OS 5.0 RELEASE DOCUMENT

XEROX

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All text prepared on the Xerox 8010 Information System

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1. OVERVIEW

Highlights

The Office System 5.0 release significantly expands the Network Services and the Star Workstation capabilities. The Highlights Section describes the capabilities and user benefits of Office Systems 5.0 to our users. The second section, Feature Descriptions, provides more detailed descriptions and explains the new features within our software structure.

External Communications to Access Host Computers

This release further integrates Xerox 8000 Network Systems with the host computer world (particularly IBM and DEC). OS 5.0 offers new access links to numerical information found in data processing databases.

- *3270 SDLC/SNA Communication Protocol* - This new services option, along with 3270 Emulation on Star, now provides access to IBM hosts which support the SNA environment using SDLC communication protocol.

- *VT100 Emulation* - VT100 Emulation is a Star Workstation software option which allows the user to communicate interactively with Digital Equipment Corporation (DEC) mainframes by emulating DEC's most common terminal family (uses Asynchronous Communication Protocol at the network server).

- *Remote Batch Service* - The new RBS option provides remote job entry and/or document interchange between local networks and remote data processing systems and/or other word processing devices. With the new ITS Filing capability, remote terminal and workstation users may also use the RBS feature.

Document Distribution

OS 5.0 expands the users ability to distribute and exchange information through five new or enhanced capabilities:

- *Distributed Mail* - OS 5.0 (which makes Mail Service a separate service), simplifies multiple recipient mailing by allowing the use of distribution lists and individual mail services for each network. OS 5.0 continues to provide users the ability to send not only messages, but to distribute documents of any length, including graphics, records, spreadsheets and other data types.

- *External Mail Gateway Option* - EMG provides mail exchange between separate (non-IRS) Xerox 8000 networks without providing access to printing and filing (for example, mail between two companies).

- *Facsimile Printing* - The connection of the Xerox 495-1 facsimile device to a network server enables worldwide document distribution to any CCITT Group 1, 2, or 3 remote facsimile device, and offers local printing.

- *Clusternet Communication* - A new Internetwork Routing Service option which allows Remote Star users to access the the internetwork via voice-grade dialed telephone lines.

- *X.25 Communication Protocol* - A new Internetwork Routing Service option is a new way of connecting Xerox networks through switched lines rather than leased lines.

New System Configurations

This release enables additional hardware configurations that expand the local area network system configuration.

- *Remote Star Workstation* - Remote Star allows the remotely located user to participate as a full network citizen through communications with the network.

- *Standalone Star Workstation* - Standalone Star is a workstation alternative for applications which do not require access to network printing, filing, mailing and terminal emulation capabilities.

Network Administration

OS 5.0 offers several additions and enhancements to generic network capabilities increasing simplicity, flexibility, configurability, management and expansion of the network architecture.

- *Standard Services Software* - The OS 5.0 redesign provides a common base for all network services, a system profile to self-register each service, major improvements to the

Clearinghouse, and added functionality through the External Communication Service.

- *Remote System Administration* - RSA allows System Administrators to perform network administration functions from Star or other remote TTY terminals.

- *Clearinghouse Service Enhancements* - The replicated domain database, automatic database update, and network security features improve the reliability, efficiency and accessibility to network resources.

- *Server Monitor Service* - SMS provides a new tool for the System Administrator to measure server availability.

- *New and Improved System Documentation* - The OS 5.0 System Administration Library provides new system resource documentation and reference materials.

Network Citizenship

The number of network users will be dramatically increased with the addition of three new network citizens.

- *Xerox Network Services/IBM PC* - This combination software and hardware product enables the direct connection of the IBM PC to the network with access to filing, printing and mailing and TTY communications.

- *Xerox Network Services/DEC VAX* - This product will enable direct connection between the VAX computer and the 8000 Network System, providing the VAX user with network services and the Star user (with TTY or VT100 emulation) with VAX access.

- *Facsimile Printing* - The Xerox 495-1 facsimile device connected to a network server provides the network user access to local printing and remote distribution of documents. This enables worldwide document distribution to any CCITT Group 1, 2, or 3 remote facsimile device, and offers local printing.

File Storage and Retrieval

OS 5.0 includes enhancements to the File Service to support the overall goal of network systems, that of information management.

- *Multi-drive Servers* - The 80 and 300 Mb Large Capacity Server configurability has been expanded for multi-drive support with up to four drives.

- *File Service Enhancements* - Incremental backup and remote backup have been provided to support improved data recovery and backup capabilities. The maximum size (disk page limit) of file drawers can now be controlled by the System Administrator.

- *ITS Filing* - The added filing capability to the ITS option allows remote PC and terminal users access to file servers and services and hence, the use of RBS.

Document Creation

OS 5.0 introduces to professional workstation users a group of features which expand the creation, integration, and production of documents, supporting a wide range of applications.

- *Spelling Checker* - This optional workstation tool provides a 90,000 word English dictionary for automatically locating spelling errors in a Star document and for assisting in the correction of those errors.

- *Document Interchange Format* - Document Interchange Format (DIF) is an new option for the 8010 Workstation that provides a way of encoding simple documents in order to interchange them between Star and word processors made by Wang, DEC and others. This option is based upon the document interchange encoding conventions developed by a group of companies (including Xerox), at the request of the U. S. Navy.

- *Document Handling* - Several long document enhancements such as relaxing the 40 page document limitation, eliminating the 256 page number limit, and adding the multi-page table paginated for print output capability are included in this release.

- *Document Formatting* - Column Balancing eliminates the need for manual adjustments of multi-column text.

- *Forms* - Forms handling enhancements include assigning tables to the fill-in order previously restricted to re-ordering form fields only.

- *860 ⇔ 8010 Conversion* - Four features have been added to the 860 conversion enhancements: 860 landscape conversion to 8010 landscape, 860 page number conversion, 860 page label conversion, and 860 tab conversions.

- *Spreadsheet Conversion* - Spreadsheet conversions between Star Spreadsheets and VisiCalc™ PC Spreadsheets are now possible with the increased functionality of the converter icon.

- *Fonts* - Several new display and print fonts have been added with this release: 6 point Math Classic and Modern, 30 and 36 point Modern, OCR-A and OCR-B 10 pitch (printwheel), VT100 Terminal, 860 required additions to Letter Gothic and Scientific, and Greek characters for 8, 10, 12, 14, 18 and 24 point Classic fonts.

- *Performance Improvements* - OS 5.0 offers increased speed in opening documents, closing the paragraph property sheet, and pagination. RP improvements provide quicker display of tabular views of record files and easier specification of special tabular views. The text backing store mechanism has been modified to provide performance improvements in [nexting] through fields and in [thumbing].

International

These features have been included in the OS 5.0 software release to support our International and Extended Language Option users.

- *Chinese Tableware* - The ability to prepare documents in Chinese has now been added to our multilingual capability. This is a new software option, used in addition to the Extended Language Option to provide Chinese fonts and dictionary, that enables Chinese document preparation and editing.

- *Multinational TTY* - The multinationalization of Star's TTY Emulation allows the use of national variants (within the ISO 646 ASCII character set) with the TTY feature.

- *Interim Gaiji* - Several Gaiji characters (frequently used Kanji characters) have been added to the Japanese Tableware in OS 5.0.

Feature Descriptions

Details of the Office Systems 5.0 release are described below in two major sections: 8000 Network Services and 8010 Information System. The feature descriptions are organized to reflect the software structure. A third section, entitled Network Administration, describes the combined service and workstation software areas that improve the network management functions.

For more detailed information refer to the OS 5.0 Product Descriptions contained in the OS 5.0 System Administration Library.

8000 Network Services

The Services System Software (formerly called Services Common Software) is the part of Standard Services Software that provides the basic environment necessary to run services. It consists of the Pilot operating system and the software that allows 8000 processors to act as servers. The Standard Services Software package includes three services (Clearinghouse, External Communication, and Server Monitor) that can be optionally installed and run on that server. The changes and additions to the Standard Services Software from OS 4.x to OS 5.0 are summarized in the following table.

Standard Services Software Package

OS 4.2	OS 5.0
Services Common Software Pilot Operating System	Services System Software (includes Pilot operating system) • Services Executive • Server Profile • Server Self-Registration • Services Statistics
Clearinghouse Service	Clearinghouse Service • Replicated CH Domains • Auto Database Update • Secured Access
External Communication Service	External Communication Service • Port Access Controls
N/A	Server Monitor Service • Server Activity Data

Services System Software

Services Executive

The Services Systems Software provides the Services Executive interface that the System Administrator uses for installing services, and for configuring, maintaining, and troubleshooting the server and the services. Remote system administration from the 8010 Workstation or from dial-up teletype personal computers or terminals is now possible, because multiple, concurrent instances of the Services Executive can be provided.

General users can now log on and use commands to change objects which they own or to which they have appropriate access. For example, users can change the access controls on their file drawers, add or delete members from Clearinghouse Service user groups which they administer, and change their own password. Any user, logged on or not, can view non-sensitive information displays such as various lists of documents in the print queue.

Server Profile

Each server and each service now records important parameters in a local file called the Server Profile. This file is the source of network information needed by the server or the service during initialization. Before OS 5.0, this information was resident only in the Clearinghouse Service. Because of this change servers and services are not as dependent upon the Clearinghouse.

The System Administrator uses the Server Profile to set the number of "remote executives" for Remote System Administration, and to hold configuration information used by many communication services.

Server Self-Registration

The System Administrator's job is partially automated because a new activity called "self-registration" now occurs each time a server or service initializes. During initialization, the server or service checks its current entry in the Clearinghouse. If it finds no entry, it automatically creates one. If it finds an entry, it checks the contents, ensures that they match the corresponding values in the Server Profile, and then proceeds.

Server or service registration was formerly done manually by the System Administrator. It involved specification of the server's

processor identification number and network number, which now can be done automatically.

Services Statistics

This release provides the System Administrator with valuable server and service data. Using the Remote System Administration capability, the following types of information can be captured and retained in document form:

Clearinghouse Service status to show database size, percent full, boot time, and uptime.

External Communication Service status to show RS-232-C port statistics, including session statistics, and current 3270 controller and user information.

File Service statistics that indicate the number of connections, the minimum, maximum, and average connect times, and the number of open, delete, store, and retrieve operations.

Gateway Service port configuration and traffic information.

Internetwork Routing Service status to show the telephone line statistics for active circuits, including X.25 circuits.

Mail Service statistics such as percent full, number of mailboxes, backup status, and Mail Gateway status.

Print Service status to indicate the number of free pages per volume, the number of disk pages queued, and operational parameters.

Remote Batch Service statistics that contain load indicators for jobs sent, received, or aborted, and communication and resource usage information.

Clearinghouse Service

The Clearinghouse Service provides a system-wide directory of all the components of the Xerox 8000 Network System for answering queries from all workstations and servers on the internet about services, users, and groups of users. All network citizens rely on the Clearinghouse Service for authentication of user credentials at log on, and when users need to access protected resources such as file drawers and communication ports.

Replicated Clearinghouse Domains

The domain replication feature of this release ensures data consistency and multiple access paths among the replicated network databases. Because Clearinghouse domains may now be replicated to one or more servers on the same or a different network, network downtime is reduced by not having to rely on a single server for the Clearinghouse database. Even in smaller, single network installations, replication of the Clearinghouse domain can and should be done if there is more than one server.

Replication improves domain reliability since other instances of a domain are still on-line and accessible when one Clearinghouse is temporarily out of service. It also improves the efficiency of the Clearinghouse system because domains can be strategically positioned where they are most frequently accessed. In single server installations, where replication is not possible, the Clearinghouse supports backup of the Clearinghouse database to the local file service or to floppy disk.

Automatic Database Update

This release provides a database update facility that maintains an up-to-date, distributed Clearinghouse database when multiple Clearinghouse databases co-exist on a network. Xerox Clearinghouse database is easy to update because all system elements receive the new information almost immediately. The multiple Clearinghouse Services automatically propagate the other Clearinghouses to bring each other up to date about the location and changes to network resources. This automatic updating results in a distributed database that maintains an accurate directory of all elements in the network community. Clearinghouse update propagation and automatic database comparison take place in the background.

In off-peak hours (between 2:00 AM and 6:00 AM), each Clearinghouse compares its database with other Clearinghouses in the system to ensure data consistency. This comparison can also be initiated manually by the System Administrator when a Clearinghouse has been off-line for more than 24 hours.

Secured Access

The Clearinghouse Service in this release supports network security with an authentication facility which verifies user credentials before allowing the user access to both the network and protected resources.

The Clearinghouse and its network clients now employ the Xerox Authentication Protocol when passwords are verified at logon or before access to a protected resource is granted. Encryption is the

basis for the new, more secure authentication so an intruder cannot masquerade as a legitimate user.

External Communication Service

The External Communication Service (ECS) is one of the compatibility service components of Standard Services Software. It supports information exchange between Xerox 8000 Network System workstations and servers and a variety of foreign systems and devices.

Port Access Controls

The OS 5.0 release improves the ECS component of Standard Services Software by providing additional management tools to control port access. This gives the System Administrator control over who can access computers from the network. The user must have the correct password to get onto the network, and have access rights to terminal emulators. The System Administrator can utilize the new ECS port access controls to designate the use of asynchronous ports or 3270 ports to specific users or groups.

Xerox can now support both types of 3270 Communication Protocols. Another IBM mainframe link can be made with the new software option, SDLC/SNA (Systems Network Architecture) Communication Protocol, introduced in this release.

3270 SDLC/SNA Communication Protocol

This option further integrates the information in the IBM world and the Xerox world, extending the number of resources available to the Xerox 8000 Network System users. The cluster controller emulation software option of the External Communication Service emulates an IBM 3276-12 controller by converting IBM SNA protocols into Xerox 8000 Network System (XNS) protocols and vice versa.

Interactive terminals supported by this protocol are Star Workstation with 3270 Terminal Emulation of IBM's 3278 Model 2 Display Station and the 860 Information Processing System operating with 6.401 and 3270 software. Like the IBM cluster controller, the ECS supports up to eight interactive sessions with an IBM host at one time. This is an optional software package that runs on an 8000 server with the External Communication Service.

Asynchronous Communication Protocol

VT100 Terminal support has been added to this optional compatibility service (formerly called TTY Communication Protocol), enabling users to interact with time-sharing computers that support TTY-like emulations. External Communication Service also introduces the "Greeter" function when the Asynchronous Communication Protocol option is enabled and the communication port is designated for dial-in access. The Greeter provides the initial user interface to dial-in users. It allows users to select the type of network service (File or Mail), to perform directory listings of possible candidates within the appropriate Clearinghouse domain, and to alternate between services without ending sessions.

Server Monitor Service

The Server Monitor Service is an additional Standard Services software feature that enables the System Administrator to periodically sample a server for availability. It maintains a database of information which includes the configuration of the target servers being monitored, the frequency with which a given server should be polled, and lists of interested users. Problem reports are sent to interested users via mail messages.

System Administrator

The Server Monitor Service offers the System Administrator the ability at pre-set intervals to record server activity information, which includes the server's present state, the amount of time it was down and unavailable, the amount of time that it was up and available, and the last time the Server Monitor Service communicated with it. The control and query commands are accessed through the Server Terminal or through Remote System Administration.

Non-System Administrator

Users who are not System Administrators can access the Server Monitor Service to list all the monitored servers and the users to be notified, and to display the configuration of the servers being monitored and the accumulated information on the servers.

Other Services Software Packages (In Alphabetical Order)

File Service

The File Service expertly manages and controls shared storage space on a server, and allows users to consolidate and share files with other users on the internet. Several major enhancements to the File Service have been made as a result of this release.

Multi-drive Support

It is now possible to configure a large capacity file server with up to four 80 and/or 300 Mb drive combinations. A single 8000 NS Processor can NOW support up to 1.2 Gb (Gigabytes) of storage capacity.

Each drive supports an independent logical volume to ease System Administration, and to provide greater file service flexibility. The System Administrator assigns each volume a name by which users are able to access it. The assigned names are bound loosely to the processor of the server machine, permitting movement of individual volumes between processors, if necessary.

Backup Improvements

OS 5.0 provides the System Administrator with enhancements to improve the support of data recovery and increase backup capabilities. This release offers incremental backup to a selected File Service (80 or 300 Mb drive) in addition to the previous copy disk backup facility (now called copy volume). Backup via the Ethernet is also possible from one server to another. Unattended backup can be accomplished by setting the timing for automatic start of backup as specified by the System Administrator to coincide with reduced workload time periods. Automatic restart can be specified so a server will reboot after completing backup.

File Drawer Size Control

OS 5.0 provides System Administrator control over the size limits of file drawers. A maximum number of disk pages can be allocated for each file drawer.

Interactive Terminal Service (ITS)

This release adds filing capability to the Interactive Terminal Service option. ITS clients can store and retrieve files in addition to their previous mailing capability. This option expands network file sharing, document interchange, remote batch service, and other applications that require shared-access filing. Interactive Terminal Service now relies on the External Communication Service to answer and route incoming calls to specified Interactive Terminal Services.

Reliable file transfer is now possible between PC's and terminals using the XModem protocol and the Xerox Network System supported by Interactive Terminal Service in OS 5.0. This capability increases the possibilities for information exchange between XNS citizens and remote, non-networked citizens. Support of the XModem protocol enables file exchange between PC's using different operating systems that also may have different disk sizes and formats.

Interactive Terminal Service now allows users of dial-in teletype devices to move, copy, or delete files at the File Service depending on the prevailing file drawer access controls.

Interactive Terminal Service now allows users of dial-in teletype devices to create, edit, and store files at the File Service within the limits of user workspace allocated per ITS user and the type of file being accessed.

Internetwork Routing Service

Internetwork Routing Service allows sharing of information and computing resources by linking local area networks into a single internet. Two new software options are announced in conjunction with IRS—Clusternet and X.25.

Clusternet Communication

The Clusternet option allows users of remote Star workstations to access the internetwork via dialed telephone lines. One or more RS-232-C ports available for remote workstation access are designated as a clusternetwork. The IRS includes a clusternet router that provides routing information to the clusternet. Each Clusternet is assigned a unique NS network number to allow Remote Stars to be full network citizens through voice-grade, dial-up telephone lines, including PBX stations. This feature provides an alternative start-up network approach to mini-nets.

X.25 Communication Protocol

With the X.25 option, the System Administrator can configure the IRS to use public data network X.25 virtual circuits as a means of internetwork connection. This offers an alternative to telephone circuit interconnection of IRS's. It supports switched virtual circuits using the internationally recognized standard X.25 protocol. X.25 networks provide a quality medium with standard interfaces for transmitting information across international boundaries. The X.25 links between the IRS and the public data network are standard RS-232-C leased lines supplied by the public data network vendor. Five data networks are supported in OS 5.0: Tymnet, Telenet, and Uninet in the United States, and DDX and International DDX Japanese networks.

Internetwork Routing Service (IRS) Enhancement

OS 5.0 Internetwork Routing Service introduces the use of auto-dialed internetwork linkage to other networks for backup purposes during dedicated line failures. However, IRS networks are designed for dedicated leased lines.

Mail Service

The Mail Service in OS 5.0 is independent of the presence or absence of a *co-resident* File Service. Mail Service requires a File Service on a server on the internet for backup. The Distributed Mail Service allows multiple mail services on the internet to cooperate actively to form a unified mail system. One or more Mail Services can be configured on a net or internet. All Mail Services work together as a large cooperative mail system.

Distributed Mail Service

This mail system uses multiple Mail Services to support a broader mailing community by forming a unified mailing system of multiple distributed Mail Services on an internet. Distributed NS Mail Services actively cooperate with each other to post, relay, and deliver mail to individual or group recipients.

Mail Service Enhancements

Distribution list mail can be automatically expanded into membership lists for individual mail delivery by using the Clearinghouse group name. In the past, each recipient had to be specified in the mail property sheet. There is more efficient storage of group mail with the new mail service. It now stores a

single mail object, copying it to each recipient requesting new mail, and deleting it upon receipt by the last recipient.

Automatic Mail Service backup on a user-selectable time schedule has been added in this release. This feature provides the flexibility to perform this backup at off-peak periods.

The System Administrator can now set or expand the disk space allocation for the Mail Service. The demands of a growing network can be optimized by expanding the amount of disk space allocated to the Mail Service.

When sending mail between Mail Services, if no mailbox can be found to deposit the mail, a return postmarked mail cover sheet (with note listing the names of rejected recipients, but no document content) will be sent to the sender. The returned mail cover sheet representing an undelivered piece of mail will appear within 48 hours of being sent.

External Mail Gateway

This optional software capability provides an economical alternative for information exchange where Internetwork Routing Service links are not required. This mode of exchanging mail between Xerox internetworks is provided for less frequent communication needs and to avoid connecting to file, print, or communication services.

The System Administrator sets the auto-dial time for the External Mail Gateway to call the receiving location's External Mail Gateway. The outgoing mail remains queued until this scheduled time is reached. The External Mail Gateway automatically disconnects after the mail is delivered, so it can serve as the auto-answer for other incoming External Mail Gateway mail.

Print Service

The OS 5.0 Print Service can be configured to support either an electronic printer or a facsimile device for shared resource access by any workstation on the internet. Therefore, a server can support either facsimile printing or electronic printing—but not both. This allows users of the 8010 Star and networked IBM PC's to distribute documents via the Print Service. The OS 5.0 Print Service still allows users of the 860 Information Processing System and Personal Computers attached to the network through a Shared Interface Unit to use the electronic printer.

Electronic Printer Print Service

OS 5.0 includes the conversion of the old version OIS font files to the Xerox Character Standard I (XC1). The printer font files for OS 5.0 have been repackaged for more efficient use of disk storage space.

This release introduces the capability of viewing printer statistics or print job status using the Remote System Administration feature from networked workstations. The resulting display will tell the user whether the job is being queued, formatted or printed, and describe other printing device statistics upon inquiry.

Facsimile Print Service

The Facsimile Print Service is an optional network service that allows users of the 8010 Star Information System (and networked IBM PC's) to send documents to facsimile devices throughout the world. Facsimile Print Service provides remote document distribution via telephone lines from the Xerox Telecopier 495-1 and local network draft quality printing. The Facsimile Print Service prints remotely at any site that has a CCITT Group 1, 2, or 3 facsimile machine.

The networked Xerox Telecopier 495-1 supports both $8\frac{1}{2}$ x 11 and $8\frac{1}{2}$ x 14 paper sizes (roll fed $8\frac{1}{2}$ width with automatic paper cutter). It prints one page locally or to a remote Group 3 terminal approximately every 30 seconds, to a Group 2 terminal every 1 to 3 minutes, and to a Group 1 terminal every 6 minutes.—Facsimile Print Service supports up to 10 telephone numbers for document distribution via the Star print option sheet.

The facsimile print service can be set to make multiple retrials to complete a transmission after encountering a busy or failed connection.

A series of 200 DPI fonts have been developed to support the Facsimile Print Service. These font options are:

- Xerox Modern Fonts (200DPI)
- Xerox Classic Fonts (200DPI)
- Printwheel Fonts (200DPI)
- Xerox Math Classic Fonts (200DPI)

> **NOTE:** The 860's, 16/8's, and 820's do not implement the extended printing protocol required for facsimile printing.

Remote Batch Service

Remote Batch Service is a new software option which enables batch communication in 2770, 2780, or 3780 Binary Synchronous Communication protocols between local networks and remote data processing systems or word processing devices in order to interchange documents.

Workstations Supported

This optional feature enables communication between local networks and remote data processing systems and/or word processing devices for the purpose of interchanging documents. Remote Batch Service supports the following workstations:

- Networked Star or Remote Star
- 860 on the Net
- 820-II or 16/8 via the SIU
- IBM Personal Computer on the Net
- Remote PC's and terminal devices utilizing XModem protocol and ITS Filing.

Document Interchange Capabilities

Remote Batch Service provides a file archiving capability, interchange of documents through text translation to EBCDIC, or transparent (uninterpreted) storage of any document. For interchange of documents, RBS supports the following code sets:

- Word Processing EBCDIC
- Data Processing EBCDIC

This service supports the interchange of information between IBM mainframe computers and all users of the Xerox Network Filing Service via IBM 2770/2780/3780 communication protocols. You can input a job (folder with optional Job Control Language document in 860 format) into a predetermined file drawer. The host outputs translated documents or transparent documents into a predetermined file drawer. Remote Batch Service supports archiving or restoring of arbitrarily complex filing objects such as folders.

8010 Workstation

The OS 5.0 workstation software adds several distinct improvements to the Standard Workstation Software in performance and document enhancements. VT100 Terminal Emulation option is now available for further links to the host computer world and the addition of Document Interchange Format (DIF) provides another software integration link between non-Xerox workstations. Spelling Checker is an additional option for automatically locating spelling errors in a Star document, assisting in the correction of spelling errors, and creating private dictionaries. Information compatibility between Star and 860 has been significantly enhanced.

Standard Workstation Software

OS 5.0 provides the software support for the Standalone and Remote Star workstation hardware configurations.

Standalone Star Workstation

Standalone Star workstation offers a cost-effective workstation product for new users as well as provides workstation location flexibility for present users. In this configuration, network capabilities such as filing, mailing, terminal emulation, and remote printing are not available. The Standalone Star uses the *40 cps impact printer* to print Star text documents.

> **NOTE:** This configuration has NOT been accredited for use as a Secure Information Device.

Remote Star Workstation

OS 5.0 supports the Remote Star workstation user's ability to participate as a full network citizen through remote communications with the network. Networked workstation capabilities such as filing, mailing, terminal emulations, and remote printing are available with the Remote Star option. Connection is made through the Clusternet feature of Internetwork Routing Service.

> **NOTE:** This configuration has NOT been accredited for use as a Secure Information Device.

Performance

General Performance Improvements
OS 5.0 offers increased speed in these Star operations—opening documents, closing the paragraph property sheet, pagination and simple pagination, text backing store for document recovery, and Records Processing tabular views.

Log on Accelerator
OS 5.0 provides the user an accelerator to log on to workstation resident desktops with fully qualified user names. In the Log on Option Sheet, each local desktop is listed when you select the new auxiliary menu next to "Name". Highlighting the user name automatically enters the fully qualified name, so only password type-in is required.

