prior to expunging a Mail Service. Be sure to follow the procedure in the Mail Service booklet for proper decommissioning of a Mail Service.

Failure conditions

Expunge after effects

Occasionally, the Mail Service does not remove itself from the Clearinghouse as a part of its expunging activities. To verify that this error has occurred, use the **List Mail Service** command at each Clearinghouse Service which serves the Mail Service's domain.

If the expunged Mail Service name is still displayed at each of these Clearinghouse Services, this failure has occurred. The remedy is to enter the Clearinghouse Service **Delete** command at a Clearinghouse Service in the domain, and specify the name of the expunged Mail Service as the object to be deleted. The deletion will propagate automatically to the other Clearinghouse Services which serve the same domain.

If you have a server with a co-resident Clearinghouse and Mail Service, and the Mail Service has just been expunged, you must reboot the server before running the Clearinghouse Service.

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 for complete propagation of the new

Mail Service entry 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. It can be verified using 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** operation 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

The operator is prompted to approve a restart of the Mail Service if the server crashed during the preceding Mail Service restart (the activities which occur when the Mail Service is loaded and run for the first time after a server restart).

If there is a co-resident, activated Clearinghouse Service, and the server crashes during a Mail Service restart when there is no operator in attendance for some time, the Clearinghouse Service loads and runs automatically. It notices and begins reporting that the co-resident Mail Service is not started. These warning messages, sent to the console every few minutes by the Clearinghouse Service, may be so numerous that the Mail Service restart confirmation prompt has scrolled from off the screen. This may cause some confusion.

The server waits for the System Administrator to enter **Y** or **N** in response to the Mail Services restart confirmation prompt. The System Administrator should enter **Y** and then stand by to see if the Mail Service is able to restart. If it is, the System

Administrator should check the backstop log to determine the cause of the server crash.

The Mail Service always prompts you to confirm its restart if the previous restart was interrupted by a server crash or by the user pressing the boot button. (The term "restart", when applied to the Mail Service means the same thing as "run for the first time after the server has been booted.")

If a Mail Service with a co-resident, 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. After entering **Y** you should 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

Don't be surprised if the sum of all the mailbox sizes given by the "show mailbox sizes" option of the **List Mailboxes** command adds up to more than the total size of the database. Multiple recipients of a message share only one copy of that message, yet each recipient's mailbox will claim to own the storage that the message requires.

Deleting any one person's mail may not free up any storage space. All recipients of a shared message must delete the message before it can be deleted from the database.

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.

In the meantime you should be prepared to explain these circumstances to affected users:

a. If there are multiple Clearinghouses which serve the user's domain, and these Clearinghouses are not updated with the mailbox move, users might think that some of their mail messages are being lost. It is possible that some mail messages are being directed to the old mailbox and some to the new one, depending on which Clearinghouse is contacted to determine the address of the user's mailbox.

b. Each time users whose mailboxes have recently been moved retrieve their mail before all Clearinghouses in their domain have learned about the new mailbox

locations, they may be randomly connected to either their new or their old mailbox. Workstation users that don't delete all mail from the Mail Service each time the new mail is retrieved will notice the discrepancy in the backlog of undeleted mail. It will differ in the old mailbox from the new one. Finally, all of the mail will be moved to the new mailbox, causing another change in the total contents of the mailbox.

Monitoring database fullness

You should carefully monitor and take corrective action to prevent Mail Service databases from approaching 95% full. If the database should fill, the Mail Service cannot receive mail. If the database remains full for two working days, messages destined for that Mail Service are returned to their sender.

Just one full Mail Service database can slow mail delivery throughout the internet. Other Mail Services continue to try to deliver mail to the affected Mail Service. Mail destined for a healthy Mail Service sometimes has to wait in line behind mail destined for the Mail Service with the full database.

When users submit messages for delivery, they are usually posted at the nearest Mail Service. If the nearest Mail Service is full, the messages will be picked up by more distant Mail Services. This causes two problems: the network path followed by the message may be far longer than normal, and other System Administrators may notice abnormal increases in their Mail Service's workload.

Undeliverable mail

Users who send messages to user groups which have one or more invalid users usually do not receive an undeliverable message notice. Rather, a Bad Group Member notification is deposited in the postmaster mailbox, if one has been established.

The only case in which a message will be returned to the sender is if the group member(s) were valid members when the message was first processed by the posting Mail Service, but one of the recipients was removed as a registered user from the network.