OPEN Accelerator
OS 5.0 allows the user to *OPEN* documents, folders, and file drawers by double clicking the left mouse button.

Folder Printing

Collated Printing of Folders
This release supports a new [COLLATION] parameter in the print icon property sheet for printing multiple copies of a job contained in a folder. Folder printing with collation selected suppresses the banner pages between documents to effectively print a job in complete collated sets. This feature is supported by all networked printers.

Password Security

OS 5.0 ensures password protection—by correctly suppressing the Password entry via black box representation.

Document Enhancements

Multiple Page Tables Printing
This release supports printing of long tables. In OS 5.0, long tables paginate into multi-page tables for print output. After pagination, long tables will print on several pages, with table captions, column headings, page headings/footings and page numbers, repeated on the second and any succeeding pages. The table will be displayed as one long table.

Page Limits Relaxed
The previous 40 page document limit has been extended to 650 pages of single column text. For documents containing frames, multi-column text, and multi-fonts, the limit will be less than 650

pages. Documents containing only frames (graphics, equations, and tables) are limited to about 256 disk pages.

Page Numbering
The 256 page number limit has been extended to 46,000. Therefore, document sections can be numbered accordingly.

Column Balancing
OS 5.0 offers automatic column balancing of multi-column layouts through the new column balancing parameter added to the page format property sheet.

Integrated Fields and Tables

In OS 5.0, changes were made to further integrate fields and tables. Included are the addition of tables in the fill-in order, changes to the function of the <NEXT/SKIP> key, and a simplified method of creating sub-rows in tables.

Tables Included in Fill-in Order

When setting the fill-in order, a table can now be included by selecting any part of the table with the mouse. Then, when <NEXT> is pressed, the caret will be placed in the table row directly below the first column heading.

Auxiliary Menu Jump to First Field

When a document is opened in OS 5.0, the caret goes to the first position in the document rather than to the first field. The document auxiliary menu command now has the option "Go to first fill-in." When this option is invoked, the caret is repositioned at the first field or table entry in the fill-in order.

Simplified Creation of Sub-Rows in Tables

Once a sub-column is created sub-rows can be added automatically by placing the caret in the last element of the subcolumn/row where you want to have sub-rows, and press <NEXT>. To add sub-rows to a column containing multiple sub-columns, you must select the last row element of the last sub-column.

Table Column Property Sheet

This enhancement offers you the flexibility of changing properties on more than one column.

Multiple Page Tables Printing

As mentioned earlier, if a table is too large to fit on one page, it will be displayed as one long page, but can be paginated into

multiple pages for print output. The column headings and column labels will be retained on the additional printed pages.

860 Conversion Enhancements

Three new features have been added to 860 to 8010 upward document conversion. One new feature has been added to 8010 to 860 downward document conversion.

860 to Star Conversion

Page Numbers and Page Labels Retained
The first format character is examined in the 860 document to determine page label content, page numbers, and positioning.

Landscape Document Conversion
If the 860 page size is greater than 8.5 inches, the page size will be 11 x 8.5. If the 860 page size is greater than 11 inches the page size will be 14 x 8.5.

860 Tab Conversion in an 860 Document Eliminates Document Clean-up of Star Documents
Decimal tabs—The regular tab and the second special tab are eliminated. The first special tab is converted to a decimal tab.
Centered tabs—The code 5 and the regular tab are eliminated, and the special tab is converted to a centered tab with offset adjusted correctly.
Right flush tabs—The regular tab is eliminated, and the special tab is converted to a right flush tab.

Star to 860 Conversion

Paragraph alignment is retained as Star's right flush tab converts to 860 regular plus special tabs.

Workstation Application Software Packages (In Alphabetical Order)

Data Capture Enhancements

Data Capture provides the Star user a method of copying simple columnar text, possibly from a host mainframe, into a Star table for easier column and row manipulation, and integration into a Star document.

[SET PREAMBLE] Option

The [SET PREAMBLE] and [DISCARD PREAMBLE] commands can be used for defining Data Capture format routines. As part of the automation procedure, a document with a preamble can be selected and set preamble executed, then used for every [COPY

TEXT TO TABLE] command thereafter. The "set" preamble remains in effect until the user logs off, the 8010 is rebooted, or the [DISCARD PREAMBLE] command is selected.

Data Capture by Folders

In OS 5.0, Data Capture extends the utility of the [COPY TEXT TO TABLE] command to include folders. The resulting object is a folder having the same structure and substructure as the original, with all levels of folders duplicated. Folders will be named in one of two ways. If a preamble is currently set, the resulting folder will be the name of the original folder, followed by a dash, and the name of the document where the set preamble originated. If there is no preamble currently set, the resulting folder name is the same as the original folder.

STOP Key

Pressing the STOP key will abort the [SET PREAMBLE] command before the "Setting column structure" message appears. Pressing the STOP key will abort the [COPY TEXT TO TABLE] command, and may give partial results.

Document Interchange Format (DIF)

Document Interchange Format (DIF) is a way of encoding simple documents in order to interchange them between 8010 workstations and other word processors. The encoding conventions have been developed by a group of companies (including Xerox) at the request of the U. S. Navy.

Several vendors (Wang, DEC, Sperry Link, IBM, Zenith, Four Phase, DataPoint, and Xerox) have agreed to implement a conversion utility between their internal document format and a simple Document Interchange Format (DIF). This provides the ability to move a sizable portion of the documents created on various word processors between other devices without rekeying the information.

Auxiliary Menu Options

The DIF conversion software option introduces two auxiliary menu commands:
- [Convert to Star]
- [Convert to DIF]

Transport via Remote Batch Service

The new Remote Batch Service's input and output file drawers are used as the intermediaries to transport a DIF document to or from the Star desktop and the foreign system.

Extended Language Options

Chinese Tableware

Chinese Tableware is a new software option for the multilingual 8010 Workstation. It is used in conjunction with the Extended Language Option to provide the 8010 Workstation with Chinese fonts (12 point Classic and Modern) and enables Chinese document preparation and editing.

Users of the Chinese Tableware option have the ability to enter text in the Mandarin Chinese language. Text can be entered in the Mandarin phonetic alphabet (bopomofo) or in romanized letters using pinyin spelling which are converted to Chinese characters. Chinese text in Classic font will appear as classical style Chinese characters. Chinese text in Modern font will appear as mainland simplified style Chinese characters. The Bopomofo and Pinyin Plus virtual keyboards and look-up processing include 3,760 of the most common Chinese characters.

The current version of the Chinese extended language is based on the Japanese extended language feature. Japanese typing modes appear in the feedback area and on the set window property sheet, requiring selection of the Japanese language input mode before you have access to Chinese typing modes.

Since there are no spaces in Chinese typing, pressing the spacebar while in the Chinese typing mode will invoke a dictionary lookup, presenting the typist with choices when multiple spellings are possible. If required, word boundaries can be distinguished between words by typing an apostrophe after the first word.

Chinese user dictionaries can be created using blank Japanese dictionary record files. This is useful to supplement the existing vocabulary dictionaries for special vocabulary words, for creating lists of personal names in Chinese, or for the special terminology used in medical or legal documents.

Japanese Tableware

OS 5.0 has extended the number of Japanese Kanji characters. An additional 28 Gaiji characters (frequently used Kanji characters) and 80 office symbols are provided in this release. Two virtual keyboards have been added to the Japanese Tableware option for input of the circled alphabet characters and the new office symbols. The other characters are entered by the JIS code direct input method. The following table describes the conversion codes for these additional characters. Contact your

Systems Analyst for the chart that shows these new Gaiji characters.

JIS Conversion Table

OS 5.0 GAIJI CHARACTER	Number to type in JIS - code input method	YOMI (phonics)
	8711	syou
	8743	katsu
	8747	kuni
	8785	saki
	8794	toku
	8838	rou
	8883	se
	8938	fuku
	9047	ryuu
	9056	sei
	9066	kou
	9078	kuro
	9079	sakaki
	9080	rei
	9081	gyou
	9082	saki
	9083	hiko
	9084	kan
	9085	ken
	9086	tsuji
	9087	yoshi
	9088	yuu
	9089	shin
	9090	jou
	9091	ma
	9092	hen
	9093	ren
	9094	ryuu

Records Processing Enhancements

OS 5.0 improves the efficiency of records processing with the introduction of several new features: empty entry row, performance enhancement to opening tabular views, multi-level sort, and new "specified columns" view. The [MAKE DOCUMENT] option sheet now allows the user to choose among pre-formatted tabular documents for printing records from the file.

Blank Entry Row

The blank entry row is an addition to tabular views that facilitates entry of new records. Once a record has been entered and confirmed, the record entered is displayed in its proper place in the record file based on the sort order set for that view. Then a new blank entry row appears for the next entry. Two options are provided ([REMOVE ENTRY ROW], [ADD ENTRY ROW]) in the record file auxiliary menu.

Performance

Performance enhancements to Records Processing now permit tabular views to be opened much more rapidly than was previously possible. Performance improvements are also noted when displaying, scrolling, or closing records in a tabular view. Mouse selection activates a record's edit mode.

Multi-Level Sort

OS 5.0 adds the capability to sort record files on up to four fields. Any field in the record file can be a sort field. Sort fields are specified on the stable view property sheet, and depending on field type, allow sorting alphabetically, numerically or chronologically.

Specified Columns

OS 5.0 introduces a simplified interface to user specify subsets of record file columns. Columns selected for display change dynamically in the open view window when APPLY is selected in the property sheet. It is not necessary to close the view to change the subset of columns being viewed.

Make Document

In support of report generation, the new [MAKE DOCUMENT] option sheet gives the user a choice of output forms. Any document, tabular or with simple fields, can be formatted ahead of time by the user and stored in the record file forms folder. The [MAKE DOCUMENT] option sheet presents the names of all documents in the folder for selection by the user as the report form. In this way, text and table properties, titles and page formats for report forms can be set once, in advance, and then used repeatedly for generating regular reports. Even graphics

can be inserted in the report form before it is stored in the record file forms folder.

Spelling Checker

Spelling Checker is a separately loadable software option that helps you locate and manually correct spelling errors in Star documents. Spelling Checker has the flexibility for user-creation of private dictionaries, up to 22,000 entries each. Words may be added to or deleted from any private dictionary using the spelling checker property sheet commands. Word lookup, at speeds up to 6,000 words per minute, may be accomplished using any combination of system and private dictionaries.

90,077 Word System Dictionary

Spelling Checker is supplied with a high quality system dictionary of 90,077 words in the American English spelling.

Custom Dictionaries Up to 22,000 Words

User-created custom dictionaries are created by using the empty dictionary icon. This new icon is found in the "Basic Documents, Folders and Record Files" divider in the directory. The add command automatically adds new words to the user dictionary as they are interactively displayed in the spelling checker window.

Special Desktop Folder

A folder named "Spelling Checker Dictionaries" must be created on the desktop. User-created dictionaries (copies of the empty dictionary icon) are stored in this folder.

Spreadsheet Enhancements

OS 5.0 supports the following enhancements to the spreadsheet feature.

Converter Icon

The addition of spreadsheet conversion options to the converter icon makes it possible to convert VisiCalc™ format spreadsheets to Star spreadsheets and Star spreadsheets to PC (VisiCalc™) spreadsheets.

Printing Accelerator

[MAKE PRINT FORMAT DOCUMENT]—Allows you to designate the intersection of specified rows and columns you want printed from your spreadsheet. It creates a print format document for faster printing by eliminating the make document step.

[MAKE TABLE]—Continues to be a desirable option if you need to open and edit the contents after creating the print icon. OS 5.0 offers a performance gain for [MAKE TABLE] of one forth the time over the previous release.

Star-Like Editing Capabilities

OS 5.0 supports Star-like editing via the select/extend mouse method and via the <DELETE> key for text deletion in the status area of spreadsheets. A space has been added to the left of the first character in the status line that allows you to enter text at the beginning.

TTY Terminal Emulation

A major redesign of the TTY Emulation window provides more flexible support of various Asynchronous Terminal types. Emulation of different types of terminals (KSR35 and VT100) have been product factored for specific customer needs. A TTY icon property sheet allows the user to pre-set the port, modem, and terminal characteristics for all asynchronous terminal types. OS 5.0 offers electronically switchable settings based on modem flexibility, and improved support for sustained data rates up to 1200 bits per second. Details concerning the user operations, new parameters, and property sheets for TTY Emulation are fully explained in the OS 5.0 Update Booklet in the 8010 Reference Library.

Emulation Commands

[MAKE SCREEN] is a new command to capture a screen full of textual information into a Star document in addition to the [MAKE DOCUMENT] command which captures the emulation session.

VT100 Terminal Emulation

The OS 5.0 release supports emulation of the DEC VT100 including the VT52 option. With this feature, the user can achieve interactive terminal communication to DEC, Data General, and other host computers that support VT100. One Star property sheet replaces Set-up A or B screens to set cursor symbol, scroll method, and other terminal characteristics. VT100 Emulation provides full screen addressing as compared with TTY's line by line cursor control. Asynchronous Communication Protocol residing on a Xerox 8000 NS Server supports auto-dial support for VT100 Emulation.

3270 Emulation

Like other emulations, this workstation emulator provides the capabilities for capturing the session using the new commands in the property sheet.

Network Administration

Diagnostics

Star

The user interface for the Star on-line diagnostics has been redesigned for OS 5.0 to make it more consistent with the 8010 workstation. The diagnostics window will provide instructions, test menus, and commands. The hierarchical tests return the user to the next higher level for more control during test sequences. The RS-232-C test has been added to support Remote Star workstations. OS 5.0 Diagnostics provide for improved STOP key response.

In addition to the instructions provided on-line, a complete description of the diagnostics window and property sheets is provided in the "Problem Solving and Maintenance" booklet of the 8010 Star Information System Reference Library.

Server

The changes to the Server on-line diagnostics include: using the Break key to abort tests, support for dialer tests for automatic calling units (ACU) attached to RS-366 ports, and the ability to set packet size in echo testing for more reliable throughput testing.

Diagnostics tests have been added to support the optional Facsimile printer.

Remote System Administration

OS 5.0 allows the System Administrator to perform system administration tasks from a networked Star, a networked IBM™ Personal Computer, or by utilizing a non-networked TTY communication terminal. The access method from Star is similar to that used for TTY Emulation. The new "Network Management" divider has been added to Star's directory icon. This divider contains network management icons for each server processor by server name. Multiple sessions are supported as determined by the number of remote executives specified in the Server Profile.

System Administrator

The System Administrator can now create a permanent record of a system administration session utilizing the Star [MAKE SCREEN] or [MAKE DOCUMENT] commands. This facility can provide information about operational events, in addition to load indicators and problem indicators.

Non-System Administrator

Other networked Star users can use this feature to show status of printers and print jobs, list groups/members, change access rights to their own file drawers, and change their user password. These inquiries can also be made via a networked Star, a networked IBM Personal Computer, or by utilizing a non-networked TTY communication terminal.

Fonts

Fonts for OS 5.0 are more economically stored at the Print Service. The former OIS Character Set has been converted to the Xerox Character Code Standard (XC1). The fonts listed below are also available as display font sets for selection during workstation software installation.

Electronic Print Service (300 DPI)

The following additional fonts are now available for use:
6 Point Classic
6 Point Modern
30 Point Modern
36 Point Modern
OCR-A 10 Pitch (Printwheel)
OCR-B 12 Pitch (Printwheel)
VT100 characters for Terminal Font

Facsimile Print Service

The available fonts developed for the new facsimile print service are as follows:
Xerox Modern Fonts (200DPI)
Xerox Classic Fonts (200DPI)
Xerox Math Classic Fonts (200DPI)
Printwheel Fonts (200DPI)

Network Citizenship

Xerox Network Services/IBM PC

OS 5.0 supports the ability to attach the IBM PC to the network by the special hardware/software product, XNS/IBM PC. This product allows an IBM Personal Computer or fully IBM-compatible personal computer using DOS 2.0 or 2.1 to be directly attached to Ethernet. With your IBM PC on the network, you have an efficient way of communicating and an economical way of sharing information and resources as full network citizens with filing, mailing and printing capabilities.

Deliverables

XNS/IBM PC includes the software for the IBM PC to access Xerox 8000 Network filing, printing, and mailing services as well as software to access the Ethernet hardware, a user's guide, and the Ethernet interface board for the PC. An alternate package is offered that includes only the software and user's guide, without the Ethernet interface board.

> **NOTE:** This product is installed by the customer. The installation instructions are included in the user's guide.

Filing

The XFile program allows you to transfer files between your personal computer and a network file service, copy and move files from one directory to another within the same file service, and list information about files, directories, and file services. You can also create and delete folders (subdirectories) of a file service. Using the Wordstar to 860 translation capability, the PC can produce and receive documents that can be understood by other workstations on the network.

Printing

The XPrint program allows you to print files from an IBM Personal Computer connected to your Xerox Network System on any Xerox printer connected to the same network.

The Xerox Network Services/IBM PC product supports the extended printing protocol required for facsimile printing. Print

requests from a networked IBM PC can be sent to the network's Facsimile Print Service for distribution to other facsimile devices.

Mailing

XMail is an electronic mail program for IBM Personal Computers that are attached to a Xerox Network System. XMail provides you access to the XNS Mail Service so you can exchange electronic mail with any other user who has access to your network. This includes Xerox 820-2, Xerox 860, and Xerox 16/8 workstations connected to an XNS network.

Terminal Emulation Option

An optional software package allows several modes of terminal emulation using the network communication services. Specifically, ASCII TTY and VT100 emulations are enabled.

Telecopier 495-1

This information can be found in the Facsimile Print Service section of Print Service, page 17.

Xerox Network Services/DEC VAX [Product Availability Date - February, 1985]

Xerox Network Services/DEC VAX (XNS/DEC VAX) is a new product that enables direct connection between the Ethernet and the VAX family of Digital Equipment Corporation computers, running DEC VMS operating system. Once connected, the VAX computers become XNS network citizens and can participate in the following network services.

> **NOTE:** This product is installed by the customer. The installation instructions are included in the user's guide.

Filing

Using a terminal on the VAX or workstation with TTY or VT100 emulation options, a user can access a file server on the network to list, delete, store, and retrieve files remotely. Transferring text files between the VAX and a file server results in text files at the destination. The VAX can convert 860-formatted files retrieved from a file server to standard VAX text files.

Printing

The VAX can format text files into Interpress masters that can be sent to any network print server. The user can control the font class and size, paper size and orientation, and other print-related characteristics.

Communicating

Networked workstations supporting TTY/VT100 emulation software can interact directly with a VAX without going through a separate ECS. A VAX can interact with another VAX on the network running XNS/DEC VAX software without any intervening hardware. One VAX plays the role of the workstation, and the other VAX behaves like a special-purpose ECS connected to a VAX.

Expert Star Co-Residency I

This release supports the user's ability to switch between Star and Expert without reloading software. Versatec's Expert boot command to Star software is supported. The return to Expert software from Star is via the B reset button.

9700 Electronic Printing System

Collated Printing from Star

OS 5.0 supports folder printing as a single print job on all Xerox NS printers. This is accomplished using Star's new print icon property for [COLLATION]. Folder printing with collation suppresses the banner pages between documents to effectively print jobs.

Sequence File Insert

Complex graphics from Star may be scanned at the 150 GIS Scanner and called out as a Sequence File Insert through Star's Image Frame parameter.

Deliverable Items

The OS 5.0 software release is delivered on floppy disks:

- Help and Training
- Star Samples OS 5.0
- 8010 Standard Workstation Software
- Standard Services Software (for Fixed and/or Removable Drives)
- Customer Configuration Utility
- Diagnostics (for Fixed and/or Removable Drives)

Optional Network Services Software:

- 3270 SDLC/SNA Communication Protocol
- Clusternet Communication
- External Mail Gateway
- Facsimile Print Service
- Xerox Network Services/ DEC VAX
- Xerox Network Services/ IBM PC
- Remote Batch Service
- X.25 Communication Protocol

Optional workstation software:

- 8010 Spelling Checker with Booklet
- 8010 Document Interchange Format with Booklet
- 8010 Data Capture

System Documentation

The OS 5.0 release facilitates several customer training concepts through on-line and printed system documentation.

Help and Training

An incremental OS 5.0 training module has been added to the on-line training modules to support the OS 5.0 feature enhancements for current Star users. The training modules include: Remote Batch Service, Records Processing, Facsimile Printing, Spreadsheets, Fields and Tables, On-line Diagnostics, Data Capture, 860-8010 Conversion, Programming Fill-in Rules, Emulation, and Chinese Extended Language.

8010 Information System Reference Library

An OS 5.0 Update Booklet has been added to the 8010 Star Information System Reference Library to provide introduction to the additions and enhancements contained in the OS 5.0 release. New procedures as well as property and option sheets have been added to make it easy to learn how to use many of the new OS 5.0 features.

8000 System Administration Library

The 8000 System Administration Library replaces the former 8000 System Administrator Handbook. It has been written into three volumes for use as a training resource and a reference tool.

Volume I - Basic Network Information
Volume I includes five booklets; "Introduction to Network System Administration," "Server Software Installation," "Server Operation and Maintenance," "Basic Troubleshooting of Network Services," and "Services Product Descriptions." The System Administrator will receive the complete set.

Volume II - Network Services and Shared Resources
Volume II includes booklets for each Service Software ordered for the Network and placeholders for additional Service Software options that can be ordered. The titles include; "Clearinghouse Service," "File Service," "Mail Service," "Print Service," "External Communication Service," "Interactive Terminal Service,"

"Internetwork Routing Service," "850/860 Gateway Service," "Remote Batch Service," and "Server Monitor Service."

Volume III - Networked Workstations
Volume III includes booklets for the various Xerox Network Citizen workstations. The volume includes "8010 Star Information System," plus placeholders for future booklets.

System Administration Forms

Each network System Administrator will also receive the *System Administration Forms Package*. This package contains a number of useful forms for the System Administrator to record various network configuration information.

New ITS User's Guide

The ITS User's Guide has been rewritten to include the OS 5.0 filing capability and changes to the mailing capability.

Star Samples OS 5.0

Star Samples 5.0 is a new version of what was formerly called OS 4.x Applications. It includes a wide array of templates from artwork to spreadsheets. The streamlined version resides on three floppy disks delivered to each network with the STAR Samples booklet. STAR Samples 5.0 incorporates comments and ideas from users by providing:

Better indexing and ease in locating samples
The major sections are arranged in alphabetical order. There is a complete table of contents and a full index.

Reduced storage space
The on-line samples consist of templates and some unique examples. Instructions, discussion, tips, and extra samples appear in the printed booklet. The disks and booklet are delivered with the OS 5.0 software. Star Samples OS 5.0 require considerably less storage space than previous samples.

Fill-In Rule Applications Package (OS 4.2 software) - 12R80501

This special applications package illustrates with working examples how you can expand your use of the fill-in rules. Fill-in rules are part of your standard 8010 Workstation software. They are instructions that you can write on property sheets for

document fields or table column properties so the fields or columns will fill-in automatically.

> **NOTE:** The Fill-in Rule Applications Package was designed for use with OS 4.2. The documents will be converted when opened on an OS 5.0 desktop.

The Fill-in Rule Applications Package consists of two manuals and two disks containing printed and electronic versions of more than 30 application examples, detailed descriptions of these examples, charts summarizing fill-in operators, notes and troubleshooting aids and a cross-reference to the 8010 Reference Library. The cost of the complete package is $75, including two manuals and two floppy disks. Both printed and electronic versions are included in the price. A package containing only the documentation is available for $40 by ordering 12R80501. These packages and booklets are available by calling the toll free number, 1-800-822-8221, and providing your customer number.

Installing OS 5.0 on a New Network

The steps for installing OS 5.0 on a new network can be found in the Server Software Installation Booklet of the "System Administration Library."

OS 4.x Site Conversion Strategy

Read the following section on Site Conversion Strategy carefully before attempting to upgrade your network.

For the purpose of this section, a Clearinghouse domain is considered a "site," including all of its servers and workstations. The internet conversion procedure defines a few global rules for conversion of a complete internet on a site-by-site basis. The site conversion procedure then gives the rules for conversion of each site.

Internet Conversion Rules

The basic rules for conversion of multi-site internets are:

A) Make sure all servers are displaying correct date and time.

B) Conversion of sites which are part of an internet requires some coordination with the other interconnected sites. This coordination consists of selecting one site to begin the conversion process first.

The criteria for this selection is that the site which currently supports the OS 4.x Electronic Mailing option should begin the upgrade first by converting its server(s) that run the OS 4.x Clearinghouse Service and the OS 4.x File Service with the Electronic Mailing option. If the Mailing Option and the Clearinghouse Service do not reside on the same server, the System Administrator should complete conversion of the Clearinghouse Service and then do the conversion of the server with the Mailing Option immediately afterwards.

Once the servers supporting the Clearinghouse Service and Electronic Mailing option have been completely upgraded, the System Administrator at the first site can notify the System Administrators at the other sites that they can begin upgrading their sites in accordance with the site conversion order presented below.

If no site currently supports the OS 4.x Electronic Mailing option, any of the sites can be selected to upgrade the server supporting the OS 4.x Clearinghouse Service first. The upgrades of the other sites can begin once this first site has completed the upgrade of this first server. The preparation section in the upgrade instructions below provides additional details about coordination between sites.

C) Conversion of all sites should be completed as quickly as possible. For example, the incompatibilities between the old OS 4.x workstation and the new OS 5.0 workstation will disrupt global document interchange among internet users; shortening the time lag between the first site conversion and the last will minimize this disruption.

D) If coordination among the various internet sites is not difficult, consideration should be given to synchronizing the entire internet conversion according to the two stages of site conversion listed below–that is, to upgrade servers at all sites, followed by workstations at all sites. This is not mandatory, but will avoid temporary disruption of inter-site server access.

E) Once internet conversion to OS 5.0 has begun, no new OS 4.x Clearinghouses should be added. Otherwise, the OS 5.0 Clearinghouse will not locate the new OS 4.x Clearinghouse.

F) The OS 5.0 services software is backwards compatible with the OS 4.x workstation software (with some limitations). This means that conversion of a site can be done in phases.

As described below, workstations can remain in use during the phased conversion of servers and can be upgraded after servers are fully upgraded. Moreover, conversion of the multiple sites in an internet can be done somewhat independently without too much disruption in Internetwork facilities.

> **NOTE:** However, this conversion is **not** possible on internets or single Ethernet sites utilizing the **extended multinational languages of the Xerox character group**.

All workstations and servers at all sites will have to be upgraded before users at any site can resume normal use of their workstations. System Administrators of these sites can and must proceed with the conversion as detailed in the following pages, but the users at these sites will not be able to utilize the workstations at these sites until full conversion is complete.

Site (Clearinghouse Domain) Conversion Procedure

At a given site, converting to OS 5.0 must proceed in two phases:

- Phase 1. Convert all servers
- Phase 2. Convert all workstations

> **NOTE:** Servers must be converted first, since the new OS 5.0 workstation is incompatible with OS 4.x servers. This also means that once a site's workstations have been converted, they will be unable to access servers at other sites that have not been converted.

It is necessary to convert the various servers at a site in an appropriate order. This is done in three groups: first group, second group, and third group. The placement of each server in one of these groups is determined by the following rules:

First: the server that runs the Clearinghouse Service

Second: servers running at least one of File Service, Print Service, Mail Service, External Communication Service or Internetwork Routing Service

Third: servers running only Interactive Terminal Service and Gateway Service

Once the servers have been sorted into groups, the rules are as follows:

1. Each group of servers should be converted before the next group is started.

2. If a server in the first or second group being converted has Interactive Terminal Service or Gateway Service on it, it should be deactivated until the second group has been completed. These services should be re-activated as part of converting the third group of servers.

3. In installations in which an Interactive Terminal Service is accessed via an External Communication Service on another server, the Interactive Terminal Service cannot be used until both servers have been converted.

Once conversion of a given site has begun, there are three kinds of configuration changes that should be postponed until all existing servers at the site have been converted:

1. Adding of new users

2. Creation of administrative groups (See the Clearinghouse Service Booklet)

3. Installation of new services:

- New types of services (i.e., Remote Batch Service and Server Monitor Service)

- New instances of existing service types (additional Mail Services, Clearinghouse Services, etc.)

  NOTE: Even single-site internetworks can be affected by the character encoding changes mentioned earlier. In particular, most existing Japanese installations fall into this category. As noted on page 4, all servers and workstations at such sites must be converted simultaneously. (Note that "simultaneously" really means that Phases 1 and 2 should be done very quickly as a continuous process, and no attempt should be made to continue normal operation during this process.)

In Phase 2, the various workstations at a site are converted. While both old and new workstations are compatible with the OS 5.0 services, it is important to note that they are not entirely compatible with each other. Data format incompatibilities will interfere to varying degrees with information exchange between old and new workstations.

Preparation

A. Two of the books in the OS 5.0 System Administration Library provide information that is useful for you to understand before you begin the upgrade process. "Introduction to Network System Administration" provides important introductory and overview material about the capabilities of your network servers and services. Many issues covered in this book are new with the OS 5.0 release.

You should read and learn about new capabilities and features such as replicated Clearinghouse domains, remote system administration, distributed Mail Service, system security, multi-drive support, etc. Then you should read the portion of "Server Operation and Maintenance" which explains syntax and conventions that you will employ when interacting with the Services Executive. You should also read the section entitled "General Operating Techniques."

B. Before you begin the upgrade procedure, read and follow the instructions in the OS 5.0 Upgrade Planning Kit check list. After completing the upgrade planning process, you should have:

____ 1. made sure all servers have at least 10% or 2000 free pages (whichever is greater) to do the upgrade on each server.

____ 2. filled out the Server Description Forms in the Upgrade Planning Kit. Make sure that all of your OS 4.x configuration information has been captured on these forms.

For example, all OS 4.x service names and all OS 4.x port, CIU, and remote host configuration information should be recorded. You will be using these forms to re-configure all of your ports, CIUs, and remote hosts.

Additionally, these forms will assist you when you are asked to supply the name of each of your services. Also, you should have decided on a name for each of your servers, and should have recorded this name on the server description form.

____ 3. decided where to place additional Clearinghouse Services, if appropriate. Remember that you will be replicating your Clearinghouse domain to another server at your site if you have more than one server. Therefore, you will also need to decide which additional servers will have a Clearinghouse Service and plan to install the Clearinghouse Service on those servers during the upgrade process.

____ 4. decided where to place additional Mail Services, if appropriate. The OS 5.0 Mail Service can be

distributed to multiple OS 5.0 servers. For this reason, you may want to install additional Mail Services within your site and/or at other interconnected Ethernets.

____ 5. decided which additional services or optional features you want to install and on which servers you will install them.

____ 6. completed the forms in the Upgrade Planning Kit, taking care to specify accurately the names of your 4.x services. Additionally, you should have decided on names for each of your servers.

During the upgrade procedure, you will be entering the name of your server and then the names of the services. These names will be registered in the Clearinghouse Service automatically. Services that you previously ran under OS 4.x software can retain the same names, but you will have to re-enter their names when the OS 5.0 version of the service is run for the first time.

____ 7. obtained additional removable disk packs, if necessary, for use as File Service volumes or in conjunction with the Copy Volume procedure.

C. Make sure you have the necessary diskettes:

- If your server has a fixed disk, you need:

  Services System Software #1 (Fixed Disk)
  Services System Software #2 (Fixed Disk)
  Services System Software #3 (Fixed Disk)

- If your server has removable drives, you need:

  Services System Software #1 (Removable Disk)
  Services System Software #2 (Removable Disk)
  Services System Software #3 (Removable Disk)

- Depending on the complement of services you wish to install on your server, you need one or more of the following diskettes:

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

D. Make sure that you are a System Administrator for the OS 4.x installation that you are upgrading.

During the automatic conversion of your existing Clearinghouse Service database, you will automatically be given "domain administrator" status if you are registered as a System Administrator in your OS 4.x Clearinghouse Service.

E. Read the preceding section called "Site Conversion Strategy" and identify which server is to be upgraded first, which server is to be upgraded next, and so on.

F. If your Ethernet is interconnected with others, you may want to plan in conjunction with the other System Administrators, to replicate domains across internetwork links. If people at your local site frequently send mail to, or access resources at one or more of the remote sites, you will want to replicate the domain for that site to one of your local Clearinghouse Services. The same may be true for the other System Administrators.

   Plan in advance of the upgrade procedure which sites and which servers at these sites will contain which domains. After you and the other System Administrators have upgraded your Clearinghouse Services, you will need to give temporary domain administration privileges to those administrators who need to replicate your domain to their site.

G. If your server is to run the Print Service and is to be connected to an Electronic Printer, determine and record the version number of the printer. You will be supplying this information as a part of the upgrade procedure.

   During the upgrade procedure, you will be asked to select one of several version numbers. Actually, you only need to select between the first two options which are B1 or B2. Read the following description of the B1 and B2 printers and determine and record which version you have.

   - The B1 printer has an output tray that holds 250 sheets. It delivers printed sheets face up.

   - The B2 version has an output tray that holds 500 sheets. It delivers printed sheets face down and has a distinctive drum-shaped output stacker.

   If you have other services on your server in addition to the Print Service, type Print Service **<RETURN>**. Use the **Delete Font** command to delete all OS 4.x font files. You will be installing new font files from floppy disks later in the procedure. If the only service on your OS 4.x server is the Print Service, you do not need to delete fonts as you will be partitioning your disk early in the upgrade procedure.

H. If your server is to run the Interactive Terminal Service, determine how many concurrent users you want it to support and determine the maximum workspace area that can be allocated to each user for the duration of the connection.

You will be asked to supply this information during the upgrade process. After the upgrade process has completed, you can change these values if you determine that they are inappropriate for your server.

A good figure to select at the outset is 200 pages per user. The minimum size is 40 pages; the maximum size is 1250. (The minimum number of users is 1; the maximum number of users is 8.) The workspace is used by remote dial-up users when they create mail messages or files, and when they transmit files using the XModem protocol.

If you need to expand the workspace size later on, after applying the suggested 200 page upper limit, you will be able to do so by following the procedures in the Interactive Terminal Service booklet in the System Administration Library.

Remember that the number of concurrent users you establish will allow that many users to each occupy the maximum number of pages you designate for the duration of the connection. Therefore, if you specify that 5 concurrent users can each occupy 200 pages, the maximum total pages of workspace that can be required by ITS at one time is 1000.

No work space is claimed by ITS at all, unless it needs it for a current connection. You will need to weigh the needs of your remote dial-up users against space requirements of the co-resident services. The Configuration Guide details the space requirements of the individual services and will help you in making this determination.

I. Decide whether or not you will allow remote executives. Then, decide how many concurrent, remote executives should be allowed for your server. As a part of the upgrade process, you will have an opportunity to change the current default for this value which is 2.

   Regardless of how many remote executive sessions are in use, the Services Executive is always available at the server console. If you have more than one System Administrator at your site who is likely to be using the remote administration capability, you should set this number to be one greater than the total number of System Administrators you have.

J. OS 5.0 Services Software features backwards compatibility so that a staged upgrade of your site is supported. This fact allows you to perform a staged upgrade of your site without deactivating servers and workstations that are not actually being upgraded at the moment.

   However, when you begin to upgrade the servers in accordance with the recommended phases described in the Site Conversion Instructions in previous pages, your site will

experience some interruption in service. You can perform the upgrade procedure while users of OS 4.x workstations are at work, but you should notify them that they will be affected in the following ways:

- If your site has only one server, no operations that require interaction with a server will be possible.

- If your site has multiple servers, those operations that involve the server and services currently being upgraded will not complete. For example, users will not be able to perform any activity requiring Clearinghouse operations for the duration of the upgrade of the Clearinghouse Service.

- A server running the OS 4.x version of the IRS and ECS will be able to maintain internetwork links during and after the upgrade of the server that houses the Clearinghouse Service, unless the server running the IRS has to be booted or the IRS has to be stopped and re-started. If the server running the OS 4.x IRS and ECS has to be booted, or if the IRS or ECS have to be stopped and re-started, during or after the server running the Clearinghouse has been upgraded, the IRS will not be able to locate its CIU port(s) in the newly upgraded Clearinghouse. To re-establish the internetwork links that use CIU ports, you will have to upgrade the server housing the IRS and ECS.

K. You should notify your users that they should read their "new mail" before you upgrade the server running the File Service/Mail Service.

During the upgrade procedure, the new mail that is still in users' mail folders at the File Service will be converted to be compatible with the new Mail Service format and will be moved into mailboxes. This process requires a certain amount of database space, depending on how much new mail has to be processed. Therefore, you can make this process faster and require less space if you have your users read their new mail before the conversion begins.

At each 4.x server you should do the following immediately before upgrading that server.

WARNING: THE FOLLOWING PREPARATION IS CRITICAL TO ENSURE THAT NO DATA IS LOST IF THE UPGRADE PROCEDURE IS NOT SUCCESSFUL AND YOU HAVE TO START AGAIN.

____ 1. If your server has the Clearinghouse Service, use the OS 4.x Clearinghouse **Backup** command to backup your Clearinghouse database.

____ 2. Stop all Services.

____ 3. Insert the diagnostics floppy disk and boot 0002 on the maintenance panel. Run ALAG.

____ 4a. If you have fixed disk drives, boot server to 0001 on maintenance panel, specify a non-normal startup, and initiate a File Check operation.

After completion of the File Check operation, do a complete backup of your File Service.

> **NOTE:** If your server only runs the Print Service, you do not need to initiate a File Check operation. nor do you need to make a backup. You will partition this disk early in the upgrade phase. If your server is running the Print Service and additional services, you should use the **Delete font** command in the Print Service dialog to delete all OS 4.x font files before initiating a File Check or backup operation.

____ 4b. If you have removable drives, perform a Copy Disk operation. After the Copy Disk operation completes, remove the duplicate or secondary pack and store it away in a safe place. You will do the upgrade procedure by operating on the primary pack while it is in drive 1.

____ 5. Do this step if the server you are about to upgrade supports the Clearinghouse Service and yours is not the only OS 4.x Clearinghouse Service in your Internet.

Boot the server while the maintenance panel displays 0001, specify a normal startup, and when the Executive prompt appears, type **Clearinghouse Service <RETURN>.** Type **List Remote Clearinghouses <RETURN>.**

If you are not the first System Administrator in your Internet to upgrade a Clearinghouse Service, verify that the domain supported by the first Clearinghouse Service to be upgraded appears in the list of remote domains. If this domain is listed, you know that the necessary route to that domain is up and that you will be able to complete the Compare Database operation required later in the upgrade procedure.

If you are the first System Administrator to upgrade a 4.x Clearinghouse Service in your internet, and your site has the Electronic Mailing option, insure that the display of remote domains includes all domains in your Internet that contain users that have mail folders.

Getting Started

If you are upgrading many servers, it is useful for you to have an overall understanding of what is accomplished by the following step-by-step upgrade procedures. These procedures can be thought of as phases which are described in the following paragraphs:

- Phase one (covered in steps 1-6) is done on every server you upgrade. It consists of shutting down your server, booting it from the installation floppy, installing Services System Software (the basic server environment on which all services are run), booting the server from disk, and beginning a non-normal initialization of the server.

- Phase two (covered in steps 7-9) includes all tasks necessary to upgrade the OS 4.x Clearinghouse Service and make it available so that the server, and services can register with it and that you can logon and be authenticated as a System Administrator. This phase is only to be done on servers that house the OS 4.x Clearinghouse Service database.

- Phase three (covered in steps 10-11) is done on every server and it consists of terminating the non-normal server initialization and accomplishing initialization of each of the services resident on the server. Initialization of each service occurs each time a service is run and consists of that service performing a sequence of actions that prepare it to function as intended. The first time the service initializes, it must prompt you for certain information. Step 11 explains how to respond to the prompts presented by each type of service.

- Phase four is done immediately after service initialization routines have completed. During this phase, you will be doing some portion of steps 12-19 depending on what complement of services is resident on your server. Be sure to do all steps in phase four that are relevant to your server. Upgrade of the server is not fully completed until all of the relevant steps in phase four have been completed.

READ THE FOLLOWING STEPS, IN SEQUENCE, AT LEAST ONCE BEFORE YOU BEGIN TO FOLLOW THE PROCEDURES.

Then determine which steps you will need to do for your server by reading over the following guidelines.

- At every server, you will begin the upgrade process by doing steps 1 through 6.

- Then do steps 7-9 **ONLY** if your server currently supports an OS 4.x Clearinghouse Service database.

- Then do steps 10-11 on every server.
- Then do step 12 if your server houses a newly upgraded Clearinghouse Service database.
- Then do step 13 if your server is running the Print Service.
- Then do step 14 if your server is running the File Service and you wish to bring up additional drives to be used by the File Service.
- Then do step 15 if your server is running a Clearinghouse Service, and there is a domain that you need to replicate to your server.
- For every server, do step 16 .
- Then do step 17 if your server runs a Mail Service and/or a File Service.
- For every server that supports a new or upgraded Clearinghouse Service, do steps 18 and 19.

Step-by-Step Upgrade Instructions

Read through each step before beginning to follow it.

____ 1. Logon and **stop all services** if your OS 4.x server is currently on-line, as it would be if you just finished doing the List Remote Domains operation in the last preparation step. If your server does not support an OS 4.x Clearinghouse Service, you should have already stopped all services prior to backing up your rigid disk.

When you have stopped all services and are sure you have accomplished all preparation steps, you are ready to begin.

Insert the first floppy disk labeled "Services System Software #1" (Fixed Disk or Removable Disk) into the floppy disk drive. Press both the B Reset and ALT B buttons, release B RESET, wait until 0002 appears in the maintenance panel display, and then release ALT B. If your Ethernet network has only one server, you will see a sequence of time prompts. Respond to them as specified in the Server Software Installation booklet in the OS 5.0 System Administration Library. Otherwise, go on to step 2.

____ 2. If you are upgrading a removable disk, make sure your primary drive contains the disk pack you wish to upgrade. You should not have a disk pack in any additional drives. A statement will appear saying that you are "Operating on Drive 1." Next, the Utility Option menu appears.

WARNING: DO NOT partition your disk unless the only service that is running is the Print Service. Partitioning erases all existing data. It is acceptable to partition the disk if the only service your server formerly ran was the print service because you will be installing new OS 5.0 font files later in this procedure.

Select option **2** to "Install System Software." You are asked to confirm this choice. Then a message will appear indicating all the information is read from the floppy disk currently in the disk drive. You will see a message "CRITICAL DISK DATA STRUCTURES REPAIRED." This is a normal message indicating the physical volume has been upgraded. Insert the 2nd floppy disk and repeat this process once again when prompted to insert the 3rd floppy disk. After the installation process has completed, the utility options will reappear.

> **NOTE:** At this point, your Xerox Analyst can use the Xerox Configuration Utility to change your

current complement of authorized services options. If you are performing this upgrade without the assistance of a Xerox Analyst, you can change the options yourself later in this procedure.

___ 3. Select option **3** to "Start System." Once the system has started, it will ask you if you want a normal startup. Type **N** to the prompt. Next you are prompted to specify which Interrupt Point you want to take. Specify **3** to "Interrupt before Running Services." The server will then display the message "The user file system not valid" and ask you to confirm the start of a Scavenge operation. Type **Y**.

___ 4. You are prompted to enter the network number and the fully-qualified name for the server. Refer to your Upgrade Planning Kit Forms and enter the name you decided on for this server. Re-check your input carefully to make sure that you specified all parts of the name correctly, and press **<RETURN>**. You will then be prompted to enter a server description. This description cannot exceed 40 characters.

___ 5. If you are prompted to Logon, the server has located an OS 5.0 Clearinghouse that serves the domain you supplied in the server's fully qualified name. enter your user name and password as required. After you have logged on, the server will register its new name with the Clearinghouse Service and notify you that the operation has succeeded. The name you give to the server is used to establish server security. The ! prompt appears to indicate that you have been authenticated as a domain administrator for the server. Go on to step 6.

About Genesis Mode

If you are not prompted to Logon, you will be notified that the server cannot find the Clearinghouse serving this domain. You will be asked if you want to continue. If you type a **Y**, the server will enter a special mode called "Genesis" which provides a limited set of System Administrator commands even though you cannot logon and cannot be authenticated as a System Administrator.

The **only** time your server should enter Genesis Mode is when your server houses the only instance of the domain specified in the fully-qualified name you entered for your server. This is going to happen at every server that currently houses a 4.x Clearinghouse Service database. Since the database is on the same server that is being upgraded and it has not been run yet, it is not accessible to the server when the server

attempts to register itself. Therefore, the server provides the option of entering Genesis Mode.

If your server does indeed support the 4.x Clearinghouse Service that contains the domain in which the server must be registered, continue on in Genesis Mode. You can now go on to step 6. The following limited set of System Administrator commands is available to you. You will use some of them in steps 6 and beyond:

Activate Service
Deactivate Service
Expunge Service
Install Service
List Services
Logon
Proceed
Run Service
Set Software Options
Show Logged on User
Show Statistics
Show Time
Start Service
Stop Service

If your server **does not** support the 4.x Clearinghouse Service domain in which it must be registered, **do not** continue with the procedure. Your server **should not be** in Genesis Mode. Rather, determine which of the following error conditions prevails and resolve the problem in the manner described.

- *Your server is not plugged into the Ethernet.*

  To correct this condition, boot while the maintenance panel displays 0002 (and no floppy is in the disk drive). Then plug in the Ethernet cable. Boot while the maintenance panel displays 0001, indicate a non-normal startup of the server, interrupt before running services, and once again respond to the request to supply the server's fully-qualified name and description. This time, the server should be able to locate the proper Clearinghouse Service and should request that you logon. If the prompt changes to a ! after you have logged on, you can go on to Step 6.

- *Your OS 5.0 Clearinghouse Service that serves your server's domain is not on-line at the moment.*

  To correct this condition, go to the server that is running the OS 5.0 Clearinghouse that serves the indicated domain, and take steps to bring that server and the Clearinghouse Service back on-line. Then return to the partially upgraded server, reboot while the maintenance panel displays

0001, specify a non-normal server startup, interrupt before running services and respond, once again, to the prompt to name the server. When you are prompted to logon, you know that the server has successfully contacted the indicated Clearinghouse and that your logon should succeed. If the prompt turns to a !, go on to step 6.

- *You have incorrectly specified your server's fully-qualified name, with the result that either the domain name or the organization name does not match the existing domain/organization name.*

  To correct this, boot while the maintenance panel displays 0001, specify a non-normal startup of the server, interrupt before running services, and respond to the prompt to name the server and supply its description. Carefully enter the server's fully qualified name, re-check it, and approve it. If you are asked to logon, you know that the server has successfully located the correct domain and is ready to authenticate you. Logon. If the prompt changes to a !, you can go on to step 6.

____ 6. Insert the floppy disk containing service(s) that you wish to install first. All services installed on the server running under OS 4.x must be installed at this time. You can install the Services in any order. (Do not boot the loadable services floppies.)

Type **Install Service <RETURN>** and then select the appropriate service(s) for installation. For each service that you elect to install, you are asked whether or not you want to activate it. Type with a "**Y**" for all services, unless you are installing a service that you plan to run infrequently.

When a service is activated it is added to the "Active Services List" which the server applies automatically each time it completes its normal or non-normal initialization. If you activate a service, the server will run it again after an automatic recovery from a server failure or a user restart.

Repeat the above step for each floppy that contains a service(s) that you need to install.

NOTE: If your Xerox Analyst did not use the XCU to change your current software options, you may need to change the current options at this point if:

- you plan to install an optional service (one other than the Clearinghouse, Server Monitor or External Communication Services) that you did not have on the same server when it was running OS 4.x.

- you wish to use an optional capability of a service which you did not use when the service was running under OS 4.x, or which is new with the OS 5.0 release.

You must have purchased these options.

To change the currently set options, enter the **Set Software Options** command and press **<RETURN>**. This command will initiate a dialogue (sequence of information messages and prompts). Write down the information displayed about your server, call the Software Control Center (National 1-800-821-8221 [except Texas], Texas 1-214-689-1135), read them the information, tell them which additional services and options you wish to install, obtain the new Software Serial Number from them, return to your server and enter it after the prompt. You will then be shown a list of services and options that the server is authorized to run. If this is the full list you specified to the Software Control Center, then you can approve it and the server will be locked to run only those options until the next time you repeat this procedure.

____ 7. Do this step only if your server is in Genesis Mode (is the server that houses the existing Clearinghouse Service database).

Type **Run Service <RETURN>**. It will list all services available to run on the server. Select **ONLY** the Clearinghouse Service from the list of services which can be run. Next, you are prompted to enter **Y** if you want a normal startup of the Clearinghouse Service and **N** if you want a non-normal startup. Type **N** and press **<RETURN>** since you want the non-normal startup option to be applied. You will see a message indicating that the Clearinghouse is being run. Two sets of options are given. **Select** option **2** to "**Run but don't start**" from the resulting menu.

____ 8. Do this step only if your server is in Genesis Mode (is the server that houses the existing Clearinghouse Service database). When the Clearinghouse Service is run, it displays the "Opening Clearinghouse Service Database" message. At this point, it automatically converts its OS 4.x database to be compatible with the OS 5.0 database format. This conversion process may take well over an hour, depending on the size of your database. Do not interrupt this process. You can leave the server for the duration of the procedure, but remember that the Clearinghouse database will be off-line for the whole conversion process and will

continue to be off-line until you return to the server and finish the upgrade process. If you are watching your server during this process, you will note that one or more messages may appear indicating that the database is being expanded. This is normal.

____ 9. Do this step only if your server is in Genesis Mode (is the server that houses the existing Clearinghouse Service database).

a) When the upgrade has finished, the message "Database Open" appears followed by the Services Executive > prompt.

b) Logon and type **Enable <RETURN>**. After the Enable operation succeeds, you will be granted access to the full set of System Administrator commands. Your server is no longer in Genesis Mode.

c) ***What to do if the Logon operation did not succeed.***

If the above Enable operation did not succeed and you know that you entered your name and password correctly, it is likely the case that you specified the server's domain name incorrectly when you named the server. To determine if this is the case, type **List Services <RETURN>**. The resulting display will show you the server's fully qualified name. If this name does not match the domain and organization names, boot the server while the maintenance panel displays 0001, specify a the non-normal server startup, interrupt before running services, and respond once again, to the prompt to name the server. This time enter the **correct** fully-qualified name for the server. The server should be able to locate the domain indicated in the name you entered. If it can, you are prompted to logon. Do so. The prompt should change to a !. Go on to the next step.

____ 10. Now, Type **Proceed** and press **<RETURN>**. This causes the server to resume its initialization process. As part of this process, the server will apply the current profile value for the number of remote executives and will run all services in the Active Services list (all services which you decided to activate when you installed them).

The Services will be run in an internally established priority order. As each service is run, it will present its own initialization prompts. Stand by to respond to these prompts as directed in the next step.

____ 11. As each service is run, you will see the message **Running Service Type**. Once the service has been run, it executes its initialization routine.

For all services other than the Server Monitor Service, this routine includes prompting for the name and description. You do not have to enter the service's fully-qualified name as the domain and organization are assumed to be the same as for the server.

The 40 character description field accepts any text you find appropriate. After you have entered and approved the name and description, the service registers itself in the Clearinghouse. Depending on the service, you will also be asked to provide other information needed by that service before performing its intended tasks. These service-specific initialization activities are described below.

Clearinghouse Service Initialization

If you are upgrading the first server at your site (the one housing your upgraded Clearinghouse Service database), your Clearinghouse has already been run and no Clearinghouse Service initialization will occur at this point. But, if you are upgrading another server and it houses an additional Clearinghouse Service, you will be required to name the new Clearinghouse Service.

Enter only the name of the Clearinghouse Service; do not enter its domain and organization names. Be sure that the name you give to the Clearinghouse Service is unique and expresses something about your site. In other words, don't call it "CH" or "CHS2." Use a name that conforms to the naming conventions established at your site. For advice on naming conventions, refer to the System Administrator Activities Section of the "Introduction to Network System Administration" Booklet.