Reading the postmaster mailbox

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

In a healthy internet, the incidence of dead letters should be very low. Consequently, a System Administrator 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, the System Administrator can discern something about the

reasons the message could neither be delivered or returned by noting the intended recipients and the original sender. Perhaps critical Mail Services--those of the recipients and those of the sender--have been out of service. Or, perhaps the necessary internetwork links have been down. If a message is directed to a group, the System Administrator cannot determine exactly which recipients did receive a message, and which ones did not.

Mail Service backup/restore operations

Show Status command

If Mail Service backup operation finds that a designated file drawer is full, it will delete its previously existing 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 the upgrade to 10.0 and the next attempted backup.

Warning: Restore deletes the Mail Service database first

As a part of the Restore sequence, any existing database, whether good or bad, is deleted in order 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 have no choice but to retry the restore, or to re-initialize. The Mail Service database repair operation will do no good since the old database has been deleted. Attempting to repair a nonexistent database may cause the server to crash.

Restore in Genesis mode

Do not attempt the Mail Service restore operation while the server housing the Mail Service 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't occur, but the database will already been deleted. Therefore, always make sure that a Clearinghouse Service is accessible to the server housing the Mail Service.

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

normal startup of the Mail Service and then do the restore operation.

Post backup

After the Mail Service database has been repaired, it may redeliver many messages that it had delivered just prior to being repaired. These may show up as duplicates in the recipients' mailboxes.

After a Mail Service has been restored, recipients may notice redelivery of old messages. These are messages that were queued for delivery at the time of the backup.

External Mail Gateway

Delete commands

Do not invoke the **Delete Foreign Gateway** and **Delete Foreign Domain** commands while there is mail on the gateway queue (as shown by the **Show Status** command). Use of these commands with mail waiting to be processed by the Mail Gateway may cause a server crash, and may prevent the server from coming up afterwards.

Wait until the **Show Status** command shows zero items in the gateway queue before using either of these commands. Also, be sure to avoid using these commands during ANY of the calling intervals associated with the local Mail Gateway.

Expunging

Be sure to apply the recommended procedure for expunging the External Mail Gateway. This procedure specifies that you immediately disable the mail gateway software option (Set Software Options), then enter the **Expunge Mail Gateway** command, and then boot immediately.

Failure to apply this procedure results in mail destined for the Mail Gateway accumulating in the Mail Gateway queues and remaining there indefinitely.

After the External Mail Gateway has been expunged, System Administrators 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.

Delete foreign domain

Should you try to delete a foreign domain (**Delete Foreign Domain**) soon after you added it, you may see the error message "Unexpected problem with Clearinghouse." The information about the new foreign domain did not yet propagate to the copies of the Clearinghouse Service domain which was consulted by the delete operation. To recover, repeat the operation later on after the information has propagated.

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 hasn't been completely removed. For example, mail which is destined to a foreign domain, formerly served by the expunged gateway and now served by a different and operational gateway, is returned; or, the message "that foreign domain already exists" displays when you try to configure a different mail gateway to serve a foreign domain formerly served by the expunged gateway.

The remedy is to enable the External Mail Gateway option again, re-configure the gateway with the same set of foreign domains, and expunge it again. See the procedure in the *Mail Service* booklet for expunging an External Mail Gateway.

Print Service

One known cause for Print Service crashes involves the printing of complex Interpress masters. These crashes should only occur in very unusual cases which are called address faults (in the backstop log) while printing a page.

Since all documents are tried twice, the Print Service will probably crash again at the same place before purging the master with a banner sheet that says:

Banner only: job purged from Marker at System Restart

For a document which has had such a crash, avoid further crashes by removing text or graphics from the page which was being printed when it crashed.

Image gap reprinting

When image gap reprinting is enabled, large or complex documents may not be processed. The server will stop functioning, although it will not display the 915 maintenance panel code. Since the image gap reprinting feature reserves 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, you must reboot the server, take a non-normal startup, disable the image gap reprinting feature, complete normal initialization of the Print Service, and send the document again.

Multiple floppies

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 "(More)" 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.

Other notes

If a font floppy is removed from the floppy drive before the Install From Floppy operation is complete, the **Install From Floppy** command might become unavailable if an attempt is made to invoke the command again.