If you are asked to specify whether or not the Clearinghouse Service is the first one on the internet, something is wrong. Do not type **Y** to this prompt. This message should not appear since you have already upgraded and brought your first Clearinghouse Service on-line. If this message does appear, your server's Ethernet cable may be unplugged, or your OS 5.0 Clearinghouse Service is not on-line. Resolve this problem before continuing. You should go to the server running the Clearinghouse Service and take steps to bring it back on-line.

Later, after all of the other services on your server have completed their initialization process, you will be replicating your domain from your first

Clearinghouse Service to this new Clearinghouse Service.

Mail Service Initialization

The Mail Service prompts you to supply a database size, indicating the possible range of sizes. You should have computed the desired size during the *Preparation* phase described earlier..

If your figure is greater than the currently allowable range, you should enter the maximum allowable size. If your server has OS 4.x mail folders which the mail service must convert, you may be able to increase this size later after the mail service has completed some of its conversion process which is explained in the following paragraphs.

If you don't have any OS 4.x mail folders on the server, you will only be able to increase this size if the current usage of your Services Volume changes. If this occurs later on, you can expand the Mail Service database as detailed in the Mail Service booklet in the System Administration Library.

After you have specified the size for your database, the Mail Service will create a database of that size. When the Mail Service is run for the first time, it prompts for its name and description and registers this information with the Clearinghouse Service. If your Services Volume contains no OS 4.x mail folders, the Mail Service will finish its initialization phase at this point and the next service that is to be run will present its initialization dialogue. If, however, the Mail Service finds that there are OS 4.x mail folders in the Services Volume, it will begin a conversion process which may require your involvement.

There are three types of problems that the Mail Service can run into as it creates new Mail Boxes and converts OS 4.x mail into a format compatible with the OS 5.0 Mail Service. Each of these problems will result in a message and associated prompts. If the Mail Service experiences none of these problems, the conversion process will complete, the Mail Service initialization phase will complete, and the next service that is to be run will present its initialization prompts. The three types of problems are:

The first problem arises if the Mail Service cannot locate a user (owner of a mail folder) in the Clearinghouse Service. If this happens, it will present a message similar to the following example:

John Q. Citizen:Detroit:Acme (not empty): cannot contact Clearinghouse

Specify action:

1. Retry

2. Delete

Enter choice number:

If the above message appears, check the server running the Clearinghouse Service to make sure that the Clearinghouse Service is on-line. If the Clearinghouse Service is not on-line, remedy the problem and return to the server that you are upgrading and select the "Retry" option. You should not use the Delete option.

Secondly, the following message appears if the Mail Service cannot find a particular user's entry in the Clearinghouse:

John Q. Citizen:Detroit:Acme (not empty): No such user in Clearinghouse

Specify action:

1. Retry

2. Delete

Enter choice number:

Here, the problem is that the Mail Service cannot find the entry for the named user. Re-register this user and then "Retry" the operation, or select the Delete option, with the result that the user's OS 4.x mail folder and contents will be deleted.

The third problem which can occur during this conversion process, is that the Mail Service will detect that it does not have enough space in its database to accomplish the conversion in foreground. The following message and prompt will be displayed in this event:

Database too full for mail conversion

Specify action:

1. Expand database and continue in foreground

2. Continue conversion in background as space becomes available

Enter choice number:

The foreground process can only be continued if you elect to expand the current database. If you accurately computed your ultimate database

requirements, and the Mail Service allowed you to specify your desired size, you should not elect to expand the database and continue the conversion process in foreground. Rather, you should terminate the foreground process by selecting option **2**.

Later, you will be freeing up space in the Mail Service database by moving mail boxes out of it and into other mail Service databases, and by requesting that your users retrieve their new mail as quickly as possible. As you free up this space, the Mail Service will be able to complete its conversion process. You don't want to make your database bigger than it ultimately needs to be because you cannot make it smaller later.

If you elect to continue this process in background, the foreground Mail Service initialization process will terminate and other services that you have activated on that server will be run, each presenting its sequence of initialization prompts.

If you elect to continue the process in the foreground, you can supply a new figure for the database size. You should do this if you were originally unable to specify your desired size for your database or if you discover that you made an error in calculating your optimum database size.

When you select option **1**, the Mail Service will again indicate the maximum size you can specify. If this is still less than your desired size, you can specify the maximum again. The Mail Service will then expand the database and continue with the foreground activity. If it can complete its conversion, it will then be finished with its initialization phase and the next service that is to be run will present its initialization dialogue.

If the Mail Service still cannot complete the conversion because, once again, it runs out of room, you will again be prompted to decide wither you wish to expand the database, or continue the process in background. You should continue to expand the database until you are able to specify your desired database size, or until the conversion completes successfully.

It is possible that the conversion will complete before you are able to expand the database to your desired size. If this happens, you may want to re-assess the current overall requirements for disk space on your server. Later, if you have freed up more space in your Services Volume, you can follow the procedures in the Mail Service booklet in the OS 5.0 "System Administration Library."

File Service Initialization

After you specify the name of the File Service, the primary volume will be brought on-line, provided it can successfully register itself. Later, If you have additional drives on your server and wish to bring them on-line as well, you will be entering commands to bring these additional drives on-line. These instructions are provided in a subsequent step.

Communication Services Initialization

For the Internetwork Routing, 850/860 Gateway, Remote Batch, and External Communication Services, you will see a number of information messages, some appearing as "ERROR" messages. These messages tell you that the service requires additional configuration before it can actually begin to perform its intended function. You will provide this additional configuration information by entering appropriate commands and responding to their prompts.

The exact configuration activity that is appropriate for each communication service is beyond the scope of this document. When you have completed all upgrade procedures, turn to the appropriate booklets in the OS 5.0 System Administration Library.

If, as a part of the Preparation phase, you recorded your previous port configuration information, you will be able to refer to that information when you need to re-enter it.

Ports are no longer configured at the Clearinghouse Service. Rather, each service makes specific commands available for this purpose. Since RS-232-C and CIU port information that exists in a newly upgraded Clearinghouse Service database is no longer useful, you should delete it out of the database by typing **Delete** and then pressing **<RETURN>**. Enter the name of the RS-232-C port or CIU port to be deleted.

> **NOTE:** If you are upgrading the server with the newly upgraded Clearinghouse database, and yours is not the first or the only Clearinghouse database in your Internet to be upgraded, and your server has a co-resident IRS, you **MUST** complete the configuration of your IRS (and your ECS if the IRS circuit uses a CIU port) before you can do the Compare Database operation required in step 12on the next page. Refer to your forms for the necessary data and refer

to the Internetwork Routing Service booklet (and External Communication Service booklets) in the OS 5.0 "System Administration Library" for complete configuration instructions. Accomplish this configuration after the last service on your server has completed its initialization scenario and the Services Executive prompt reappears.

Print Service Initialization

Note that you will need to select which type of printing device is connected to the server. If you select the Electronic Printer option, you will have to select the appropriate version number. As a part of the Preparation phase, you should have determined this version number (See Preparation section.)

Interactive Terminal Service Initialization

Note that you will need to specify how many concurrent users the Interactive Terminal Service will support and how large each ITS user workspace can be. As a part of your Preparation phase, you should have determined these values (see Preparation, Section.)

____ 12. Do this step only if your Ethernet Network is a part of an internet. If you have been selected to be the first System Administrator to upgrade your OS 4.x Clearinghouse Service, follow the procedures in this step titled "Start Clearinghouse Service and Coordinate with other System Administrators." If yours is not the first OS 4.x Clearinghouse in your internet to be upgraded, follow the procedures in this step titled "Compare Database and Start Clearinghouse Service."

Start Clearinghouse Service and Coordinate with Other System Administrators

Type **Start Service <RETURN>** and select the Clearinghouse Service to be started. If your Ethernet has an OS 4.x File Service with the Electronic Mail option and that File Service is not co-resident with your newly upgraded OS 4.x Clearinghouse Service, you will have to delay coordination with other System Administrators until **after** you have upgraded the server that supports OS 4.x electronic mailing. Go on with the remaining steps to complete the upgrade of your first server and then do the coordination activity described here after you have upgraded the server with the Electronic Mail Option.

When your Clearinghouse Service has been started, and you have upgraded the OS 4.x File Service with the Electronic Mail option, notify the other System Administrators that they can begin to upgrade their servers which run the OS 4.x Clearinghouse Service. Make sure they know the name of your newly upgraded Clearinghouse Service. You can use the **List Service** command to view a display of all service names on your server.

Be aware that the other System Administrators will be initiating this **Compare Database** operation in 1-2 hours after they have begun to upgrade the server with the OS 4.x Clearinghouse database. This operation can complete when the necessary IRS links are up. These links can be supported by any combination of OS 4.x and OS 5.0 Internetwork Routing Services, provided that the OS 4.x IRS that uses a CIU has not been booted after its local Clearinghouse has been upgraded. You may need to coordinate your IRS upgrade activity so that you don't bring down your IRS for upgrade purposes while the **Compare Database** operation is underway.

Compare Database and Start Clearinghouse Service

If you have just upgraded your OS 4.x Clearinghouse Service and there is one or more other OS 4.x Clearinghouse Services in your internet have already been upgraded, do the following:

- At the prompt CHS!, you can now initiate the **Compare Database** operation as described immediately below.

- In the Clearinghouse Service context, type **Compare Database <RETURN>**. You are asked to specify the name of the Clearinghouse Service with which you are to compare databases. You should already know the name of the Clearinghouse Service that you and the other System Administrators agreed would be the first to be upgraded. If not, you can contact its System Administrator who can enter the List Services command at the server running the Clearinghouse Service. This command will display the names of all Services resident on the server.

- The **Compare Database** operation can take up to one hour. Do not interrupt it. If for any reason it is interrupted, repeat the operation.

- When you have completed the Compare Database operation successfully, you can start the Clearinghouse Service. Type **Start Service <RETURN>**. Select the Clearinghouse Service to be started.

- *What to do if your Clearinghouse cannot locate the Remote Clearinghouse*

  It is conceivable that your Clearinghouse Service will not be able to locate the address of the Clearinghouse Service you specify by name. This is highly unlikely as it would mean that the data within the Clearinghouse Service database is damaged. However, in the event that the Clearinghouse Service reports **Problem: No Such Registered Object**, verify that the name you entered for the target Clearinghouse Service was correct–by retrying if necessary. If your Clearinghouse Service still can't find the target Clearinghouse Service, obtain the network address (Ethernet number and Processor ID) from the target Clearinghouse Service's System Administrator. Type **Compare Database <RETURN>** and then type **<RETURN>** in response to the prompt for a name. You will then be prompted to supply the network number and processor ID.

____ 13. Do this step if your server is running the Print Service.

In the Print Service dialog, type Install From Floppy **<RETURN>** after each floppy is inserted. Approve installation of the appropriate fonts.

If you partitioned your disk which you would have done if your Os 4.x server ran only the Print Service, refer to the OS 5.0 Print Service Booklet of the System Administration Library and follow the instructions to accomplish the following:

- Use the **Print Test Pattern** command to print the alignment interpress pattern.
- Use the **Set Parameters** command and select the registration choice. The Print Service Booklet will tell you how to set the registration.

  NOTE: If you did not partition your disk, you do not have to do the above.

____ 14. Do this step if your server is running the File Service and you wish to bring up an additional drive to be used by the File Service software. **You can only do this if your server has removable drives.**

Your File Service software can manage up to 4 removable drives, each containing a separate filing volume. Users will view these 1-4 filing volumes as distinct file services, each with a unique, fully-qualified name. When you named your File Service as a part of step 11, you were actually naming the filing volume on drive 1 (on your primary drive). In order to make additional filing volumes available, do the following steps for each drive:

Insert the floppy labeled Services System Software #1 (Removable Drive) and boot while the maintenance panel displays 0002. When prompted to specify which drive is to be operated on, specify the number of the drive you wish to bring on-line (enter 2, 3, or 4.). Make sure you do not select your main drive.

Select option **1** to partition the drive. Do this only if the drive does **not** contain information that you must preserve. All information on the drive will be lost as a result of the partition operation. When the partition operation has completed, select the Start System option (or boot the server while the maintenance panel displays 0001).

Allow the server to start normally by typing **Y** to the Normal Startup prompt.

When the server and service initialization phases have been completed, the Services Executive > prompt appears. Logon, Enable, and set the context to File Service. Type **File Service <RETURN>**.

CAUTION: The following operation erases all data. Never do this operation if you have data on your drive that you want to save.

Type **Create Volume <RETURN>**. You are prompted to specify a drive number. Enter the same Utility Option number (2, 3, or 4). You are asked to provide a fully-qualified name for the volume. Enter the name you want to use for the name of your additional File Service (it must be different than the name that you gave to the File Service volume on drive 1).

Type **On-line <RETURN>**. You are shown a choice list of the currently open and off-line volumes by name. Select the volume you wish to on-line. Your new File Service will now be registered with the Clearinghouse Service and will be on-line. You can now create drawers, set access controls, direct backups to this File Service, etc.

___ 15. If your server is running a Clearinghouse Service that is to contain a replica of a Clearinghouse domain currently resident on a different server, please refer to the System Administration Library Clearinghouse Service Booklet.

Make sure that the Clearinghouse Service that contains the domain you wish to replicate is currently started and is serving the network. If this Clearinghouse is resident on a server that is on a remote Ethernet, you should contact the System Administrator at that site, verify that the Clearinghouse Service is operational, and ask to be

added to the domain administrator's list for the domain you wish to replicate.

To add someone to the domain administrator's list, type **Change Domain Access <RETURN>.** Specify the domain you wish to extend administration privileges for in response to the prompt. Then you are asked to specify the user's name who is to be given the privileges. The user does not have to be a registered user of the same domain, but he/she does have to be a registered user in some domain within the internet. If the user's registry is in a different domain specify, his or her fully-qualified name.

Provided you have domain administration privileges for the domain you wish to replicate to your server's Clearinghouse database, you can continue with the procedure. Type **Show Status <RETURN>**. You will see a display that specifies how many of the Clearinghouse Service's total database pages are actually free. Record this figure.

Type **Stop Service <RETURN>**. Select the Clearinghouse Service to be stopped. In response to the Stop Immediately prompt, type **Y**.

Type **Add Domain <RETURN>**. You are asked to specify a domain name. Specify the domain you wish to replicate. If the domain you wish to replicate is in a different Organization, you must specify the Organization name, too.

Before the domain is actually replicated, you are shown the size of the domain in disk pages. Compare this size with the figure you recorded when you did the Show Status operation. The amount of available space in your database must be 20 per cent (or more) greater than the size of the domain that is to be replicated. For example, if the domain that is to be replicated is 100 pages, the amount of available space in your database must be at least 100 pages plus 20% which is 120 pages. If you do have enough free space, enter your confirmation that the replication should occur. If you don't have enough free space, see the instructions below to expand your Clearinghouse database.

If you don't have enough free space, enter an **N**. You must now expand the Clearinghouse database before you can add the domain.

If your Clearinghouse does not currently serve the Organization containing the domain you wish to replicate, you will first be asked to approve replication of the Organization database. You will be shown the size in disk pages of that database. You will have to determine if your Clearinghouse database is large enough (has enough free disk pages) to support the

new organization. If it is a new organization, it will ask for a password that is supplied by the Software Control Center. Your database should have enough free pages to equal the size of the Organization database plus 20 percent. If this is the case, approve the operation. Then you will be asked to confirm replication of the domain. If you don't have enough free space for the domain, after having added the organization, follow the procedure below to expand the database and then try the Add Domain operation again. You will already have the organization so you will only have to confirm replication of the domain.

How to expand your database

To expand the Clearinghouse Service database, boot the server while the Maintenance Panel displays 0001, select a Non-normal server startup, Interrupt before running services, type **Run Service <RETURN>**, select the Clearinghouse from the resulting options list, specify a non-normal startup of the Clearinghouse service, and finally select the option "**Expand Database**" from the Clearinghouse Service non-normal startup menu. You will be asked to specify how many pages to add.

Add enough pages so that the database will now have enough free pages to accommodate the domain (the free pages must be at least 20 percent greater than the size of the domain to be added) . Do not make the database too much larger than is necessary as the unused portion will still occupy space on your drive.

When the expand database operation has completed, the Clearinghouse Service will start and its services will be made available to the network. After the replication operation finishes, type **Start Service <RETURN>**. Select the Clearinghouse Service to be started and go on to the next step. Type **Proceed <RETURN>** to cause all other active services on the server to be run.

___ 16. After the conversion is completed, you should make a complete backup of your upgraded disk pack. You must reformat and partition your OS 4.x disk pack before copying the OS 5.0 disk pack to it.

To partition, you must insert the floppy disk labeled "Services System Software #1" (Fixed Disk or Removable Disk). You will be asked which drive you wish to operate on.

- Select the appropriate Drive (**not Drive 1**).
- Select option **1** to partition.

After partitioning:

- Boot the server to 0001 on the maintenance panel.

- Specify a non-normal startup and interrupt before opening primary volume. Then type **Copy Volume <RETURN>** and respond to resulting prompts appropriately so the the contents of the primary Volume (on drive 1) are copied to the volume on drive 2, 3, or 4.

___ 17. If your server has a Mail Service, refer to the Mail Service Booklet in the OS 5.0 System Administration Library and follow the instructions for determining the File Service to which your Mail Service will automatically backup.

If your server has a file service, refer to the File Service Booklet in the System Administration Library. You should read and follow the procedures for setting up backup parameters for your File Service.

Since you have made a complete copy of your primary volume, your "Epoch" date will be the same as the date on which you completed the Copy Volume procedure. Subsequent incremental backups of your File Service to another File Service can be done automatically when you define the backup parameters.

If you plan to use floppy disks to back up your File Service, you will still need to refer to the File Service Booklet for instructions on performing manual backup of your File Service to floppy disks. You will be establishing a routine for backing up your File Service at intervals that are appropriate for your installation.

___ 18. When you have finished the above procedures, you can notify your user community that your server is back on-line. Before doing this you may need to re-configure ports, as mentioned in Step 11.

Before accessing the File Service, your users will have to obtain new File Drawer and reference icons, even if you have retained the same name for the File Service. Your users will still be able to use the old Printer icons.

You should also announce the new capabilities of the server and inform your users that it now has a name which they will need to know if they want to do remote administration.

___ 19. Do this step at servers that run a Clearinghouse Service after all servers and workstations in your internet have been upgraded with OS 5.0 software.

The Clearinghouse Service has a backwards compatibility feature that should be turned off after

all of your other servers and workstations have been upgraded with OS 5.0 software. If your Ethernet is part of an internetwork, do not do this step until all workstations and servers in the internet have been upgraded with OS 5.0 software.

The Server Profile contains an entry for this backwards compatibility feature. The feature allows password lookups by Clearinghouse Service clients. This capability should ultimately be disallowed to strengthen internet security.

To do so, type **Change Profile <RETURN>**. Select the Clearinghouse portion of the profile to modify. There is one field in the Clearinghouse portion of the profile. Change the value in the "Allow password lookups" field to **False**.

After the change has been made, press **<RETURN>** twice through the prompts to get the service prompt!. This change to the profile will not take effect until the next time the Clearinghouse is run.

To accomplish this, boot the server while the maintenance panel displays 0001, specify a normal startup of the server. Once again the server and each of the services will initialize themselves and the Clearinghouse Service will apply the new value for the "Allow Password Lookups" field.

Upgrade an OS 4.x Networked 8010 to an OS 5.0 Networked 8010

This type of upgrade **REQUIRES PARTITIONING** the disk. When the disk is partitioned, all contents are **DESTROYED**.

Ensure that all users have safeguarded their desktop information by copying their data files to floppy disks. (Objects stored on floppy disks must have names at least one character long in order to be read back in OS 5.0.) If the [LIST LOCAL DESKTOPS] command shows any desktop stored at a workstation, make sure its owner has authorized its destruction.

> **NOTE: In OS 5.0 you must use two-sided, double-density floppy disks.**

Use **one** of the following procedures to store documents:

1. **Store documents on floppy disks** and delete your desktop.
2. **Delete all services-related icons** from your desktop and **move your desktop** to the file service.

> **NOTE:** Make sure you have moved all documents out of your Mail Basket before you delete it.

This will ensure that all file attributes will be converted. If you use other methods, such as storing documents on the file server, your file attributes may not be converted correctly.

> **NOTE: ALL DOCUMENTS MUST BE UPGRADED TO OS 4.x** before they can be upgraded to OS 5.0. If you have pre-OS 4.x documents on floppies or on a file service (archived), they must be upgraded to OS 4.x on an OS 4.x workstation. **You CANNOT upgrade an OS 3.x document to OS 5.0.**

____ 1. Place the first floppy disk in the floppy disk drive of the 8010 workstation you wish to load.

____ 2. Press both the B RESET and the ALT B buttons on the workstation front panel. Release the B RESET button immediately. Release the ALT B button when the processor panel reads 0002. After a few moments, a list of utility options will appear.

____ 3. Select option **1** to "partition for workstation." This option requires two confirmations because it destroys all existing files on the disk. After the disk is partitioned, the list of utility options reappear.

____ 4. Select option **2** to "install system software." After all the information is read from the floppy disk currently in the disk drive, you will see a message asking you to insert the second floppy disk.

____ 5. Insert the second floppy disk. You will then see a message asking you to insert the third floppy disk.

____ 6. Insert the third floppy disk. After the software installation is complete, the utility options will reappear. Select the number corresponding to the "Install Data Files with..." option **3, 4, or 5** that includes the font group you wish to install.

____ 7. Insert the fourth floppy disk (if you have chosen option **5**). When the data files have been installed from the fourth floppy disk, a message that says "Data files installation complete" will appear.

> **NOTE:** When 7504 appears on the maintenance panel, press and hold the I and V keys simultaneously until the number changes to initialize the volume. (This occurs only when partitioning.) After the volume has been initialized and the data files and fonts have been installed from the floppy disk currently in the floppy disk drive, you will be asked to insert the next floppy disk.

____ 8. Insert the fifth floppy disk (if you have chosen option **3** or **4**) when the message to do so appears. (7504 maintenance panel code will appear after you have inserted the fifth floppy disk in the floppy disk drive. This code will appear after you have partitioned the disk. See preceding note.)

If you chose option #3 (Install Data Files with Modern Fonts, 6 to 24 Point, Plus Terminal), after the message "Data files with Modern Fonts, 6 to 24 Point, Plus Terminal Installation Complete" appears, and after the utility options reappear, go to **STEP 11**.

____ 9. If you chose option #4 (Install Data Files with Standard Fonts) or option #5 (Install Data Files with Standard Plus Large Modern Fonts), insert the fourth floppy disk when the message to do so appears. Insert the fifth floppy disk when the message to do so appears. When the data files and fonts have been installed, a message that says "Data Files with Standard Fonts Installation Complete," or Data Files with Standard Plus Large Modern Fonts Installation Complete" appears depending on the option you chose. The list of utility options then reappears.

____ 10. Insert the sixth floppy disk when the message to do so appears. The list of utility options then reappears.

> **NOTE:** At this point workstation software options must be enabled using the

configuration utility. This may be done by you (using the Customer Configuration Utility) or your Xerox representative.

___ 11. Insert the Customer Configuration Utility floppy disk, and boot from 0002 to select additional options. (You must get your password from the Software Control Center. See page 14 of the 8010 Star Information System, Volume III of the System Administration Library.) Then reinsert the first installation floppy disk and boot from 0002. When the utility options reappear, select the option **6** to "start system."

___ 12. Users should retrieve their desktops and fetch new icons, or build new desktops, depending on whether they stored their desktops or stored their documents on floppy disks. They should then upgrade their data files retrieved from the file service or copied from floppies to their desktop by selecting [UPGRADE TO OS5] in the desktop auxiliary menu. There are actually five different possibilities for upgrading a document to OS 5.0 level:

a. With no icon selected, [UPGRADE TO OS5] will upgrade all the desktop documents and document folder icons. This may take several hours. If you have record files or spreadsheets, do not use this method to upgrade. Record files and spreadsheets are upgraded when they are opened.

b. With a document icon selected, [UPGRADE TO OS5] will upgrade the contents of that document icon.

c. With a document folder icon selected on the desktop (not within a file drawer), [UPGRADE TO OS5] will upgrade the contents of that folder.

d. By selecting and extending within an open desktop folder, a series of documents may be upgraded to OS 5.0.

e. Individual documents not previously upgraded by one of the above methods will upgrade to OS 5.0 automatically the first time they are opened.

NOTE: Only document icons can be upgraded by selecting [UPGRADE TO OS5].

If you wish to install Document Interchange Format, Data Capture, and Spelling Checker, in addition to the above steps you will need to load the software onto individual workstations. Document Interchange

Format software requires at least 5 disk pages, Data Capture requires at least 50 disk pages, and Spelling Checker requires at least 440. To install optional software:

____ 13. Place the floppy disk in the floppy disk drive of the 8010 workstation you wish to load.

____ 14. Log on at the desktop of the workstation on which the floppy disk has been inserted.

____ 15. Select [LOAD SYSTEM FILES] in the desktop's auxiliary menu.

> **NOTE:** A shortcut for the above procedure is after the Logon Option sheet comes up, go to the auxiliary menu and select [LOAD SYSTEM FILES].

____ 16. Select [YES] in answer to the message "After the floppy disk is read, the system will be restarted; are you sure you want to continue?"

____ 17. Select [START] on the logoff option sheet that appears on the desktop.

____ 18. After the workstation returns to an idle state (bouncing square display), log on again. When [SPELLING CHECKER], for example, appears in the desktop auxiliary menu, the software has been loaded.

> **NOTE:** The above steps must be repeated for each optional software floppy disk.

Upgrade an OS 4.x Networked 8010 to an OS 5.0 Networked 8010 with ELO

This type of upgrade **REQUIRES PARTITIONING** the disk. Only workstations with 29 megabytes or more disk storage can be upgraded to run Extended Language; the workstation also requires a minimum 768 Kb of memory. To retrieve a desktop created on an 8010 to an 8010 with Extended Language, you must make sure that the desktop you are retrieving is free of icons on the top row of the desktop.

Ensure that all users have safeguarded their desktop information by copying their data files to floppy disks. (Objects stored on floppy disks must have names at least one character long in order to be read back in OS 5.0.)

> **NOTE: In OS 5.0 you must use two-sided, double-density floppy disks.**

Use **either** of the following procedures to store documents:

1. **Store documents on two-sided, double-density floppy disks** and delete your desktop.

2. **Delete all services-related icons** from your desktop and **move your desktop** to the file service.

This will ensure that all file attributes will be converted. If you use other methods, such as storing documents on the file server, your file attributes may not be converted correctly.

____ 1. Place the first floppy disk in the floppy disk drive of the 8010 workstation you wish to load.

____ 2. Press both the B RESET and the ALT B buttons on the workstation front panel. Release the B RESET button immediately. Release the ALT B button when the processor panel reads 0002. When the processor panel reads 0990, a list of utility options will appear.

____ 3. Select option **1** to partition for workstation. This option requires two confirmations because it destroys any existing files on the disk. After the disk is partitioned, a list of utility options reappears.

____ 4. Select **2** the option to install system software. After all the information is read from the floppy disk currently in the disk drive, you will see a message asking you to insert the second floppy disk. Insert the second floppy disk. Then you will see a message asking you to insert the third floppy disk.

____ 5. Insert the third floppy disk. After the software installation is complete, a message appears asking you to insert the fourth floppy disk.

____ 6. Insert the fourth floppy disk. After the system software installation is complete, the utility options reappear.

____ 7. Select option 3 to install common data files. The maintenance panel codes will stop at the number 7504. When this number appears, press <I> and <V> simultaneously to initialize the volume. Hold down <I> and <V> until the maintenance panel code changes from 7504. After the volume has been initialized and the common data files have been installed from the floppy disk, you will be asked to insert the fifth floppy disk.

____ 8. Insert the fifth floppy disk. After the information is read from the disk, a message appears asking you to insert the sixth floppy disk.

____ 9. Insert the sixth floppy disk. After the common data files installation is complete, the utility options reappear.

> **NOTE:** Depending on whether you are installing Japanese, Chinese, or both Japanese and Chinese, see page 39 of the 8010 Star Information System, Volume III of the System Administration Library.

Upgrade an OS 4.2 Networked 8010 with ELO to an OS 5.0 Networked 8010 with ELO

This type of upgrade also **REQUIRES PARTITIONING** the disk.

Ensure that all users have safeguarded their desktop information by copying their data files to floppy disks. (Objects stored on floppy disks must have names at least one character long in order to be read back in OS 5.0.)

Use **either** of the following procedures to store documents:

1. **Store documents on two-sided, double-density floppy disks** and delete your desktop.

2. **Delete all services-related icons** from your desktop and **move your desktop** to the file service.

This will ensure that all file attributes will be converted. If you use other methods, such as storing documents on the file server, your file attributes may not be converted correctly.

Follow the above procedures for Upgrading an OS 4.x Networked 8010 to an OS 5.0 Networked 8010 with Extended Language.

Upgrade 8010 Help and Training

____ 1. Create a Help file drawer and a Helpload file drawer. (See page 73 of the 8010 Star Information System, Volume II of the System Administration Library for further instructions on setting up file drawers.)

NOTE: You must have file access rights.

____ 2. Determine which of the following floppy disks to load.

a) Help and Training Floppy Disk 1 contains: Introduction (508 total disk pages).

b) Help and Training Floppy Disk 2 contains: T1Getting Started, T2Basic Documentation Creation, T11OS 5.0 Release, TCustomer, Table of Contents (1655 total disk pages).

c) Help and Training Floppy Disk 3 contains: T10AGraphics, T10BGraphics, T9Tables, T12Fill-in, T14Creating Fields, T22Fill-in Rules, Table of Contents (1692 total disk pages).

d) Help and Training Floppy Disk 4 contains: T16Records Processing*, T16Records Processing B*, Table of Contents (1385 disk total disk pages).

e) Help and Training Floppy Disk 5 contains: T13Extended Language*, T15Spreadsheets*, T21Emulation*, T23Remote Batch*, T24Chinese*, T8Equations*, TH21Extended Language*, HFJInput*, TH24Chinese*, HFCInput*, Table of Contents (1378 total disk pages).

f) Help and Training Floppy Disk 6 contains: Feature Help, Task Help, Table of Contents, (1903 total disk pages).

*These modules are factored. If you did not purchase these optional software packages, you do not have to load the training modules contained on these floppy disks.

____ 3. At your workstation, use the [COPY FROM FLOPPY] command to copy the contents of the first Help and Training disk to the desktop.

____ 4. Open the resulting folder and move its contents to the Help drawer and/or Helpload drawer.

NOTE: If you load help and training in both the Help and Helpload drawers, be sure the Table of Contents is contained in both drawers. The Table of Contents is contained on each floppy disk. "Help Service" must be registered in the Clearinghouse as an alias for the file service that has help and training materials.

____ 5. Close and delete the empty folder.

____ 6. Repeat steps 3-6 for each Help and Training disk you wish to load.

____ 7. If Help has previously been loaded locally on workstations, press <HELP> at each workstation and select [DELETE LOCAL HELP] in the window auxiliary menu.

____ 8. Press <HELP> again at each workstation and select [LOAD HELP OR INTRO FROM FLOPPY] in the window auxiliary menu.

Upgrade 8010 Applications File Drawer (to be renamed *STAR Samples File Drawer)

___ 1. Create a new file drawer named ***STAR Samples**. (See page 97 of the 8010 Star Information System Booklet of the System Administration Library for procedures on setting up a file drawer for *STAR Samples.)

*STAR Samples are a condensed version of the former Applications examples, plus some new examples. To conserve space, the on-line samples have been restricted to templates and documents that can be examined or taken apart at the workstation to see how they were created. The accompanying *STAR Samples booklet contains descriptions and instructions for using the on-line samples. It is also an excellent source for quickly determining which samples will be most helpful to your users.

___ 2. Delete the examples in your existing Applications drawer that are duplicated in the new STAR Samples or are no longer needed by your users. The following is a list of the specific OS 4.0 examples that have not been reproduced because they were not in general use, or because they have been replaced by similar material elsewhere. If your users have a particular need for these, retain them in your Applications drawer.

OS 4.0 Examples Not Reproduced in STAR Samples

Section 2 (General Office Documents)
- Speedy Sources for Paragraphs and Titles
- Table of Contents Template
- Graphics Table of Contents Template
- Record File Defining Form
- Line Numbered Paper - 11" and 14"
- Linear Calendar

Section 3 (Guidelines and Suggestions)
- Document Creation
- Forms Creation
- Document Assembly from Boilerplate Paragraphs
- Index Creation

Section 4 (Page Layout Examples)
Self-Study Module Sample

Section 6 (Field Fill-In)
(Fill-In Rule Package is available)

Section 7 (Tables)
- Metric Conversion Worksheet
- Actuals Report
- Statistical Spreadsheet
- Trial Balance Sheet
- Purchase Order Example
- Economic Indicator Application
- Order Form
- Heat Dissipation Calculator

Section 8 (Manager's Aids)
- Description and Sample of Manager's RP Personnel File
- Employee Data Example
- Telephone Log (Explanation and Sample)
- On-Going Project Status Report

Section 9 (Fonts)
(Replaced by Font Notebook.)

Section 10 (System Administrator Forms and Transfers)

*STAR Samples is comprised of three floppy disks. The first floppy disk (1352 disk pages) contains

Introduction, Charts and Graphs, Data Capture, Document Designs, and Forms Design. The second floppy disk (1607 disk pages) contains Graphic Examples, Graphic Lettering, Graphic Symbols, and Graphic Tools. The third floppy disk (1797 disk pages) contains Office Aids, Records Processing, Spreadsheets, Tables, Fields, and Fill-in Rules, and The Potpourri.

Perform the following steps to make the samples available to your users:

____ 1. Copy the *STAR Samples file drawer to your desktop.

____ 2. Use the [COPY FROM FLOPPY] command to copy the contents of the first *STAR Samples floppy disk to the desktop.

____ 3. Open the resulting folder and move its contents (i.e., the individual folders) to the *STAR Samples file drawer.

If space is at a premium on your file server, you may wish to review the contents of the new *STAR Samples and store only those materials of interest to your users. For example, if they do not use terminal emulation, you may wish to omit the Data Capture folder.

____ 4. Repeat steps 2 and 3 for each of the remaining *STAR Samples floppy disks.

Recommended Post Conversion Activities

*STAR Samples Folders

It is a good idea to make reference icons for the folders in your *STAR Samples drawer and mail them to your users, along with a cover note telling them where they can obtain a copy of the STAR Samples booklet.

Additional STAR Samples booklets can be ordered for your users, specifying 12R80518 as the re-order number.

Train Workstation Users

Schedule a meeting/demo so you can inform users about the following:

- Document upgrading
- New icon retrieval
- Module on OS 5.0 in Help and Training
- List of software options available at each workstation
- Access rights to file drawers

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Clearinghouse Service

- **DO NOT OPERATE SERVERS WITH INCORRECT TIME.** Symptoms of this include the messages **Clearinghouse Problem. Code = [?(75B), first]** and **Clearinghouse Problem. Code = [?(76B), first]**.

- If an administrator of two or more domains of the same organization is removed from the administrator list of one domain, then this individual must again be made an administrator for the other domains for which she should retain access.

- If an established Clearinghouse asks for its name when it is run, then a decision about how to proceed needs to be made, based on the contents of the Backstop log. Boot the server and look at the Backstop log. If the last entry is an uncaught signal from the module **CHAdminAImpl**, and either the signal index is 16B (14 decimal) or the program counter is within 10 of 70723B, then run the Clearinghouse, and when it again asks for its name, give it a new one. If this signal is not mentioned, run the Clearinghouse and give it its old name.

- If the file drawer to which a Clearinghouse is to be backed up does not have sufficient space to contain even one copy of the database, then the command **Backup** will never complete. If you use replication, this situation cannot arise.

- The command **Change Group Access** changes the administrator's list before changing the self-controller's list. Because of this, it is possible to revoke, during the first part of the command, one's right to change the self-controller's list during the second part of the command. In this case, one will see a message declaring that the operator has insufficient access privileges, the administrator's list will have been changed, and the self-controllers list will not have been changed.

- The message **Clearinghouse Problem. Code = [?(120B), first]** means that the local Clearinghouse was calling a remote Clearinghouse which was up when the call began, but became unavailable before the call completed. If this

message was seen as the result of a user initiated command (such as Add Domain), try the command again.

- If the message **Problem: No such Domain** or **Problem: No such Organization** appears, and one is certain that the domains and organizations involved exist, then this may indicate that one is not an administrator of that domain or organization, respectively.

- IBM host, RS-232-C port, and CIU information is now managed from these devices' owning services (an IRS, ECS, or GWS), and not from the Clearinghouse service. OS 5.0 levels of IRS's, ECS's, or GWS's will not be able to reference their hosts and ports until information about them has been re-entered, at the administrator's initiative, at the owning service.

- If groups are used for access control, then the way they are structured can greatly impact the performance of access control verification. The average time required to decide if a name is a member of some group increases with the number of names contained directly or indirectly (by nesting) in the group. A group containing 100 individual names will probably lead to unacceptable access checking times. Patterns may be used to efficiently describe a large number of individuals. Using heavily nested groups (i.e, groups containing groups containing groups, etc.) for popular access control groups is inefficient and risks crashing Clearinghouses (this is one cause of the Backstop log entry **Out of VM for resident memory**). Nesting groups may increase the time needed to decide that a name is a member of a group, but will not greatly increase the time needed to decide that a name is *not* a member.

- When you create a primary user name, it is recommended that only those characters accessible through the default Star keyboard be used to compose the name. This excludes the following 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.

  NOTE: The following actions must be taken by the System Administrator in order for the user to retrieve the OS 4.x desktop from OS 5.0 Star. The System Administrator should use the Clearinghouse Service **Add Alias** command to add an alias that does not include any of the above characters for

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Clearinghouse Service

- **DO NOT OPERATE SERVERS WITH INCORRECT TIME.** Symptoms of this include the messages **Clearinghouse Problem. Code = [?(75B), first]** and **Clearinghouse Problem. Code = [?(76B), first]**.

- If an administrator of two or more domains of the same organization is removed from the administrator list of one domain, then this individual must again be made an administrator for the other domains for which she should retain access.

- If an established Clearinghouse asks for its name when it is run, then a decision about how to proceed needs to be made, based on the contents of the Backstop log. Boot the server and look at the Backstop log. If the last entry is an uncaught signal from the module **CHAdminAImpl**, and either the signal index is 16B (14 decimal) or the program counter is within 10 of 70723B, then run the Clearinghouse, and when it again asks for its name, give it a new one. If this signal is not mentioned, run the Clearinghouse and give it its old name.

- If the file drawer to which a Clearinghouse is to be backed up does not have sufficient space to contain even one copy of the database, then the command **Backup** will never complete. If you use replication, this situation cannot arise.

- The command **Change Group Access** changes the administrator's list before changing the self-controller's list. Because of this, it is possible to revoke, during the first part of the command, one's right to change the self-controller's list during the second part of the command. In this case, one will see a message declaring that the operator has insufficient access privileges, the administrator's list will have been changed, and the self-controllers list will not have been changed.

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message was seen as the result of a user initiated command (such as Add Domain), try the command again.

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  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.

  NOTE: The following actions must be taken by the System Administrator in order for the user to retrieve the OS 4.x desktop from OS 5.0 Star. The System Administrator should use the Clearinghouse Service **Add Alias** command to add an alias that does not include any of the above characters for

each user who has this problem. After the alias has been added, the user can successfully log on using the alias. Subsequently, the user will be able to log on by selecting his/her distinguished name from the pop-up menu. This name will be displayed showing the appropriate excluded character, such as an apostrophe.

Desktops created for Standalone systems should only use characters available when creating Clearinghouse names. Otherwise, Standalone desktops will not be able to be registered in Clearinghouses if subsequently desired.

Conversion

- When converting a Clearinghouse server, respond **N** to normal startup and select Run but **DON'T** start. After converting a Clearinghouse service, you must IMMEDIATELY execute a **Compare Databases** from that Clearinghouse to another OS 5.0 Clearinghouse that serves the same organization. If no other Clearinghouse serves the same organization, then any other OS 5.0 Clearinghouse of the internet will do.

- After the conversion of a Clearinghouse, the domain sizes shown by the **Show Domain** command may be inaccurate. For the correct domain sizes to be displayed, reboot the Clearinghouse server after converting the database.

- With OS 5.0, two objects (e.g., a user and a file service) are not allowed to have the same name. This restriction was not enforced in earlier releases, and so some objects in the OS 4.x databases may not have unique names. It is best to ensure that objects have unique names before converting. Conversion to OS 5.0 will enforce uniqueness by adding a suffix to a name as necessary. One object will always retain its original name. Only the name of the object will be changed. Other occurrences of the name, such as the name of a user's "home" file service or the name of a user in a group, will not be changed automatically. In addition, if two objects with the same name have an alias, the alias will continue to refer to the original name. For example, if **Tundra** is the name of both a file and a mail service, and the alias **Help Server** refers to **Tundra**, then after conversion, **Tundra-FS** will be a file service, **Tundra** will be a mail service, and **Help Server** will refer to **Tundra**. There is no notification of the changing of a name. Objects whose names have been changed can be listed with the use of wildcards. Suffixes that will be used are: file service, "**-FS**"; print service, "**-PS**"; internetwork routing service, "**-IRS**"; user, "**-User**"; mail service, "**-MS**"; workstation, "**-WS**"; external communication service, "**-ECS**"; interactive terminal service, "**-ITS**"; gateway service, "**-GWS**";

burden is very great if there are as many as 40 Clearinghouses in the merged system, and increases rapidly with the number of Clearinghouses. The system will return to normal after two to seven days.

Domain Management

- Do not apply the command **Add Domain** to a domain served by an OS 4.x Clearinghouse.

- Do not apply the command **Show Domain** to a domain served by an OS 4.x Clearinghouse. If this is done, the domain will be inaccessible from this service for five minutes, and the displayed domain size and list of administrators will be incorrect. This happens only while a multi-Clearinghouse internet is in the midst of conversion to OS 5.0.

- It is best not to use the command **Show Domain** with domain names containing asterisks (wildcards). If this is done, the command may not show progress for anywhere from 15 minutes to three hours. The information that is finally displayed will correspond to an unidentified domain with a name matching the pattern.

- When adding a domain, a message may appear warning that the database is full. If this happens, the domain will not have been completely copied. Immediately boot, expand the database, and run the Clearinghouse. This procedure copies the remainder of the domain automatically.

- If one fails to complete the minimal steps needed to build the first domain of an internet (add the domain, add the first user, and make the user an administrator of the domain), then the domain will be useless and can only be removed by erasing the user volume and starting over. This situation only occurs while building the first server of an internet.

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

- The command **Delete Domain** is not available when the first Clearinghouse is being installed on an internet. If during Clearinghouse installation, an unwanted domain is created (such as misspelling the domain name), be sure to make someone an administrator for that domain. Otherwise the domain cannot be deleted. These steps will allow the domain to be deleted:

  1. Add your permanent user name to the list of administrators for this domain (If you have not yet added

your user entry for the permanent domain, use the name you anticipate creating.)

2. Create a permanent domain with originally intended name, add your permanent user entry within this domain, and give yourself administrative access to this domain.

3. Logon as the user added in step 2 above and delete the unwanted domain.

- If the last copy of a domain or organization is deleted, then that domain or organization name may not be reused for 30 days. If a Clearinghouse is expunged, then the name of that service may not be reused for 30 days.

Expunge

- A Clearinghouse **MAY NOT BE** withdrawn from service without first using the **Expunge Service** command.

- If the database of a Clearinghouse service is damaged or erased, special procedures must be followed to return the system to normal operation. Install and run the Clearinghouse service, giving it its original name, and add to it the domains it last served. If the Clearinghouse is not to be retained, it may then be expunged. Failure to follow this procedure will lead to unpredictable behavior.

- Expunging a Clearinghouse ordinarily takes a couple of minutes. If expunging does not finish normally, do it again until it does finish normally. If the database of this service was damaged before expunging, or if expunging was previously attempted and it did not finish, then expunge may take a very long time, perhaps several hours for large internets with many domains and organizations.

- No Clearinghouse should be expunged until after the last Clearinghouse of the internet has been converted to OS 5.0.

- Do not expunge a Clearinghouse of a multi-Clearinghouse internet while no other Clearinghouse service is accessible.

External Communication Service

- The External Communication Service supports Ventel modems on the RS-232-C lines controlled only by Communication Interface Units. Ventel modems are not supported on server local RS-232-C ports. The following problems may occur when using Ventel 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 Ventel modem continuously exchanging lines error. 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 terminated. In addition, all dialing must be done through the Ventel user interface rather than using, for example, the Star emulation property sheet.

- The **Show RS232C Port Statistics** command does not count all transmission errors on IBM 3270 SNA links. In particular, only checksum errors are counted. Any data-lost errors and invalid-frame errors are not counted.

- 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.

- Under certain circumstances, an RS-232-C Port configured for Interactive Terminal Service cannot be pre-empted for TTY emulation, even if it is marked as allowing such pre-emption:

  1. If the port is on a CIU and no auto-dialer is attached.

  2. If the workstation attempting TTY emulation is a networked 860. (Any port that is to be accessible by such an 860 *must* be explicitly configured for TTY emulation.)

- OS 4.0 and 4.1 workstations running 3270 emulation can still communicate with an OS 4.2 and OS 5.0 External Communication Service, providing the applications they are running DO NOT use the **Read Modified** command. **Read Modified** commands are used most frequently on VM systems to retrieve modified data, rather than strictly using polling. 3270 applications using **Read Modified** commands must be run on workstations with OS 4.2 or later software.

- A server that runs an ECS to support 3270 Bysynch emulation should not run other services. If it is unavoidable to assign additional services, or additional External Communication functions (for example, control of a CIU) to the same server, they should be of a low-demand nature (such as a lightly used File Service).

- Breaks cannot be received through RS-232-C ports on a Xerox Communication Interface Unit (CIU).

- When an RS-232-C port on a CIU 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 CIU. 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-232-C 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.

- The **Stop** command always disconnects any active 3270 terminal users.

- Transparency is not supported.

File Service

- Do not attempt to scavenge an auxiliary volume of a multi-drive File Service configuration while other volumes remain "on-line." Also do not attempt to backup other volumes while scavenging an auxiliary volume. Attempts to do so may crash the server.

- The File Service no longer supports the OISFTP protocol--it now supports XNS. Workstations impacted by this change include: 860's with older software than version 6.4, 820's running version 2.1.

- Before converting an OS 4.x File Service volume to OS 5.0, make sure that at least 10% or 2000 disk pages (whichever is greater) of the volume is free. For large capacity disks, the minimum requirement is 10,000 free pages.

- During volume conversion, the scavenger assigns unique version numbers to all similarly-named files contained in the same directory. Each instance of this behavior is reported in the scavenger log (resulting from conversion).

- The File Service does not provide a complete "expunge" capability. In order to undo the side effects of having installed a File Service, use the **Delete File Drawer** command to eliminate any file drawers on the appropriate volume(s), and the Clearinghouse Service **Delete** command to delete the service name from the appropriate domain.

- Avoid the use of the asterisk (*) character in file drawer names. This character can be used to express a pattern of file drawer names to the **Delete File Drawer** and **Change File Drawer** commands. These commands do not always deal with the presence of the asterisk character in file drawer names when a pattern is also specified.

- The **Stop File Service** command does not automatically stop an executing **Backup File System** command. Before attempting to boot the machine, apply the **Stop Backup** command as well.

- Order the names of individuals and groups on file drawer access control lists so that names that give the most widespread access in the most efficient fashion appear first.

- Access control lists should not specify a group which has been deleted from the Clearinghouse. If a group is removed from the Clearinghouse and is not deleted from related access control lists, clients attempting to access the file will observe "indeterminate access" error messages. Remove obsolete

groups from access control lists as appropriate to correct the problem.

Backup/Restore

- In defining **Backup** parameters for use with rigid disk media, care must be taken in specifying a "**Backup Volume Group**" name which is sufficiently long. The length of the chosen name should exceed the length of any volume named within the group. If this guideline is not followed, the server will crash when the user initiates **Backup** manually (manual **Backup** run in the background and the automatic backup feature are not affected by this problem).

- The first time **Backup** is run for the primary volume on a server configured with Clearinghouse and File Service software, the Clearinghouse Service must be stopped. Once **Backup** has run successfully, this procedure need not be repeated (Backup will run properly with the Clearinghouse).

- The File Service Booklet of the System Administration Library, page 44, under BACKING UP THE FILE SERVICE VOLUME USING THE COPY VOLUME COMMAND, step 7, **incorrectly states** to interrupt before running services. It should state "interrupt before opening primary volume."

- The backup floppies of OS 4.x are not supported by the new backup software. Immediately following conversion to the new software, clients should plan a complete backup to safeguard data. This is most easily done by setting the backup "cycle" to one day, performing the backup, then setting the cycle appropriately.

- The person running backup must have complete access (including Remove and Change Access) to the destination drawer.

- 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.

- Incomplete backup increments produced using floppy media will cause a subsequent **Restore File System** operation to terminate prematurely (assuming further floppy increments are to be restored after the incomplete one). If an incomplete floppy increment must be restored, either process it last or restart the restore operation with the next set of floppies after the command terminates because of the incomplete set.

- In **Show Backup Index**, the user is prompted to choose from a list of backup increments recorded in the Backup Increments Log. Pressing **RETURN** without selecting any of the choices implies none are to be examined, but the File Service will prompt for a file name pattern anyway before the command completes.

850/860 Gateway Service

- The Gateway Service supports ONLY American Xerox 850's.
- After a **Delete Configuration** command, the System Administrator should also stop the Gateway Service with the Stop command. If this is not done, the following two errors will occur due to the Gateway Service no longer being registered in the Clearinghouse:

  1. Dial-in clients will get unusual errors when trying to receive and send messages.
  2. The **Add Configuration** command will not accept the mail clerk name as valid.

- The Gateway Service only supports the local RS-232-C port of an 8000 server. If another service has already acquired the local port, the 850/860 Gateway Service will display the following message during the **Add Configuration** command:

  There is already an active entry assigned to this RS-232-C port.

  The System Administrator can locate the source of the conflict by using the **List All RS232C Ports** command to examine all of the ports, noting the use of the local port (indicated by **Local Port: 0**). The System Administrator must then decide which of the two services is to use the local port.

  If it is the Gateway Service, the System Administrator should delete the port with the appropriate delete command on the service that is using the port and then use the Gateway Service **Add Configuration** command again.

Interactive Terminal Service

Mailing

- If a Mail Service (running on a different server) fails while the Interactive Terminal Service is performing a mail operation, the Interactive Terminal Service will hang.

- When a user executes the commands **Set Padding, Set Height,** or **Set Width** and uses a negative number as input to the number field, the server will crash.

- When using **Set Width**, users must select a big enough line width to accommodate the "**More Text (Y/N)**" message that appears at the bottom of every page of text. Failure to do so will crash the server.

- When using the server administrator command **Rename**, the System Administrator may cancel out of any one of the fields prompting for service configuration information. If the System Administrator does this, the message

  Disconnect Active User (Y/N)?

  should not be terminated through the use of a **CNTRL-C**. This will cause the server to crash.

- The configuration numbers for the number of file pages per user are correct, but not enforceable, since they are only a reflection of how much space has been consumed on the volume when the Interactive Terminal Service was initialized. It does not take into account how much space has been consumed by other services.

- The Interactive Terminal Service will crash if a user logs on and has more than 200 messages in his mailbox.

- New paragraph codes in mail notes are displayed as control-] rather than as new paragraphs. Consequently, users of Star workstations should type one Shift-RETURN character to start a new line and 2 Shift-RETURN characters to start a new paragraph. Doing so will result in proper display of new lines and new paragraphs at the ITS interface.