To access the command again, Type **Stop Service** and select the number corresponding to Print Service. Then type **Start Service**, and start the Print Service again.

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

The System Administrator should 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 subsequently processed.

Electronic printers

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 execute the **Stop Service** command before entering the repair mode using the printer keypad. Printing and queuing can be either stopped or started.

The maximum lengthwise 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 approximately the bottom edge of the paper parallel to the long edge. Characters and graphics which are placed near this 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.

8040 Series and NS 8000 Laser CP Electronic Printers

The 8040 Series and the NS 8000 Laser CP Electronic Printers will get band overruns (white lines) with different types of documents. The NS 8000 Laser CP will overrun on documents which have many complex objects in a horizontal line when viewed in the Portrait mode (8.5 in. width X 11or 14 in. height).

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

The 8040 Series Electronic Printer will overrun on documents which have many complex objects in a horizontal line when viewed in the Landscape mode (11 or 14 in. width X 8.5 in. height). Band overruns may be completely eliminated by installing 1.5 Mb of memory and enabling image gap reprinting.

Some characters contained 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 one, is known to do this.

Facsimile Print Service

Telecopier 495-1

The standard Telecopier 495-1 attached to a Facsimile Print Service must be upgraded to the RS-232C 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 Telecopier 495-1's 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 the **Show Status** command displays the error message "Offline" rather than "Close Door."

Formatting Print Service

When a document processed by a Formatting Print Service is printed, all text within text frames will be printed, even text within frames which have been overlaid, regardless of the document's appearance at the workstation. The information specifying which text frame is on top is lost when the document is processed by the Formatting Print Service. You must remove the underlying text frames before sending the document to the Formatting Print Service to correct this problem.

The Formatting Print Service status message, "Forwarding Problem: Target Print Service not responding" may indicate that:

- The target Print Service was unable to respond to the request. The target Print Service was possibly down.
- The 9700/8700 Electronic Print Service already has a connection established with another network citizen. (The 9700/8700 Electronic Print Service supports only one SPP connection at a time.)

Interpress masters created by 860 or 820-II should not be sent to Formatting Print Service for printing at a 9700/8700 Electronic Print Service. There is no advantage in doing so. In addition, Formatting Print Service does not currently support Interpress masters generated by 860's with sequence insert file references. If such Interpress masters are sent to the Formatting Print Service, the corresponding job will be aborted, and a job termination summary will be printed.

Remote Batch Service

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

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

Add/Change Partner

The **Add Partner** and **Change Partner** commands allow a numeric value for file types in the range of 0 to 214783647. Values equal to or greater than 214783648 are incorrectly interpreted by the **Show Partner** command as negative numbers and will cause the server to crash.

RBS will re-create 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. Only meeting time conditions or only having the specified number of jobs waiting will not cause RBS to reconnect.

Server Monitor Service

Start Service command

You may use the **Start Service** command to start the Server Monitor Service, but this will preclude you from restoring the Server Monitor Service database from a remote location. If the **Start Service** command is used to start the Server Monitor Service, the Server Monitor Service will always use the local database file. If no database file is found, then an empty database will be created.

The Server Monitor Service has an additional command, **Start** (available under the Server Monitor Service context to enabled Server System Administrators) that prompts you whether you wish to restore the database from a remote location. Use this command rather than the **Start Service** command.

Remove Monitored Server command

When removing a monitored server from the Server Monitor Service database with the SMS **Remove Monitored Server** command, the server being removed must be specified by its address if its name has already been deleted from the Clearinghouse. It is generally true that addresses can be specified instead of server names in response to Server Monitor Service prompts for server name.

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A. Forms

This section contains forms useful for installing and upgrading server software.

The forms are:

SSI Form 1: Directory of services on a Specific Server

IRS Form 1: Registering an X.25 Network

IRS Form 2: Registering an IRS Auto-dialed Circuit

IRS Form 3: Registering an IRS Dedicated Circuit

IRS Form 4: Registering an IRS Manually Dialed Circuit

When you plan to install or upgrade software, copy and fill out any of these forms you may need. This will make your entry of parameters at the keyboard faster and more accurate.

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B. Additions to the Network Administration Library

Gateway Service

Adding a Mail Clerk

When adding a Mail Clerk for the Gateway Service, a fully-qualified name must be used when entering the name. Aliases are not acceptable. If the correct name is not used, the mail clerk will be unable to receive mail from 860 users.