- Paragraph Tab codes in mail notes are displayed as vertical bars. In order to insert tabs, users should use the regular TAB keys.

- The largest message which can be produced by the Interactive Terminal service is 12,000 characters. If it receives a message larger than that, it will be able to display all of it and forward

the first 12,000 characters of it, but it will not be able to modify it.

Filing

- 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. Data may be lost during the transmission, or the 820 may hang and abort the transmission after a timeout period with the message ****Auto Disconnect****. The likelihood of either of these events increases with the speed of the transmission line, the size of the file, and the load on the Interactive Terminal Service. The cause for the anomalies has been traced to the 820 software missing **XOFF** and **XON** characters (used for flow control) when it is accessing the local disks. When the files to be transferred are ASCII files with lines shorter than 120 characters and separated by a **CR-LF** (most CP/M text files are in this category), the use of **Protocol CRLF** of **ASCOM** is recommended. Better yet, the user should use a communication package with the XModem feature and use the file transfer operations when creating a file rather than the stuffing action.

- If the ITS port resides on a CIU, flow control should not be enabled if you intend to do filing with XModem.

Internetwork Routing Service

- More than one connection attempt may be necessary when creating a half-duplex, dialup connection between an OS 5.0 IRS and an IRS from a previous release. By persisting, the connection will eventually be established.

- To avoid seeing garbled characters on the screen, you must provide a description for the circuit you are adding to the IRS.

- The server's **<Expunge Service>** command has no impact on the IRS's data structures. In order to expunge the service (i.e., delete the IRS's database and files) perform the following steps:

  1. Stop and delete all of the IRS's circuits using the **Delete Circuit** command. Delete the X.25 network, if there is one.

  2. Stop the service.

  3. Use the Clearinghouse's **<Delete>** command to remove the name of the IRS.

  4. Reboot the server and use the **<Expunge Service>** command to delete IRS bcd files.

  The IRS will continue to appear in the list of services that may be run. This condition will persist until the server is rebooted.

- The server's **<Start Service>** command may be used to start the IRS. The IRS has an additional command, **<Start>** (available under the IRS context) that may also be used for this function.

- The server's **<Stop Service>** command may be used to stop the IRS. The IRS has an additional command, **<Stop>** (available under the IRS context to enabled Server SA's) that may also be used for this function.

- The **Delete Any RS232C Port** command is only to be used to delete an orphaned port configuration (i.e., to delete a port that is owned by a service that is no longer resident on the server). If the System Administrator does use this command when there is a resident IRS and it has one or more circuits defined which use the deleted port, the IRS database becomes inconsistent. As a result of this inconsistency, the SA will not be able to change or delete IRS circuits. A message which has not been multinationalized will appear when an attempt is made to access IRS circuit information. In order to avoid this confusion, IRS HDLC and circuit definitions should be deleted, using the Delete Circuit command. Then, if the port is on a CIU and the ECS has been expunged, the **Delete Any RS232C**

Port command can be used (after the **Delete Circuit** command) to delete the orphaned configuration.

If the command is misused, resulting in confusion of IRS port information, the server profile must be deleted, thereby deleting all of Stable Data.. Be aware that deletion of the server profile also means the loss of server information and information specific to services that is kept across restarts. A better workaround is to retrieve a backup of the Server Profile that was made prior to the use of the **Delete Any RS232C Port** command.

Mail Service

- When rebuilding an OS 4.x desktop, a user must have a home file service item in his Clearinghouse entry in order to have an in-basket. This item need not be a real File Service, but must not be empty as the Star workstation relies on its existence.

- In internets with more than one OS 4.x Mail Service, each Mail Service should be converted immediately after the Clearinghouse Service in which it is registered. Failure to follow this rule can result in undeliverable mail.

- Mail sent to groups that are empty or contain invalid members will not generate any notification of non-delivery.

- Do not Expunge the Mail Service unless Show Status indicates that all queues are empty.

- Expunging a Mail Service that has not finished installation will crash the server.

- Incomplete expunging of a Clearinghouse Service can cause the database of a co-resident Mail Service to fill up. The space can be recovered by reinstalling the Clearinghouse Service with the name it originally had (on the same or different server) and then expunging it again. Recovery of the lost space in the Mail Service database can take up to 24 hours.

- If Mail Service backup finds that the designated File Service is full, it will delete the 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.

External Mail Gateway

- The **Delete Foreign Gateway** and **Delete Foreign Domain** commands should not be given 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.

- The Mail Gateway does not drop DTR or relinquish the RS-232-C port after a **Stop Service** command is executed, thus disabling the RS-232-C Test function. The workaround for this problem is to re-boot the server without starting the Mail Service, perform any RS-232-C testing that needs to be done, and then start the Mail Service.

- If a Mail Gateway is incompletely removed, mail sent to any foreign domain it served may be returned inappropriately. This can be corrected by completing the removal: if the co-resident Mail Service was not expunged, use the **Delete Foreign Gateway** and **Delete Foreign Domain** commands to remove any foreign domains and gateways the Mail Gateway serves; otherwise, reinstall the Mail Service with the name it originally had and then expunge it again.

Print Service

Generic Printers

- When the Print Service is re-booted and especially when it is first installed, the operator should look carefully for Clearinghouse or other errors which may be reported when the Print Service attempts self-registration. The Print Service may start up normally even though such errors may have occurred, but these errors could adversely affect the operation of the service.

- It is possible for the system to apply an incorrect create date to a font file that is resident on the server's rigid disk. The only font files affected by this restriction are the Extended Language fonts (for example, Japanese and Chinese), because these font files are contained on more than one floppy disk.

  This can happen during installation of fonts if the following conditions are true:

  1. A particular font is currently installed (resident on the server's rigid disk).

  2. You insert a floppy to install a newer version of the same font.

  3. When you are prompted to confirm installation of that font, you enter "**N.**"

  If the above 3 conditions occur, the result will be that the original version of the font in question is still on the server's rigid disk but its create date is now equal to that of the font of the same type that is on the floppy disk. If you then attempt to load the font from a floppy disk, you will be told that the newer version is already loaded. This is not actually the case; rather the create date on the rigid disk version of the font is incorrect. If you confirm installation of the newer font after being informed that it is already loaded, the desired effect will result. The newer version will be installed.

- When the "More" prompt is displayed while you are installing fonts because the messages being displayed fill up the screen, be sure to type any character in response to this prompt BEFORE you insert the new floppy.

  If you insert a new floppy before responding to this prompt by typing any character, the system will not notice the new floppy and will assume the previous floppy is still in place. To recover from this, type any character or press the space bar and then remove and re-insert the floppy.

- Interpress masters prepared for printing by OS 5.0 software will not print on previous versions of the Print Service.

- The **Expunge** command is not implemented by the Print Service in this release.

- The Print Service will not recognize print requests queued prior to the conversion of a server to 8.0. Thus, all queued documents must be either printed or deleted. It is suggested that the **Stop Queuing** command be issued before conversion to allow all queued documents to print while disallowing the acceptance of new ones. Failure to clear the queue will result in inaccessible files remaining on the volume.

- With only the Print Service installed on a 10 megabyte server, there are approximately 4600 pages available for fonts and queued files. This is marginally less than the free pages available in the OS 4.x releases.

- If it is provided in the font file, the Print Service will print the "black box" character (code [360B, 312B]) in place of other referenced characters missing in the font when formatting an Interpress master. However, the "black box" character does not appear in all fonts and if it is not available, a missing referenced character is simply omitted from the output.

- When a range of pages to print is specified by the Print Protocol options for an Interpress master that is a subset of the actual pages, the banner will have the total numbers of pages in the master rather than the actual pages printed. For example, if a master which has a total of 8 pages is sent to the printer with a page range of 3 through 5 specified in the protocol options, the banner will say **8 sheets**, but the output will actually be 3 sheets. There is no indication on the banner that a subrange of the pages in the master has been requested.

  It is possible for the system to apply an incorrect create date to a font file that is resident on the server's rigid disk. This can happen during installation of fonts if the following conditions are true:

  1. A particular font is currently installed (resident on the server's rigid disk).

  2. You insert a floppy to install a newer version of the same font.

  3. When you are prompted to confirm installation of that font, you enter "N"

  If the above 3 conditions occur, the result will be that the original version of the font in question is still on the server's rigid disk but its create date is now equal to that of the font of the same type that is on the floppy disk. If you then

attempt to load the font from floppy, you will be told, that the newer version is already loaded. This is not actually the case; rather the create date on the rigid disk version of the font is incorrect. If you confirm installation of the newer font, after being informed that it is already loaded, the desired effect will result. The newer version will be installed.

- When the Print Service has been converted from OS 4.2 to OS 5.0 and is initialized for the **8040 Series Electronic Printer** or **Model-35 Electronic Printer**, existing fonts are retained. However, if the Print Service is initialized for the **Telecopier 495-1**, all existing fonts are deleted.

Electronic Printers

- When changing from a B2 model Raven printer to a B1 model printer, either ensure that the **Stacking** parameter is set to **Aligned** before re-booting (thereby changing the **Printer Version** to **B1**), or bring up the Print Service with the new engine and keep the old B2 printer type setting long enough to change the setting to **Aligned**, then re-boot and set the Printer Version to **B1**.

- When installing the **XC1-1-1** fonts (newly issued in OS 5.0), the old OIS fonts must be separately and explicitly deleted. Deleting them before installing the new fonts will assure enough room for their replacements. If both versions of a font co-exist on the server, only one will get used.

- 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.

- If a document does not continue printing after a paper jam has been cleared and the status shows "Okay," reboot the server and do a Normal Startup. The document that was in the process of being printed when the paper jam occurred will be requeued.

- Some characters contained within text frames, near to or touching Star graphics frame edges, 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. One workaround is to allow extra space between the characters and the graphics frames.

Facsimile Printers

- Landscape text documents with right-justified paragraphs printed at or transmitted from the Telecopier 495-1 may actually print as unjustified text.

- The standard Telecopier 495-1 attached to a Facsimile Print Service must be upgraded to the RS-232-C version with a hardware and a firmware kit available through and installed by Xerox IPD Field Service.

  The first is RSM upgrade 86S21809 and it contains RSM PWB, cables, and switches. The second one is kit number 86S21810, called Network Interface, and it changes the revision level of the firmware. It contains DTIM<SL11, and SL3 PWBs and EPROMs for G2DM PWB (chips GD1E and GD3G).

- The Print Service supporting the Telecopier 495-1 will accept up to 10 phone numbers associated with any print request. All phone numbers beyond the first 10 will be ignored.

- Opening the Telecopier 495-1's cabinet turns off the unit with the result that the Print Service provides the following misleading status messages:

  1. The message **Offline. Please call System Administrator to check power supply and RS232 cable** is displayed.

  2. Use of the **Show Status** command results in a display **Offline** rather than the correct status which is **close door.**

- It is recommended that the default transmission resolution for the Telecopier 495-1 be set at "fine" when the Print Service is initialized. This will enable maximum resolution when transmitting to other Group 3 telecopiers.

  Telecopier 495-1 "fine" mode transmission of complex pages, however, may stretch the image. Complex here means a lot of text (especially small font sizes), large "busy" bitmapped areas or complex graphics with diagonal lines.

  The stretching that may occur is usually confined to two cases:

  Case 1: The receiving FAX is a Class 2 machine and the first page of a document is complex. In this situation, the received copy of the first (complex) page could get stretched while complex pages following might not. *(The suggested workaround is to append a simple page to the beginning of the document.)* This allows the Print Service to determine that the remote FAX is receiving in "standard" mode and to adjust its image encoding accordingly.

Case 2: The receiving FAX is a Class 3 machine (i.e., a Telecopier 495 or another Telecopier 495-1). The stretching should be minimal. There is no specific workaround.

- The "image off paper" warning on the banner sheet has a different, undocumented reference point when printed on the Telecopier 495-1 than when printed on the other supported printers. The documented reference point is the "lower left corner" (with sheet held in portrait position). For output on the Telecopier 495-1, the reference point is the lower left corner with sheet held in landscape position.

Remote Batch Service

- The service requires operator assistance when starting if more than one communication partner has been defined. This is true even in the case of normal startup following a server re-boot with the Remote Batch Service included in the activation list of services.

- Some of the statistics reported are not correct. In particular, rates of conversion (Statistics Section REMOTE FILING AND CODE CONVERSION) are incorrect due to too much time being recorded for **Time Spent Fetching** and **Time Spent Storing**.

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

- File space on the User volume of the server local disk is used to temporarily hold files in transit. The service will delete any such temporary files from the local disk each time it is started.

- There are two variants of stopping a communication session with a partner. The hard stop is used to terminate communications and spooling activities as quickly as possible. Communications and spooling are interrupted immediately. Any files in the receive queue (not yet copied to the output file drawer) will be lost. A hard stop will be performed only if the System Administrator enters a **Stop** command while the service is actively sending or receiving, and responds with a no to the **Wait until idle** query.

  A soft stop is done:

  1. in response to a **Stop** command when communications are idle;

  2. when fatal communications or filing errors occur;

  3. the connection window to the host closes while the line is up, or

  4. an inactive line timeout occurs.

  The soft variant of stopping the communication session allows sending or receiving to become idle, the send queue to empty, and all files in the receive queue to be processed. Stopping the communication session is distinct from stopping the service. If the communication session is stopped in response to an event other than a **Stop** command, the service remains active and will continue to do such things as poll the input file drawer for newly submitted jobs.

- File space on the User volume of the server's local disk is used to temporarily hold jobs in transit. File space is a limited

resource; its exhaustion can impede the operation of the service and can even immobilize the service. The **List Volumes** command can be used to monitor the percent of available space.

- The service does not implement the Services Executive commands **Start Service** and **Stop Service**. The service does provide its own **Start** and **Stop** commands.

- When communicating with a device which requires line-holding **EOTs** to be sent (e.g., a Xerox 860), that device should be defined as the **primary** device and should send the line-holding EOTs. The Remote Batch Service never sends line-holding **EOTs**.

- When receiving output other than XNS archive retrieval, the Remote Batch Service creates a name for the file of the form **Received from** *partner-name date-and-time interpretation*. The maximum length of a file name is 100 bytes (not characters).

  For English if *partner-name* exceeds 40 bytes in length, the total length of the file name will most likely exceed 100 bytes and the attempt to write the file will fail. Maximum lengths of file names for other languages will depend on the length of the translation of the above message.

  If attempts to receive files are failing with the error message **File drawer for received data unavailable**, try shortening the name of the communication partner. Short partner names (and thus short file names) have an additional advantage when workstations are networked Xerox 860s, in that the number of characters displayed for a file name when listing the contents of a file drawer is limited to 20.

- **Add Partner** and **Change Partner** allow values for inactive line timeout in the range 15 to 65,535 seconds. Values greater than 32,767 are incorrectly interpreted by the **Show Partner** command as negative numbers. Values in the range 32,768 to 55,535 will cause the server to crash while values in the range 55,536 to 65,535 will be displayed as -9999 to -1. 32,767 seconds are approximately 9 hours.

  Reasonable times are on the order of 300 to 900 seconds. It is possible to disable the inactive line timeout when adding or changing a partner and so a large value for the timeout is not required.

- There are World Trade Country variants of the EBCDIC WP code set. The US variant is the only one supported by the Remote Batch Service for document interchange (interpreted file transfer mode). Additionally, if a SIGNON statement is required to precede communications with a mainframe, the US variant of the EBCDIC DP code set is used.

- Breaking of words (a space inserted into the middle of a word) may be noticed when sending documents created by Xerox workstations to other word processing devices or mainframes in interpreted file transfer mode. The problem is caused by the simulation of a physical medium which is 80 column cards and by a communication protocol designed to transmit data from 80 column cards efficiently (trailing blank suppression).

  Corrective measures include adjusting margins of the original document so that the resulting line length is less than 80 characters and defeating proportional spacing by using fixed-pitch fonts.

- The **Add/Change/Delete Partner** and **Add/Change/Delete Port** commands work with the entries from the server profile file. The Remote Batch Service will not act on any additions/changes/deletions to these entries until it is stopped and re-started.

  When the service starts, it makes a copy of the partner and port entry that it will be using. This information is unaffected by commands which alter information in the server profile file.

  The **Set/Show Interpretation** commands take effect immediately, but last only until the Remote Batch Service is stopped. The changes are not recorded in the server profile file.

Server Monitor Service

- A mail notification and the command **Show Monitored Server Statistics** may display an obviously incorrect time interval for the **Up time** statistic. This is a result of the monitored server's reported restart time being later than what the Server Monitor thinks is the current time.

- The user interface does not check that the lengths of name inputs (a server name, user name, or workstation name) do not exceed allowable Clearinghouse name lengths. It is the responsibility of the user to enter names of correct length.

- The **<Start Service>** command may be used to start the SMS, but this will preclude the user from restoring the SMS database from a remote location. If the **<Start Service>** command is used to start the SMS, the SMS will always use the local database file. If no database file is found, than an empty database will be created

  The SMS has an additional command, **<Start>** (available under the SMS context to enabled Server SA's) that prompts the user to see if he wishes to restore the database from a

remote location. It is preferable to use this command rather than the **<Start Service>** command.

- The **<Stop Service>** command may be used to stop the SMS. However, the SMS has an additional command, **<Stop>** (available under the SMS context to enabled Server SA's) that may also be used for this function.

- The server's **Expunge** command has no effect on the SMS's data structures. To expunge the service (i.e., delete the IRS's database and files) perform the following steps:

  1. Stop the SMS. (**<Stop Service>** or **<Stop>**)

  2. Use the **<Delete Files>** to delete the file named "ServerMonitor database."

  3. Reboot the server and use the **<Expunge Service>** command to delete the SMS bcd files.

  The SMS will continue to appear in the list of services that may be run. This condition will persist until the server is rebooted.

Services System Software

Services Executive

- At server boot time if the product factoring file is not located on the rigid disk, the boot sequence halts and prompts the user for product factoring information. Occasionally after the user has entered the correct information, the server hangs after displaying the message **No Software Options Enabled. Server Cannot Be Started**. At this point, the server needs to be re-booted.

- **Install Service** installs a service successfully only if the following conditions are met:

  1. the floppies contain new or different versions of the software package;

  2. the service being installed is product factored.

  During the execution of the **Install Service,** if either of these conditions is not satisfied, the install fails. The error message displayed fails to distinguish between which of the two conditions was not satisfied. In this respect, the message **No services are available for installation** is inadequate.

- During **Install Service** if the operator releases the floppy disk from the drive before the command is completely executed, the server will crash.

- At the local server executive, 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 execute a CONTROL-C *which will clear the input buffer, permitting the user to re-enter the command.*

- 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). Furthermore, any attempt to input the official format will not be honored.

- Execution of the scavenger software sets the restart reason to System. A subsequent user restart violates the infinite timeout feature at the **Normal** startup question. In this event, the Normal startup question will time out to a **Yes** in one minute.

- Services System Software registers servers with the Clearinghouse as a function of the hardware processor identity. Each processor identity is unique. The software considers the processor identity changed when either the processor chip in the hardware is changed, or when an already registered services disk is moved to a different server. If such an event transpires, any attempt to boot the server will cause the software to loop repetitively, unable to complete its registration validation. The workaround is to delete the server entry from the Clearinghouse it is registered in before re-booting the server. For a server registered in a Clearinghouse co-resident on that server, delete the entry at startup time, before **Proceeding** to complete initialization.

Diagnostics

- There is a restriction for executing the **Echo** command in the **Test** context. At the (more) prompt, displayed after the message **Echo test is started, press BREAK key to stop**. If the user types **CONTROL-C**, control will be transferred back to the command processing level causing one of the following problems. If the user told the test not to display feedback then the test will not let the user start another echo test for 5 minutes. On the contrary if the user specified feedback to be displayed then one of the following two problems may occur:

  1. Feedback continues to be displayed for 5 minutes and the test will not let the user start another echo test for 5 minutes.

  2. The server crashes with an Address Fault.

  The workaround is to avoid typing **CONTROL-C** at the "(more)" prompt. The operator should type any character other than a **CONTROL-C**.

- When a CIU port is configured for TTY-DialIn usage, the RS232C test will fail with the message "**Error: Channel already in use**". The workaround is to reconfigure the port for either TTY-Emulation usage or TTY-Emulation-and-DialIn usage and repeat the test.

- The port configuration can be modified by executing the ECS command "**Change RS232C 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 **RS232C** test can be executed successfully. Remember to reconfigure the port back to TTY-DialIn usage after the completion of the test.

- The **Delete Any RS232C Port** command should not be used unless the service that owns the port has already been expunged from the server. The **Delete Port** or Delete Circuit

commands of the individual services should always be used instead of the **Delete Any RS232C Port** command.

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4. NOTES AND CAUTIONS ON THE BASIC 8010

This section contains notes on both operational and functional changes as well as words of caution on possible problems that could arise when using an 8010 workstation. The areas covered here are those likely to be encountered by any 8010 user; a subsequent section of this document covers other features that may or may not be configured at individual workstations, such as data capture, document interchange format, spelling checker and spreadsheets.

Compatibility Factors

- OS 5.0 workstations will generate interpress masters that can only be printed on an OS 5.0 Print Service.

- Upgrading a document that contains bar charts will not convert the bar chart property sheet labels. When you open the document, the bar chart will appear to be converted properly. However, if you bring up the bar chart property sheet, the label strings will not appear to be converted (this will not be noticeable for most character set 0, ASCII strings). If the original bar chart contains Kanji or accented characters, then those unconverted characters will appear as black boxes. If the property sheet is then closed, those unconverted strings will be applied to the bar chart and the labels on the chart will now appear unconverted.

  The workaround is to upgrade the document (either by opening it or selecting [Upgrade to OS5] in the auxiliary menu). Then select the bar chart, press the PROP'S key, select [ALL DATA] and delete the label text in the property sheet. Now copy the label text from the opened document into the property sheet, and select [DONE] on the property sheet.

- 8010 documents in OS 4.x, format will be converted to OS 5.0 format when they are opened on a workstation with OS 5.0 software installed. They may also be converted to OS 5.0 format by selecting [UPGRADE TO OS5] in the auxiliary menu.

- 8010 workstations using OS 4.x software are compatible with all OS 5.0 services. However, 8010 workstations using OS 5.0 are not compatible with OS 4.x services.

Converter Icon

- The converter icon is designed to convert documents, record files, and spreadsheets to and from formats other than 8010 format. It should **not** be used to upgrade documents from OS 4.x to OS 5.0 format. If this is attempted, the workstation will attempt to open the document and then post an error message that the destination format doesn't make sense.

- If you attempt to use the converter icon when there is too little space on your workstation disk, the system will crash. If a desktop is heavily populated with data icons and/or the document to be converted is lengthy, use the [SHOW SIZE] command to see how large the document is. Do not convert the document unless the desktop has twice that amount of space available.

- If you convert reference icons, the resulting destination icons will appear to be placed on the desktop at random locations. They are placed on the desktop near their last *real* desktop locations.

- If the source of a conversion is in an open container, the system will crash if the container is closed before the conversion is initiated or cancelled. Do not close the container with the converter option sheet open.

Converting 860 to 8010 Format

- You should immediately paginate after conversion.

- If an 860 document that contains text past the right margin is converted to 8010 format, not all text may appear. If this is the case after pagination, it is possible to adjust the left and right margins to make such characters appear, as there is a slight amount of error in these conversions.

  In addition, in each paragraph that contains tab characters and tab stops to the right of the right margin (as determined above), delete these tab stops using the carriage property sheet, and replace them with right flush tab stops either at or to the left of the right margin.

- If the 860 page width is less than or equal to 8 1/2 inches, it is converted to an 8010 page size of 8 1/2 x 11.

  If the 860 page width is greater than 8 1/2 inches, but less than or equal to 11 inches, it is converted to an 8010 page size of 11 x 8 1/2.

If the 860 page width is greater than 11 inches, it is converted to an 8010 page size of 14 x 8 1/2.

If a European 860 document has a width less than or equal to 210mm, it is converted to A4Portrait, or else it is converted to A4Landscape. Japanese documents are the same, except that if the 860 document has a page width of 182mm or less, it is converted to B5Portrait.

- A line containing centering, a right flush command, or any differences in tab from the previous line setting usage will be forced into a new paragraph. This may alter spacing between lines in the converted document.

- Right flush or centering commands at the left margin do not convert and can prevent subsequent text from lining up correctly.

- Right flush commands after spaces may not convert and can prevent subsequent text from lining up correctly.

- Right flush or centered text will not be positioned properly if the text attempts to overlap other text to the left.

- In a statistical block that has the left side of the first column defined by the left margin, no entries in the first column can be left flush (that is, they are always preceded by a tab in the converted document). This is not expected to be a problem since columnar data is almost always centered, right flush, or decimal aligned.

- A command to center around a point, occurring at a position to the right of the target point and separated from that point by one or more tab settings, will not center subsequent text as intended. This is a very special and unlikely case.

- If, in an original 860 document, text terminates within a few points of a tab setting and is followed by a tab character, there may be either one too many or one too few tab characters in the converted document.

- Any combination of index and/or reverse index operations that would produce character placement beyond "super/super" or "sub/sub" level is ignored. Placement is always reset to normal at the start of a line.

- Characters which are displaced by indexing will appear clipped after conversion. You can change line height to correct this. In any event, the characters will print properly.

- Text which is underlined and displaced downward by indexing will appear overstruck after conversion. Such text will be printed properly, however.

- Non-statistical aligned characters at the start of a string entered in a column will not be left flush in the column in a converted document (as they are in the original 860 document). They will simply be placed to the left of the data in the column, which may be right flush, decimal or center aligned.

- If the 860 document contains a format block in the middle of a paragraph and if the format block specifies changing margins, tabs or line spacing, the 8010 document will begin a new paragraph at that point.

- Looks in a header/trailer converting 860 to 8010 are determined from any looks characters which appear at the very beginning of the 860 header/trailer. Looks characters may be interspersed with one or many of the following set of characters: [lower tab, upper tab, regular carriage return, required carriage return, other looks characters, centering commands]. Once a character is encountered which is not one of the above set, all looks from that point on are ignored.

- Centering in 860 headers/trailers convert to a centered 8010 page label if the centering (at a point or between margins) occurs at the beginning of the header/trailer text . For centering at a point, the actual location of the point is ignored, and the page label is centered between margins.

- Since an 8010 document converted from an 860 document has page margins of 0, and paragraph margins that match the 860 page margins, two consequences arise:

    1. Centering between margins actually centers between the two sides of the page, not in conjunction with the paragraph margins, as they do in 860.

    2. Left-flush page labels are left-flush with the page margins of 0, so end up on the far left side of the page.

- Top and bottom margins convert exactly, with minor changes to allow for page labels. Since 860 page labels lie outside of the top and bottom margins, while 8010 page labels lie within these margins, the resulting 8010 margins will be the same as the 860 margins, plus the equivalent space for one line of text for each line of the 860 page label.

- Some tab settings will change from the original 860 document:

    1. Decimal Tabs. The regular tab and the second special tab are eliminated. The first special tab is converted to a decimal tab.

    2. Right Flush Tabs. The regular tab is eliminated, and the special tab is converted to a right flush tab.

- Be sure to use the upper tab key when adding tab motions to converted statistical documents.

- When converting from 860 to 8010, a format block that does not change paragraph properties (i.e., one put in automatically at the beginning of a page by the 860) does not cause a new paragraph character to be inserted into the 8010. However, the format block may be followed by tab motion characters which are preserved by the conversion and must be edited out in the new 8010 document. This is expected to happen infrequently.

- If a format block changes only the pitch, even though this is not a paragraph property, it may result in a change in the paragraph margins and tab settings because of the different way 8010 specifies margin/tab location compared with how the 860 does it. This in turn would cause a new paragraph character to be inserted in the 8010 document where one would otherwise not be.

Converting 8010 to 860 Format

- When an 8010 document with right-flush tab stops is converted to 860 format, a regular tab stop is added to delineate the left edge of the column. For right-flush non-columnar material, change the special tab stop to a regular tab stop, delete the regular tab stop which has been added and insert a right-flush code (code 1) between the tab characters and the text to be right-flush aligned.

- The regular tab setting added for a right flush or decimal column may appear too far to the left. In those instances, the tab should be moved.

- Conversion of a paragraph which is centered at a center tab causes decimal-aligned text in that paragraph to be centered .

- If the first line of an 8010 heading/footing page number pattern is centered, then all lines of the corresponding 860 page label will be centered. Otherwise the page label will be left-positioned.

- An 8010 document with PAGE NUMBERS properties specifying CONTINUE or RESTART but with a blank (null) pattern will yield an 860 document with no page numbering.

- The typeface of 860 page label characters is dependent on the typeface in the 8010 document. All characters in the 860 page label will either be bold, underscored, or overstruck, depending on the typeface of the first visible character in the

corresponding heading/footing page number pattern in the 8010 document.

Converting 860 Record File to 8010 Format

- 8010 records processing does not support duplicate field names. An 860 record file with duplicate field names **must** be edited to make each field name unique prior to converting the record file in 8010 records processing.

- All numeric fields in 860 record files convert to amount fields in 8010 record files. The 8010 amount fields can contain only numeric values or the following number-related characters: plus (+), minus (-), dollar sign ($), number sign (#), comma (,), and period (.). The plus and minus signs must relate to negative or positive numbers, and the comma and period can be used only as decimal or thousands delimiters.

  If an 860 numeric field contains non-numeric data, an error message will be posted and the record file will not be converted. 860 numeric field designations for social security numbers and dates are possible sources of conversion failures. Change such fields to alphanumeric before attempting to convert the record file.

- 860 records files must conform to 8010 record file limitations (refer to "Records Processing-General").

- If an incoming numeric field is blank, it will translate to a zero in the resulting 8010 record file.

Converting 8010 Spreadsheets to PC Format

- When any non-standard character (i.e., one not on the default keyboard) is included in a Star spreadsheet, and the spreadsheet is converted to a PC spreadsheet, the PC may reject the spreadsheet because of strange characters. The spreadsheet will not load correctly into VisiCalc, and seems to be blank.

Cover Sheets

- When displayed on the 8010, a cover sheet looks like a single long page. When formatted for printing, page breaks are inserted automatically. The margins are the same as seen on the display of the cover sheet.

  The page size is normally determined by the first page of the document; for documents whose attachments have no size, such as mail notes or folders, the page size is taken from the multinational default page size (refer to "Electronic Mail").

- When a cover sheet is displayed on a folder, moving and copying documents is the same as when the cover sheet is not displayed, with the following exception:

  - If the folder is empty and its cover sheet is displayed, you will not be able to move or copy material into the folder. Either close the folder and copy the material into the closed icon, or turn off the cover sheet and copy the material into the open folder.

- When a cover sheet is closed, either by closing the icon or using the Set Window option sheet, any edits to it are checked for validity and saved. In particular, items longer than 8000 characters will be truncated and a message displayed to the user.

  If any addressee fields (To, Copies, etc.) contain improperly formatted names, these will be deleted and a message will be displayed, even if the item is not being mailed. The operation will continue, and all items not in error will be saved.

  Names are checked for correct formatting, but they are not validated by the mail service. Validation will be determined only at the time the item is actually mailed.

- The cover sheet Subject field is identical to the icon name, and thus is subject to the 100-character limit. A message will be displayed if this field is truncated (refer to "Electronic Mail").

Desktop

Auxiliary Menus

- The [SHOW SIZE] command in the desktop auxiliary menu reports the number of disk pages a data icon consumes. The size of the cover sheet (if any) is not included. If a folder is selected, the command reports the total size of all icons inside it. If a reference or mail note icon is selected the command reports a size of 0. (A mail note consumes space, but the amount of space consumed is not displayed by this command).

- [UPGRADE TO OS5] which appears in the desktop auxiliary menu, will upgrade documents created on OS4.0 (or later) workstation software to OS 5.0.

- The [LOAD HELP OR INTRO FROM FLOPPY] which appears in the desktop auxiliary menu is used to load help and training files locally. It is used primarily in Standalone Star configurations.

- The [LOAD SYSTEM FILES] which appears in the desktop auxiliary menu is used to load optional workstation software, such as Spelling Checker, Data Capture, and Document Interchange Format.

- Auxiliary menus now appear in a window, property sheet, or option sheet header only when there is at least one item in the menu.

- If a window, property sheet, or option sheet header is not wide enough to display all the menu commands, those not displayed are placed in the auxiliary menu.

Icons

- All data icons have property sheets. This includes documents, record files, spreadsheets, folders, 860 documents, 860 record files, print format documents, mail notes, and references.

- If an object is of a type unknown to the 8010, it is displayed as an "unknown type of object," a document icon with three gray boxes in the corner. This type of file can be filed, mailed, or have its properties shown, but it cannot be opened.

Diagnostics

- If the mouse appears as a black box as shown below during diagnostic testing, there is a hardware problem with the input-output board in your workstation. Another symptom of this condition is that the keyboard mapping will be incorrect. As a result, keyboard input may not appear as you intended. Notify the System Administrator, who will contact the Xerox representative to fix it.

Illustration of mouse with the right button depressed.

Functioning **Malfunctioning**

- Specifying a sector count > 1 in the Floppy Command File Test will cause the system to crash when the test is executed.

- If Real Time Feedback is "Yes" and Wait for Response is "No" and Delay Parameter is <30 milliseconds, the Echo test may not stop immediately upon pressing <STOP> and a message "echo test not allowed..." may appear.

Directory

- Remote Network Access Speed-up. Obtaining a services icon (file drawer, printer, etc.) from a remote network using the Remote Directories divider is significantly faster. The Remote Directories divider is now labeled "Organizations."

  When this divider is opened, a list of the Clearinghouse organizations is displayed. Selecting and opening one of the organizations causes a list of domains in that organization to be displayed. At this point, the display is like the old remote directory display, except that only domains for the given organization are displayed.

  The standard remote directory top level (Basic Documents, Filing, Mailing, etc.) is displayed when one of the domains is opened.

- The blank reference icon is usable for accessing a remote file only if it is completely and correctly validated. You do this by closing the property sheet, with the validate option set. The reference properties then become *information only*, to indicate that they were correctly validated. This facility allows you to directly type the path name of a file on a blank reference icon, close the property sheet, and then use it as you would any other reference icon.

- The Network Management divider has been added to the directory icon. This divider contains TTY emulator icons which allow you to access the Services Executive when doing Remote Administration from a Star.

Documents

- Displaying and updating text is somewhat slower with [STRUCTURE] turned on, and it is considerably slower with [NON-PRINTING CHARACTERS] visible. These options should be used only when needed.

- You may experience an unexpected hourglass cursor when creating or editing documents; this is due to a change in the method for protecting documents. The hourglass appears from time to time as the system is copying your updated document to the workstation disk.

- All OS 4.x, documents will upgrade to OS 5.0 when opened. Alternatively, if you select an icon and then select [UPGRADE TO OS5] in the auxiliary menu, the document will be upgraded to OS 5.0.

Editing and Formatting

- Because the behavior of tabs in centered and right aligned paragraphs is unpredictable, they should not be used in such paragraphs.

- If a paragraph tab moves the effective left margin of the paragraph beyond the right margin, the text will disappear. The tab should be deleted immediately - attempts to select in the white space following the last visible line of the paragraph may cause the system to loop. To recover, boot the workstation.

- When a paragraph with non-zero margins is copied into a location so narrow that the left and right margins overlap, the resulting text will not display and cannot be selected. This can occur when text is copied to a parameter of a property sheet. To recover, bring up the property sheet, press <NEXT> if necessary to reach the problem-causing parameter, and delete it. If this happens in text, widen the page margins appropriately.

- [SAME PAGE AS NEXT PARAGRAPH] is automatically turned off when the paragraph contains a graphics anchor and the associated frame appears on the next page. A page break character must be inserted if this is not the desired appearance.

- The 8010 provides a large character set through virtual keyboards. Not all characters exist in all fonts, particularly the Printwheel fonts. A non-existent character/font choice is displayed as a black box on the screen. Classic 10 has the most

complete character coverage. Bold italic fonts do not exist for Classic; use Modern instead.

- Accents on uppercase characters may not display when the default line height is used. To see them, increase the line height.

Fields and Forms

- If the caret is not in a field, pressing <NEXT/SKIP> will activate the next field in document order. "Document order," however, is not defined for objects within a frame. Therefore, use the mouse to place the caret within the desired field if the fields are contained in a text frame.

- If a field has a format associated with it and is an argument to an aggregate operator, it must be "converted" using MakeAmount. For example, instead of typing Min[..., Field3, ...] you should type Min[..., MakeAmount[Field3], ...]

- Field names cannot contain periods "." or angle brackets "< >."

- If the Format property of an Amount field is set to some non-empty value not starting with a [+] or [-] character, then that field will display a negative value as the absolute value only, with no minus sign. Thus, if you have a special situation where you will indicate negative values by something other than a minus sign, use a Format that does not begin with a [+] or [-]. Conversely, if you want minus signs to appear for negative values, begin the Format with either [+] or [-]; minus signs also will display for negative values if you do not enter any Format.

- The field property sheet should not be opened if you are in set fill-in mode. End fill-in mode before opening the field property sheet. Similarly, [SET FILL-IN ORDER] cannot be selected while the field property sheet is open.

- The system may crash when you link to the field summary property sheet if your document contains a large number of fields. The maximum number of fields is related to the content of the fields and the time since the system was last booted. Immediately after booting a nearly empty desktop, as many as 200 fields might be displayed, but a range of 50 to 100 is a more typical maximum.

- The language property is not properly handled in the American version of workstation software for documents originating on the Japanese version, and vice versa.

Graphics

- When a circle is incorrectly magnified, it becomes elliptical. For example, if you select at the top of a circle and stretch or magnify the circle to a lower point, it will change to a small dot. If you then stretch or magnify the circle to a higher point, it will become elliptical. (This not only happens when you select the point at the top of the circle, but whenever the circle is stretched or magnified beyond the anchor point, regardless of where the selection was made.) *To avoid this problem, never stretch or magnify a circle beyond the anchor point..*

Tables

- Like all objects, tables occupy space in a document in addition to their actual data. It is useful to be able to estimate the space occupied by each table. As a rough rule of thumb for an empty table with 10 columns:

  Size in disk pages ≈ 10 + 0.15 × number of row elements

  A document can have up to about 1,100 empty data elements in a table, if the document contains nothing else.

- Any table or column name containing periods "." or angle brackets "< >" is invalid.

- A table column can be moved or copied to another table only when the number of rows in both tables is the same.

- A table row can be moved/copied to another table when the number and structure of the columns are the same (same number and order of divided columns, if any).

- To make a frame the same size, height, and width as the table it contains, select the border of the table and press <PROP'S>. In the display area, select [FRAME]. and set the frame to varying width and varying height.

- To turn off the border lines of a table, do the following:

  1. Select the table and use <STRETCH> to make the table frame larger than the table. The table will then appear centered within its frame.

  2. Select the table frame's border and use the table property sheet to change its border style to [NONE].

  3. Select the table's outer ruling line and use the ruling line property sheet to change its style to [NONE].

4. Select the border of the table and press <PROP'S>. In the display area, select [FRAME]. and set the frame to varying width and varying height.

- When printed, a multiple-page table will always begin on a new page. If the table anchor is the first character in the document, the document will begin with a blank page and the table will start on page 2.

- When printing, if you specify a page range that falls within multiple pages of a table, no pages will print. However, if the page range includes the page on which the table starts, the entire table will print.

Filing

Reference Icons

- Forwarding a reference icon will cause the name displayed in the reference property sheet to be incorrect. This does not affect the use of the reference icon; [MAKE REAL] and other reference icon operations still work correctly.

- If the remote folder to which a reference folder refers is unavailable, the reference folder will still open to allow the cover sheet to be viewed, but the [MAKE REAL] command will not be available. A message explaining the problem is displayed. The same behavior occurs if a blank reference icon has not been completed and validated.

- Document reference icons are pointers, and they may be moved, copied, or deleted with absolutely no effect on the real document or folder in the file drawer. When a folder reference icon is opened, however, it displays the actual contents of the folder in the file drawer. **Therefore, if an object is moved or deleted from a reference folder, the real object is deleted from the drawer.**

Other Filing Constraints

- Both documents in an unknown format and mail notes always display a size of "0 disk pages." The correct size of other documents can be found using the [SHOW SIZE] command in the desktop auxiliary menu (refer to "Desktop").

- A selection in a folder or file drawer window cannot extend past the end of the window. Scrolling a file drawer or folder deselects a selection inside that window. Scrolling is disabled within a file drawer, folder, or in-basket when a property or option sheet is open.

- If an object's name starts with a new line character or a space (which will be invisible), its position in a sorted container (at the start of an ascending sort, for example) will appear erroneous.

- At times, users of a file drawer may see a message that indicates they have inadequate access to the file drawer to do the type of action they are attempting. This message can also appear when the Clearinghouse Service is down. If users see such a message and know they have appropriate access, they should have the System Administrator check to make sure that the Clearinghouse Service is started.

- Some characters in file names are not converted correctly when a file is upgraded to OS 5.0. These characters are: tilde, left quote and right quote.

Fill-in Rules

- Fill-in rules that operate on aggregate operands in a table treat blank elements as zeros, *not* as missing. For example, the mean of a table row containing the values 5, 5, 5, 5, blank, and 5 will be 4.1666666667, not 5.

Floppy Disk Usage

- In OS 5.0, you must use **two-sided double-density** floppy disks.
- A floppy disk cannot be read if the **top level** object (document, record file, or folder) has a zero-length name. Zero-length names in nested objects are permitted; also, names composed of one or more spaces are permitted.
- The copy-to-floppy operation does not check beforehand to be sure the object to be copied can be contained on the floppy disk. You should use [SHOW SIZE] before initiating a copy to verify that the object is small enough. Approximately 2000 disk pages will fit on a double-sided floppy disk.
- If a copy-from-floppy operation fails (for example, because your workstation disk is full) there will be a partial copy of the object on the rigid disk but it will not appear on your desktop. Log on again and it will appear; then delete it, make more space on the desktop, and try again.
- Print format icons, reference icons, mail notes, and 860 record files cannot be copied directly to a floppy disk; they must be placed in a local folder, which can then be copied. Documents, folders, 8010 record files, and spreadsheets, however, can be copied directly to a floppy disk.

Fonts

- Note that the packaging of the screen font files has changed:

  AStarSmallModern.StarFont = Modern 6pt through 24pt.
  AStarLargeModern.StarFont = Modern 30pt and 36pt.
  AStarClassic.StarFont = Classic 6pt through 24pt.
  AStarPrintwheel.StarFont = Printwheel fonts.

Help and Training

- When a practice link is selected, the pointer does not assume the shape of a mini-icon. However, you should still point at a destination on the desktop and click the mouse button to cause the practice icon to appear.

- You can adjust the height of the Help window by moving the window control point.

- To improve performance, the table of contents is kept on the local disk after it has been retrieved the first time. Closing the Help window will cause all the help documents to be deleted except the table of contents. This particular document can be deleted only by selecting the Help window auxiliary menu command [DELETE LOCAL HELP DOCUMENTS].

- When the message "The remote help document isn't available" is displayed in the message window, there are two ways to see whether the document is really unavailable.

  First, press <HELP> again with the Help window open to refresh the table of contents, then select the desired link to get the document. If this does not work, check the disk space left on the local disk.

  You may not have enough room to hold the document to be retrieved (some training modules occupy up to 1727 disk pages). Delete some existing documents or close the Help window (this will delete any help documents retrieved through help links) to make more room and try again.

Logon/Logoff

- You must always logon using your fully qualified name. If you have a local desktop, you can select your name in the auxiliary menu next to the name field in the Logon Property Sheet, and your fully qualified name will be entered automatically in the name field. If you receive an "invalid user name" message when logging on, be sure to use your fully qualified name as shown by the [LIST LOCAL DESKTOPS] command or reboot your workstation before reporting a problem.

- You can log on when the Clearinghouse Service is down if you have a local desktop and you log on with the fully qualified name and password for any name shown by the [LIST LOCAL DESKTOPS] command. Without a local desktop you can also log on; however, the new desktop thus created will be inaccessible when the Clearinghouse Service is available again, as it will not be possible to validate the name and password used for the logon. For this reason, you should be careful to log on with your fully qualified name whenever the Clearinghouse Service is down.

  NOTE: This provides a limited standalone workstation capability: You may install a workstation unattached to an Ethernet and create a desktop on it; data exchange with other workstations in such case would be via floppy disk only .

- A new Clearinghouse Service which was started when another Clearinghouse Service on the same network was down may not learn of the other's existence for a period of time. A workstation that becomes attached to the new Clearinghouse Service (usually because the workstation was booted during the time the other Clearinghouse Service was down) will no longer know about the original Clearinghouse Service. As a result, any user on that workstation whose domain is that of the forgotten Clearinghouse Service may not be able to log on, even if the Clearinghouse Service comes back up or the user has a local desktop.

  Clearinghouse Services do a "Find Remote Clearinghouses" operation approximately every 12 hours, so the problem will clear itself within a day after it first occurs, assuming the downed Clearinghouse Service is restarted. Additionally, if the Clearinghouse Service has been restarted and the System Administrator executes the command to find remote Clearinghouse Services, the problem will be cleared at once.

Mailing

- The "To," "From," "Copies," and "Answer To" fields in a cover sheet can each hold about 333 fully qualified names. If an entry in one of the fields is too long, a message will be displayed and the user may edit the entry. The mail note can hold 8000 characters; more will be discarded.

- Selecting [FORWARD] in a folder in a file drawer or in a reference folder causes the system to crash.

- While posting mail, if you get an invalid recipient message, it may mean either that the recipient name is invalid or that the Clearinghouse Service could not be reached to authenticate your identity.

- When reading mail, selecting [SHOW NEXT] in a reference folder may cause the error message "Server not responding" to appear if the file service cannot be accessed.

- If an out-basket is set to deliver [TO ALL VALID NAMES] and a file is moved to the out-basket with no valid names specified as recipients, a message will be displayed and the file will be deleted.

- When sending mail, the parameters you change on the option sheet (To, Copies, etc.) are changed on the original as well as on the copy sent.

- When you open the in-basket, it displays the last screenful of the contents. (In earlier releases, it scrolled to the first new mail item.)

- **Use [DISCARD] with caution. Discarding any item in a folder deletes the entire folder.**

- Fully-qualified recipient names may not have extraneous blanks before or after any of their three parts. Messages posted to such names will be rejected as having invalid recipients. Rejection of apparently valid recipient names can usually be traced to this cause.

- While it is possible to send mail notes to workstations that have not been upgraded, you should be very careful about the characters used to compose the message. Messages should generally be restricted to simple character set 0 ASCII characters. In particular, no current characters which are in a character set beyond the last OIS character set should be sent. This could cause the older systems to crash.

Printing

Local Graphics Printing

- If you use a local graphics printer (a Diablo in the U.S. or a PT88 in Europe), if you use the Repaginate command in the printer menu and then press the STOP key while the document is being paginated, the workstation crashes. This is only true for local graphics printing. It works correctly for a network printer.

Remote Printing

- The page range option is ignored when printing a print format icon. Page range refers to the page numbers on 8010 documents only.

- A "spool full" response from the printer usually means that the printer's spooling queue is currently full of other print requests - the workstation will automatically retry. However, it also may indicate that the document being sent is too large to be handled by the print server. If so, divide the large document into smaller documents in order to print it.

- In certain rare cases, changing the printer icon properties while the queue is not empty may cause the workstation to crash. Users are cautioned to wait until the queue is empty before changing printer icon properties.

- Pressing <STOP> interrupts the pagination or formatting process, each of which happens in the foreground. <STOP> will interrupt the processing of the current object only; if you have a multiple selection, you will need to press <STOP> for each object in the selection.

- If your workstation user volume fills during printing, a message will be displayed to that effect and printing will terminate. In this situation, some unprinted documents may remain in the background print queue; to delete them and free up space at your workstation, log off and then log on again.

- If there are documents in the background queue at logoff and you choose to retain your desktop locally, the finish/suspend parameter on the logoff option sheet will not be displayed. Currently a warning message is posted telling you that printing will be suspended while you are logged off; when you next log on, printing will automatically restart.

- If there are documents in the background queue at logoff and you elect to move your desktop to the file service, a

warning message is issued telling you that you must wait until printing finishes before you can store the desktop.

- Documents converted for printing in OS 4.2 must be printed on an OS 4.2. (or later) Print Service.
- Interpress masters of documents will generally be smaller because of more efficient conversions.

Remote Electronic Printing

- The parameters at the print server can be set for an 11-inch tray and a 14-inch tray, even though both trays are 11-inch. The 8010 option sheet will display the choice of paper size as Letter and Legal. Thus users can use the Letter/Legal choice to specify a particular type of stationery.
- Bottom-centered page numbers in a landscape legal-size document will not print if the combined widths of both the left and right margins are less than 0.71 inch.

Remote Facsimile Printing

- The new OS 5.0 Systems Administration Library has a procedure that enables users to isolate equipment failure between a TC 495-I (telecopier) and an 8000 processor (server). This procedure does not currently reflect the options that the user must choose to run the Print Test Pattern test. The user must choose pattern type, size, and quantity as with Print Test Pattern test for the 8040 Electronic Printer. The user must also select local or remote printing of the output. If remote printing is selected, the user is prompted for the telephone number of a remote facsimile unit to which the test pattern is being sent. These options allow for more complete testing of the Facsimile Print Service and equipment failure isolation. Though the user interface for these options is expected to be familiar and self-explanatory, some customers may need assistance in selecting appropriate test options from field support people.

Training

- If you are going through the Introduction (selected from the Logon Option sheet) you should not invoke the End Session Command if there is a property sheet open. You must close the property sheet before ending the session or else the system will crash.

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5. NOTES AND CAUTIONS ON OTHER 8010 FEATURES

This section contains notes on both operational and functional changes as well as words of caution on possible problems that could arise when using certain 8010 features configured on individual workstations. Some additional information, in the nature of training details, is also included. The areas covered here are:

Data Capture
Document Interchange Format
Extended Language
Records Processing
Spelling Checker
Spreadsheets
Terminal Emulation

Data Capture

- Data Capture does not work on documents that contain margins or tabs instead of spaces to separate fields. It works only with source data that uses spaces to separate columns.
- In groups, a mismatch in a subcolumn will not cause the main column to be ignored.
- A subcolumn may re-enter data into a table from a main column it has already set up. This may occur if the source data for the subcolumn is on a subsequent line. The preamble may be written to avoid this problem, however.
- Data Capture software is deleted by reinstalling data files. If you reinstall data files for any reason, you must also reinstall Data Capture software.
- Data Capture may be executed on folders containing any types of objects. Any 8010 documents will be assumed to be Data Capture data. All others are ignored, and produce no results in the output folder. Also, if an error is encountered in processing a document, it is either ignored, if no text has yet been copied to table, or partial results are given if some copy has been started.

- Due to limitations in Tables, a Data Capture operation that results in a table with more than 1100 cells will crash.
- If Data Capture is used on pre-OS 4.x documents, the system will crash.

Document Interchange Format (DIF)

- If the DIF file contains the character '2' in position 1 modulo 80, the Remote Batch Service will not transfer the file.
- Unprintable characters show up as the tilde character "~."
- If DIF is used on pre-OS 4.x documents, the system will crash.

Equations

- Equations are placed within graphics-like frames. This allows you to put captions and margins on equations. Captions are especially useful for labeling equations with numbers in the right margin.

  There are some display problems with equation frames:

  1. portions of the border highlighting disappear during editing;

  2. portions of the control point highlighting remain after a frame is stretched or magnified;

  3. edits inside an equation frame which has been stretched to be taller than the equation will not update the display properly;

  4. inserting more characters into an equation than will fit in the column width will cause the equation to extend past the frame into the right margin, and some of the characters will be invisible.

  Most of the display problems can be fixed by scrolling the equation off the screen and back on. The problems with extra-wide equations can be fixed by deleting part of the equation or changing the column width and stretching the frame. None of the problems will damage the document or cause the system to crash.

- If you enter a block format character, you will not be able to select inside it. You must first select the structure to change the properties to at least three rows and columns.