Interactive Terminal Service User Guide

The following two messages occur when users exceed the time limits for inactivity during an Interactive Terminal Service session.

Continued inactivity will force disconnection in fifteen seconds

When users select Interactive Terminal Service from the External Communication Service Greeter, they have 15 seconds to issue a command. This error message is displayed when the time limit is exceeded.

Continued inactivity will force log off in five minutes

Once the user is logged on, if there is inactivity for five minutes or more, this error message will be displayed.

Remote Batch Service

Naming received files

In previous Remote Batch Service releases, a unique output file name was generated by Remote Batch Service from the current date and time, the data conversion being performed, and the name of the current partner. In Services 10.0, users may specify their own output file names.

When a unique name is specified in the input data, that name will be used for the output data. The position of the characters must fall within the first 100 lines of the document (where "line" is zero or more text characters ending with a carriage return). The name should be placed at the beginning of the file for best performance.

The file name you create is preceded by a keyword which is not case sensitive. A right parenthesis ")" cannot appear anywhere before the keyword. The maximum length of a file name is 80 characters. Use the following format:

RBSRECEIVEDFILENAME:(<*number of characters in name including spaces*>)<*name*>

Example RBSRECEIVEDFILENAME:(27)Phillips-Testing Procedures

The name statement can be included in the data being sent. It can also be placed as a comment in the JCL for the job (in the case where the JCL is listed and returned with other text in the same file).

Location of the name character string occurs after conversion to 860 document format. The name that is generated is not validated, so it is possible to generate a document name containing non-printable characters.

Server Monitor Service

One of the following error messages appears if a user attempts to register a server to be monitored, and that server does not have Internetwork Routing Service installed.

Added but register failed. Server does not have event reporting service, but SMS will monitor it

The System Administrator is attempting to add a monitored server which does not have Event Site Reporting software running. However, the Server Monitor Service will still monitor the server.

Verify <server> failed. Server does not have Event Reporting Service, but SMS monitors it

The System Administrator is attempting to verify the binding with a monitored service which does not have the Event Site Reporting software running. However, the Server Monitor Service will still monitor the server.

Server Operation and Maintenance

Changing the network number

Changing the network number is an operation which you will rarely ever need to perform. However, should it become necessary, you should follow the steps listed below:

1. Disconnect your network from all other networks.
2. Turn off all of the servers except for one (which will be referred to as Server A). This server should include the Clearinghouse Service.
3. Using Server A, enable.

4. Type **Change Profile** and press <RETURN>. You will see the following:

   Section to be changed
   1 Clearinghouse Service
   2 Server
   Enter choice number:

5. Type **2** in response to the "Server" option and press <RETURN>. You will see the following:

   Entry to be changed
   1 Server Version
   2 Network Number
   3 Server Name
   4 Server Description
   5 Active Service
   6 Number of Remote Execs
   7 Local Terminal Type
   8 Remote Terminal Type
   Enter choice number:

6. Type **2** in response to the "Network Number" option and press <RETURN>. You will see the following:

   Network Number:

7. Type the Network Number (e.g., 1-234) and press <RETURN>.

8. Reboot Server A. Specify a non-normal startup. Then select the "Interrupt before running services" option (interrupt 3).

9. Type **Run Service** and press <RETURN>. Type the number corresponding to the Clearinghouse Service. Specify a non-normal startup. Select the number corresponding to the "Run, but don't start" option.

10. Log on and enable in the Clearinghouse Service context.

11. Type **Delete** and press <RETURN>. Enter the name of the server and press <RETURN>.

12. Type **Proceed** and press <RETURN>. Make sure you receive a message that the server is connected to the correct network number.

13. Power up and reboot the rest of the servers. As each one boots past normal startup, watch to ensure that a message is received that it is now connected to the new network number.

14. You must also make sure that Self-Registration for the Server name, the Volume names (if a File Service), and the Services names succeed. The System Administrator will have to log on to make that possible since the Clearinghouse entry will have to be changed.

If Self-Registration fails, the name of the server should be deleted at the Clearinghouse by using the **Delete** command.

15. Reboot all workstations on the net and get new icons for anything on the network whose number has changed. Note that it may take a while for the Clearinghouse changes to propagate. Use the Clearinghouse **Compare Databases** command, if necessary.

16. Reconnect to the other networks.

17. Inform any other sites who access your servers that they will need new icons.