- Although blocks in equations can be any height, brackets surrounding them are limited to a height of two lines.

Extended Language Option

- If you have purchased the Extended Language option but not Records Processing, you will be unable to view or print your user dictionaries. This is because user dictionaries are a specialized form of Records Processing. You will, however, be able to add and modify dictionary entries; complete look-ups using the dictionary; change active dictionaries; and move, copy, or mail user dictionary record files.

Functional Limitations

- The user dictionary is limited to 2000 entries. If the kana words used to make an entry are more than two to four characters long, the dictionary is then limited to 1000 entries.
- Entries made to the user dictionary by means of the add dictionary entry option sheet must be under 15 characters long.
- You may create only 14 separate user dictionaries.

CStar Chinese Typing

There are a few situations where the result of CStar typing may seem strange. These do not cause any harm, but they may be surprising. Such occurrences are consequences of the CStar typing method, and so they cannot be "fixed."

- Pinyin Ambiguity

  Some 拼音 spellings are the same except for an apostrophe between the words. In CStar, the apostrophe is used to finish a sound, not to divide words, so these words come up together:

  Example: xian / ㄒㄧㄢ / 先 = xi'an / ㄒㄧㄢ / 西安

- Pinyin to Bopomofo Ambiguity

  Some different standard 拼音 spellings involving 「ㄨ」 come out the same in ㄅㄆㄇㄈ. This makes CStar think the words have the same sound, and so these words come up together:

  Examples: shu / ㄕㄨ / 書 = shiwu / ㄕㄨ / 事務
  shuang / ㄕㄨㄤ / 雙 = shiwang / ㄕㄨㄤ / 失望

- Desired Word not in Dictionary

If the whole word that is looked up is not a dictionary entry, CStar tries to be helpful by leaving extra characters so that the typist can easily do a second lookup to complete the word:

Helpful example: hanyucidian / ㄏㄢㄩㄘㄉㄧㄢ => 漢語ㄘㄉㄧㄢ

But sometimes this attempt is simply not useful:

Useless example: mingyue / ㄇㄧㄥㄩㄝ => 名譽ㄝ

Records Processing

Records Processing should be thought of as a local, private data management system, and not as a conventional data base management system. As a result, some traditional data base features are not present in 8010 records processing:

- You cannot define a key in a record file (that is, a field that is guaranteed to contain unique values).
- You cannot link or join several record files for a single logical operation.
- You cannot access any given record file at the same time as another user (no shared access).
- You can access only local record files on your desktop (no remote access).

Size Limitations

- Practical maximum number of records: less than 1000. (For information regarding applications going beyond this limit, consult a Xerox Systems Analyst.)
- Practical maximum number of fields in a record: less than 30. (For information regarding applications going beyond this limit, consult a Xerox System Analyst.)
- Practical maximum size of a record: less than 1000 characters. (The theoretical maximum is up to approximately 8000 characters.)
- Practical maximum size of a given field: in the range of 50 to 100 characters. (The theoretical maximum is up to approximately 4000 characters.)
- The actual maximum will depend on the number of free pages on your disk, the amount of memory on your machine, and the relationship of the different size limits.

  For example, if each record has only two or three fields with about 10 characters per field, then it may be possible to have 5000 or more records. But if each record has 25 fields with about 50 characters per field, then the maximum number of records may be closer to 600.

  As the maximum is approached, some operations, particularly Make Document, may fail due to insufficient resources. When the maximum size is exceeded, the record file may become unusable (every operation attempted on it will fail). *Therefore, if you are using a record file which approaches any of these size limits, it is very important to periodically back up*

the record file by copying it to a File Service. Then when it starts failing, you can go back to the last usable version and split it into two smaller record files.

Operational Guidelines

- You should periodically back up record files by copying them to a File Service to guard against catastrophes such as damage to your disk.

- Record files are protected by means of a backup facility similar to that used in documents. The internal backup copy is created when the record file is opened, and updated after each major operation (such as changing a view property or deleting a view), and after every ten record operations (adding, deleting, copying, or edit, a record).

  If the system crashes while a record file is open, upon rebooting the record file will be restored to the last backup copy. This completely protects against normal crashes. It does not protect against drastic hardware failures which damage your disk. Nor does it obviate the need to periodically save copies of very large record files, since the internal backup copy is always very close to the size of the open record file, and thus may also become too large to operate upon.

- When working with Records Processing, always make sure there is adequate space left in the user volume to avoid Disk Volume Full conditions. A recommendation is that there be at least as much free space as the space used by the record file.

- If a "Volume Full" message occurs while using any Records Processing functions, you should reboot since error handling is inadequate to recover.

- While records processing does support a language property on each field per the defining fields, it is not displayed in the field summary property sheet; therefore, you should keep a copy of the defining document for reference. A good place to keep this is in the forms folder of the record file.

- Records processing implements a retrieval optimization called bounded searching, which enables much faster record retrieval when it is applicable. (Records are retrieved whenever a view is opened, thumbed, scrolled, or the view properties are changed, or when records are added or deleted from the view.) To enable bounded searching, you must turn on the save index property, and for each field which has an entry in the retrieval filter, add that field to the sort order.

- Required and range-checked fields are supported, but it should be noted that these are enforced on a field-by-field basis as entries are made to those fields. It is possible for

"required" or "range" specifications to be nullified by the following operations: moving or copying to a record file, a record file or document with fields or a table that does not contain those fields; or entering records via a formatted view that does not have these fields. It is also possible to nullify a "range" specification by entering records into a tabular view that does not contain that field. However, you cannot nullify a "required " field in this way. If you try to enter a record into a tabular view which has a required field turned off you will get a message saying that "The contents of the selected field have not been entered correctly." The blinking caret will appear, but its position will be determined by the position that the required field would have occupied. This can be confusing; sometimes the caret will appear in a displayed field, sometimes it may appear beyond the edge of the table. However, if you attempt to type and no text appears on the screen, you will know that the caret is really in a required field, and the text is being added to that field. There can be additional confusion if the required field is of a specific type or has a "range" specification. Since both the field name and your type-in will not be visible on the screen, it will be very easy to enter invalid field contents. If you do, you will get an error message each time you try to confirm. The best way to avoid this situation is keep all required fields turned on in a tabular view.

- Moving views above the Forms Folder: The system will crash if you select a view in the Record File top-level container and then try to move or copy it into or above the Forms Folder or Error Folder.

- If you try to use the End Session command while a view is open, and some field in the view has been edited to contain an invalid value (i.e., a required field is made blank or the value does not match the field type), then the system will crash during End Session. The same thing will happen if an invalid property is typed into a view property sheet (a filter which cannot be parsed, a sort field name which is not in the record file) and the session is ended while the property sheet is open.

  To be safe, either confirm or apply all edits, or else close all icons and property sheets, before using the End Session command. The Confirm, Apply, Close, and Done commands will detect invalid entries and give you a chance to fix them or cancel the edits.

- Deleting a selection containing the base view: The system will crash if you select some view other than the base view, extend the selection to the base view, hit DELETE, and answer YES to the prompt. If you accidentally try to delete the base view in

this way, you can avoid a crash by answering NO to the prompt.

Define Structure Constraints

- When a record file's structure is defined, the defining document must be on the desktop; it can not be in a folder or inbasket.

- When a record file's structure is defined, fill-in rules are ignored, and the tabular views do not compute any values. However, when records are viewed through a formatted display form that has fill-in rules, the values of the fields with fill-in rules are computed from the fill-in rules and not from the record file. To avoid confusion, it is best to use Define Structure with documents which do not have any fill-in rules.

- Do not use the [COVER SHEET] in the Set Window property sheet to turn the cover sheet on and off for an undefined record file. If you do, an extra [DEFINE STRUCTURE] menu item will appear. It will not go away.-Close the record file first and select [COVER SHEET] in the icon's property sheet.

- Defining Structure from a remote document: The system will crash if you Define Structure with a document which is inside an open file drawer. Only use local documents for Define Structure.

Record File Icon Operations

- A document, folder, or record file which is moved to a record file will not be returned to the desktop until you log on again; you should always copy objects to a record file.

Tabular View Operations

- Be careful not to include columns in a table output form that do not correspond to field names in the record file. If you do have a non-matching column (column name does not match a field name in the record file), a subsequent use of such a tabular form for [MAKE DOCUMENT] will present random data values in the non-matching column.

- You cannot move or copy a record-row either out of one record file tabular view to another record file tabular view nor to a document table. Attempting such an operation onto an open table or view will simply do nothing. Attempting it onto a closed view icon in another record file will cause a crash. Rows can only be copied within the same view.

- Since the order of rows in a tabular view is controlled by the system (they are displayed in sort order for a sorted view, and in their default order in an unsorted view), the MOVE command does not apply to row selections.

- Character properties are not saved for fields of type Amount and Date. Characters will be displayed with default properties as soon as you [CONFIRM].

- For tabular views, there is currently no message displayed when filtering results in no records passing. Only the blank entry row will appear, if it has been turned on.

- The end of very long text fields, those too tall to fit on a page, may not be visible on the screen within a tabular view or on a printout of the tabular view, since the tabular view display always starts at the top of a row. The entire contents of such long fields may be seen and printed through a non-tabular view.

- Using [MAKE DOCUMENT] in a tabular view may not be possible for a large table. If the resulting table would be wider than 25 inches, it would not be visible due to a document limit. If the resulting table is too big (it consumes all the available document space), the system will not crash, but the resulting table will not be complete and the records shown in the table will be those near the end of the sort order for the view.

  Do not select [MAKE DOCUMENT] when the number of records (rows) times the number of fields (columns) is greater than 500. **Note that the resulting table cannot be split across page boundaries by pagination, for display purposes.** However, you can paginate the table for printing on multiple pages. Also, you can move excess rows into other tables with the same properties.

- The table that results from selecting [MAKE DOCUMENT] in a tabular view may require modification to produce the desired appearance, particularly if you used the (Selected Columns) option as the document form.

  If you use a table form from the Forms Folder as your form for [MAKE DOCUMENT], all the properties on the table form will be picked up, including the page properties, the column properties, and the table frame properties. The character properties will be picked up from the character properties of the New Paragraph character in the first row of the tabular form.

  But if you use the (Selected Columns) option for [MAKE DOCUMENT], the system will use default page, table, and character properties which may not be what you want.

- Adjusting a row selection when the entry row is turned off:

  If the entry row in a tabular view has been turned off (via the [Remove Entry Row] auxiliary menu command), and a row selection is made, then attempts to extend or adjust that row selection will highlight the wrong rows. In some cases the system will hang while the adjust button is down, and never come back when the button is released.

  The only workaround is to turn the entry row back on (via the [Add Entry Row] auxiliary menu command) before attempting to extend a row selection.

- In a tabular view, when you copy a row with empty fields, and the system places the copy before a row containing text in the fields, or when you copy a row with carriage returns or wraparound text, and the system places the copy before a row with only one line of text, the following occurs:

  1. The copied row appears to contain text in its empty fields or extra ruling lines in the middle of the fields.

  2. The copied row may be hard to find since it does not appear as it did originally.

  3. The extra ruling lines or text in the empty fields of the copied row is not really there.

  4. The row will be painted correctly when a selection is made within the row or the view is redisplayed.

- If a row in a sorted tabular view is edited to cause it to move in the sort order, and some text in that row is highlighted at the time Confirm is invoked, then the highlighting will appear in the same screen location when the view is redisplayed (though in a different row). The highlighted text is not really selected.

- If the top visible row in a tabular view is selected but there are other rows above the top of the view, and the view is scrolled down so that some of these other rows move on, then the highlighting on the top selected row does not all move down with the row. There will be a narrow (about 4 points high) strip of highlighting across the new top row (even though it isn't really selected), and the highlighting on the first selected row will not reach the top of the row.

  This highlighting glitch can cause strange looks to subsequent actions. For example, if the row selection is extended upwards, it will appear to be split by the white stripe at the top of the formerly first selected row. Or if the partially highlighted row is deselected, the white stripe will turn black.

To get out of this mode, redisplay the view by thumbing to the current position.

- If the user selects some text in a field of a tabular view, presses MOVE or COPY, and then presses STOP before buttoning down, the system will correctly display "Operation cancelled.", but it will not rehighlight the selected text as it should (compare operation in a document). The text is still internally selected, though.

  For example, if the user presses DELETE the selected (but unhighlighted) text will be deleted; if the user instead presses BOLD it will turn BOLD. A different selection will clear this condition.

- There is no automatic horizontal scrolling in tabular views when the user presses NEXT or SKIP to advance the caret into a field which is off the screen. The user must manually scroll to see the field containing the caret.

Formatted View Operations

- Within a non-tabular or formatted view, treat the form as a template of fields, within which data from record fields in the record file is entered and displayed. Do not alter the content of the form outside the fields in a formatted view, or the system will think you have altered the contents of the fields themselves and display [CONFIRM] and [CANCEL].

  No change to the displayed formatted view is permanent; each time you open a formatted view, a copy of the master form in the forms folder is made. Likewise, when you select [MAKE DOCUMENT] in the formatted view, a copy of the master form in the forms folder is made and the contents of the fields on the display are copied into the resulting document.

- By themselves, character and paragraph properties applied to text selections in a *formatted* view are not noticed as edits. The changes take place on the screen, but [CONFIRM] and [CANCEL] do not appear. In order to have these changes reflected in the record file, you must perform some other operation (such as space/backspace) to cause [CONFIRM] and [CANCEL] to appear. Once they appear, select [CONFIRM].

- Character properties are not saved for fields of type Amount and Date. After Confirming, the new properties are still displayed on the screen. However, the next time you display this record, the Amount and Date fields will have the default properties again.

View Property Sheet Operations

- Select Row is not implemented in the View Property Sheets.
- To minimize scrolling the filter table in the view property sheet, consider placing those fields that will be used most for filtering as the first fields in the record file at Define Structure time.
- Invoking [CANCEL] in a view property sheet after [APPLY] has been selected will not cancel the property changes which have already been applied. It will only cancel any edits made to the property sheet since the last time [APPLY] was invoked.
- Whenever the user attempts to move text from one row to another in the filter specification in the stable or transient view property sheets, the system will crash as soon as the pointer enters a row other than the source row (rather than simply displaying a warning message, as it does in tabular views). *The only way to move text between rows is to first copy it from one row to the other, and then delete it from the original row.*
- Whenever the user attempts to copy text from an editted and unconfirmed row to another row in the filter specification in the stable or transient view property sheets, the system will crash as soon as the pointer enters a row other than the source row. To avoid problems, always confirm a row (by selecting in another row) before copying fields from that row.

Printing Views

- For tabular views, use the print feature only for views that can be printed on normal size paper (not wider than approximately 11 inches). If you attempt to print a tabular view that does not fit on the paper, the printed output is unpredictable and useless.

Spelling Checker

- Don't turn off a caption if Spelling Checker has found a misspelled word in that caption. The system will crash. If you want to turn off the caption you must close the Spelling Checker window first.

- If dictionaries are added to the dictionaries folder when the Spelling Checker window is open, the display won't be updated until the Spelling Checker window is closed and then reopened.

- If you are using the Auto-Correct feature in Spelling Checker, and the first correction encountered is boldface, after you select Correct and Continue, any subsequent Auto-Correct inside a table using this word will change to boldface even if the word isn't boldface. This will not happen to an Auto-Correct outside of a table--only inside the table.

- Many font changes in a table cause Spelling Checker to crash.

Spreadsheets

- You will not be able to access a spreadsheet when the cover sheet is activated. You will need to deactivate the cover sheet option.

- Moving a column to a location on the **right,** places it in the column to the immediate left of the destination column. For example, moving column B to column G results in column B moving to column F. Moving a column to the **left** of the destination column correctly places it in the desired position.

- There is no facility for defining decimal places with one exception: money format will result in two decimal places. Integer format gives you whole numbers only.

- There is no facility provided for locking cells.

- If you use the /- (repeating label) command to replicate a character across a cell, all the replicated characters will not print when a table is created and the document is sent to a printer.

- If you open a document on the righthand side of the screen while a spreadsheet window is opened on the lefthand side of the screen, the spreadsheet window will shrink to half its regular width. When the document located on the righthand side of the screen is closed, however, the spreadsheet will not automatically expand to its full screen width. To display the full screen width of the spreadsheet, you must close and reopen it.

- After changing a column width, if you insert that column into another, the inserted column will retain its old width. It will not pick up the new column width.

- The spreadsheet virtual keyboard can be invoked in several ways. If you select <KBD> on the spreadsheet property keys, the virtual keyboard will take effect, but will not be displayed. If you select <KBD> and then <SHOW>, the virtual keyboard will take effect and will be displayed in the lower lefthand corner of the screen.

- @ABS does not compute absolute values on spreadsheets.

- If you apply the **/GF$** command to a spreadsheet, all the values are set to $ format. If you apply the **/GFL** (left justification) command after entering **/GF$**, the spreadsheet is left-justified, but the $ format is not retained.

- The left quote (key on the left) has the effect of specifying a label entry beginning with a number. The right quote (key on the right) is treated as a character and entered into the cell.

- In the multi-lingual version of spreadsheet, the unit space and column width are larger. Characters are 1.3 times as wide as in the U.S. 8010, and the default width is 13 characters, as opposed to 9 in the U.S. 8010.

- If any pre-OS 5.0 spreadsheets contain DELETE characters, those characters will be dropped during the conversion to OS 5.0 and it will no longer be possible to enter a DELETE character in OS5. If other illegal characters are encountered during OS 5.0 spreadsheet conversion, they will remain unconverted and a message, "Unidentified character(s) encountered during conversion to OS 5," will be displayed. Furthermore, these unidentified characters may cause the system to "beep" if the command processing which follows the conversion rejects any of them.

- Spreadsheets cannot be printed by dropping them on a remote printer icon. If you attempt this, the system will display the misleading message "<name> has been printed" even though it has not been printed (there will be no output at the printer).

  Spreadsheets can be printed remotely by using the Make Print Format Document or the Make Table auxiliary menu commands, and dropping the resulting document on a remote printer icon.

  They can also be printed locally by dropping the spreadsheet icon on a graphics? printer icon.

Terminal Emulation

For more details on how to use the Generic TTY emulator refer to the OS 5.0 Update Booklet.

Asynchronous TTY

- Delete any pre-OS 5.0 TTY icons.
- It is VERY important that a "MAKE DOCUMENT" document be paginated before any editing or printing is performed on it. If it is not, unpredictable results may occur.
- Only ASCII or "plain text" files are supported in TTY
- Make sure the two new data files "TTyTranslations" and "TTyTerminals" are loaded with the other data files in the System catalog.
- The "ASCII-to-Star" translation files in "TTyTranslations" are now defined by the Xerox affiliate companies as are the Message and Keyboard files. These may be different for different installations. The "ASCII-to-Star" language translation is independent of the nationality of Keyboard file used.
- The screen default tab positions are eight spaces for VT100.
- Several error messages available for the TTY emulators are listed in the OS 5.0 Update Booklet.
- The LOCK key is not supported on any of the TTY keyboards.
- The emulator does not attempt to always keep the current type-in point (e.g., the bottom line) visible. The current type-in point is always viewable by using the window scroll bars.
- The top VT100 scan line graphic character may not be visible in a MAKE DOCUMENT file until the line height is increased.
- The VT100's AVO options are supported except for the attribute of blinking.
- The (Use Auto CRLF)/(Don't Use CRLF) parameters were moved to the TTY Option sheet as a selectable state parameter called "Line Termination Sequence" (LTS).
- The Don't/Use Local Echo command was moved to both the auxiliary menu (of the TTY window) and the Option sheet.

- The AutoCR function is now an on-off choice parameter on the TTY Option sheet, and renamed as "AUTOWRAP. "

- Due to performance limitations in Star, the activity of displaying the incoming characters may fall behind that of receiving those characters. Since it is more important to receive characters as fast as possible without losing any data, the displaying process can sometimes not get an opportunity to refresh the screen before subsequent characters come in. This appears as if some of the characters are getting lost because they never were displayed, but in fact, they were not lost, they just did not get a chance to be displayed before another character took its place on the screen.

  It is still the case that all characters scrolled off the internal screen buffer are saved in the backing "MAKE DOCUMENT" file. In the future, users will be given control over the amount of data he/she wishes to see during rapid data rates

- While the VT100 Answer-Back message may be entered into the Set-Up sheet, the emulator does not send it when an ENQ signal is received, or a CNTRL-Break is pressed.

- Japanese Kana and Kanji are not supported on the TTY keyboards. The SO and SI dynamic character mappings are not available for Kana and Kanji.

Remote System Administration

- The first version of Remote System Administration is available in OS 5.0 through the Network Management divider of the directory. It functions like, and has the same constraints as, the KSR35 TTY emulator. Its option sheet should always have a nil phone number and a terminal type of KSR35. All other parameters are ignored. In the future, this feature will probably have a separate icon of its own.

- The Remote System Administration connection should not be left open indefinitely (i.e., all RSA windows should be closed at the end of the day.) While there is no harm in maintaining a long connection, RSA will sometimes lose the connection unexpectedly after a long period of time, in addition to degrading the performance of other applications running.

- In order to use Remote Administration, the workstation must be configured? (product factored?) for TTY emulation.

3270 Emulation

- Delete any pre-OS 5.0 3270 icons.

- The following languages are supported by 3270: USEnglish, UKEnglish, German, Swedish, French, JapaneseKana, JapaneseEnglish

- When using the 3270 emulator as a typewriter-keyboard, the user can now put alphanumeric uppercase characters into a field defined as Numeric only.

The users are encouraged to review the Notes and Cautions for the External Communication Service.

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6. NOTES AND CAUTIONS ON REMOTE WORKSTATION

This section describes the notes and cautions on the Remote Workstation.

The 8010 Remote Workstation attached to an Ethernet via an SIU will work with combinations of the following configurations:

- Full duplex
- Speeds in the range of 2400 - 19200 bps
- Direct connect or external clock (modem)

Configurations that will fail include the following:

- Half duplex direct connect
- Full duplex at speeds less than 2400 bps

Configurations not tested include the following:

- External connections with speeds greater than 3200 bps
- External connections with speeds less than 1600 bps
- Half duplex external connections
- Half duplex speeds less than 9600 bps
- More than one workstation/SIU

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7. NOTES AND CAUTIONS ON THE 860 AND 820-II

This section contains notes on both operational and functional changes as well as cautions on possible problems that could arise when using an 860 workstation or 820-II on a network with OS 5.0 software.

The current level of 860 Ethernet Service software is 6.5, and for the 820-II is 5.0 .

Software

There are now four packages of software for the 860:

- 860 Ethernet Service 6.5
- 860 TTY 6.5
- 860 Ethernet 3270 6.5
- 860 Remote Ethernet Service 6.5
- 860's and 820-II's cannot use the Clusternet feature of the Internetwork Routing Service to dial into a network.

Mailing

- Mail accessed via networked 860 workstations or 820-II's imposes a substantial load on the Mail Service.

  If workstations frequently have difficulty in sending and retrieving mail, and there are many 860 or 820-II mailboxes per mail service, adding more mail services should help.

- Communicating 860's retrieving mail through the Gateway Service cannot read mail notes.

- Networked 860 workstations or remote 860's using 6.5 Ethernet Service Software or 820-II's using 5.0 Ethernet Services software can read mail notes.

- 8010 documents attached to mail notes still require conversion to 860 format when they are sent to 860 or 820-II recipients.

- Due to mail note compatibility in 860 6.5 Ethernet Services software or 820-II 5.0 Ethernet Services Software, the ability to automatically forward mail is no longer available. Documents must be copied to floppy disk and then remailed if they need to be forwarded to additional recipients.

- 860workstations and 820-II's cannot open folders that arrive in the user's mailbox. They can, however, read and copy to disk the mail note accompanying the folder.

- The ability to search within the mail in-box is no longer available using 860 6.5 Ethernet Service software or 820-II 5.0 Ethernet Service software.

- A mail note cannot exceed a total of 2500 characters. Mail notes that exceed the 2500-character limit will be truncated to that limit.

- Networked 820-IIs using 5.0 Ethernet Service. On the Single/Double quote key there is also an accent (') symbol. When pressing the Control plus Quote key, a cent sign (¢) displays in the command line, but displays the accent (') symbol properly in the index. The colon (:) displays as a colon in the command line, but changes to a hyphen (-) in the index.

- Networked 820-IIs using 5.0 Ethernet Service. The circumflex (^) symbol will not display in the mail service once it has been delivered. While in a new mail form,the circumflex displays both in the body of the mail note and in the subject field. However, once the new mail form is delivered, all circumflexes will be replaced by blanks.

Printing

- The Terminal font is a 10-pitch font that contains all ASCII characters. The Terminal font (TE = Xerox XC82-0-0 Terminal) must be listed on the profile options page to print documents containing ASCII characters. You can either replace the 10-pitch default font (T1 = Xerox XC82-0-0 Titan-Printwheel) on the profile options Page with TE = Xerox XC82-0-0 Terminal or identify the Terminal font ID number in the 860 format block.

- The scientific characters in an 860 document are now available in both 10 pitch and 12 pitch. To select the 10 pitch or 12 pitch characters, the respective pitch (10 pitch or 12 pitch) must be recorded as the pitch and SCIENTIFIC selected for the KB/PW in the Format Block. The Scientific Printwheel

requires two fonts to handle all the characters. The Print Service will automatically select the correct font based on the Scientific symbols used in Scientific equations.

- The OCR A and OCR B font is a 10-pitch font. The OCR A or OCR B font (OA = Xerox XC82-0-0 OCR A-Printwheel or OB = Xerox XC82-0-0 OCR B-Printwheel) must be listed on the Profile Options page to print documents containing OCR A or OCR B characters. You can either replace the 10-pitch default font (T1 = Xerox XC82-0-0 Titan-Printwheel) on the Profile Options page with OA = Xerox XC82-0-0 OCR A-printwheel or OB = Xerox XC82-0-0 OCR B-Printwheel or identify the OCR A or OCR B font ID number in the 860 Format Block.

Filing

- 860 and 820-II users must have read and write access as a minimum requirement for file drawers.

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