NOS V2.2 OPERATING SYSTEM

LEVEL 596/587

SOFTWARE RELEASE BULLETIN

Control Data Corporation recommends that the Software Release Bulletin be read in its entirety prior to any software installation.

SMD130531

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NOS Version 2.2 596/587 Software Release Bulletin
October 14, 1983

1.0 INTRODUCTION

The Software Release Bulletin (SRB) is to be used in conjunction with the Installation Handbook (IHB) for installing Control Data Corporation systems. Control Data recommends that the SRB be read in its entirety prior to software installation. Any conflicts between the IHB and the SRB are to be resolved in favor of the SRB.

1.1 Scope

The SRB is the vehicle whereby any changes to the IHB, after it has gone to print, are documented. The scope of the document has changed slightly from past SRB documents. To keep the size of the SRB more manageable and to make it a better tool for use during installation, the feature descriptions were placed in a separate document called Feature Notes. These feature notes are included in the release materials and should be read before the system is used in production.

1.2 Content

This document contains information necessary to build and install the NOS V2.2 system. The appendix section contains documentation on additional utilities: NOS CONTEXT, KEY Program, and the R Utility. They are targeted directly at usability and user friendliness. They add the capabilities to read manuals online, to program the function keys on a Viking 721 terminal, and to modify a previously entered command, respectively. These features along with the full screen editing capabilities, added system security, the convenience of the new deadstart features and the expanded version of the HELP library make the NOS V2.2 system easy to use.

2.0 NOS V2.2 RELEASE DESCRIPTION

This section lists the new features and enhancements of the NOS V2.2 system. Features marked with asterisks (*) are described in detail in the feature notes included with the release materials.

2.1 Operating System

NOS Screen Formatting
*Multilevel Security
*EST Expansion
*User Service Class Assignment
*System Identification
*Operational Enhancements
*Family Switching Restrictions
*Common Libraries
*Project Prologue/Epilogue
*Print Density (Page Size)
7155 Function Timeout Processing
Channel Parity Error Processing
HELP, HELPME, HELPLIB
KEY Program
*TRACER Enhancements
Full Screen Editor

2.2 Common Product Set

PASCAL 170 V1.1
*Print Density (Page Size)
NOS CONTEXT

2.3 Network Products

*Multilevel Security (NAM and RBF)
*Multi-Host
*NDL Options
*Communication Control Program Modifications (CCP)
*Block Protocol Modifications (CCP)

3.0 SYSTEM INSTALLATION NOTES

3.1 Unconfigured Deadstart Tape

The Unconfigured Deadstart Tape (UDST) contains sample CMRDECKs, EQPDECKs, LIBDECKs and IPRDECKs for CYBER 170 models 730, 760 and 825. These decks are provided as examples only.

3.2 Installation Tape

The format of the REL0 tape is described below:

File	Record	Description	File Name*
1	1	Procedure TAPE which installs files from REL0.	
	2	REP binaries (Installation Summary Report)	REP
	3-n	Installation Decks (MODIFY PL)	DECKOPL
2	1	UPDATE formatted program library for permanent corrective code.	CODEPL
3	1	UPDATE formatted program library containing compatibility mods	MISCPL **
4	1-(n-1)	Relocatable binary modules for the user library used in building QU3.	DBUBIN
	n	Absolute binary of DFRCV. This binary is added to file PRODUCT by the QU3 build job.	
5	1	NOS COMPASS coding standards.	CODING
6	1	SYMPL coding standards.	SYMPCOD
7	1	Copy of the sequential file needed to create an online manual for NOS CONTEXT.	MANUAL

* Permanent files are created from REL0 by procedure TAPE with the indicated file names. All files are direct access.

** MISCPL contains only NOS V1, NOS V2.0 and NOS V2.1 modsets for compatibility.

There is no corrective code on REL0 for this release for the Operating System or the Networks. Corrective code exists only for the product set.

3.3 Installation Procedures

3.3.1 STARTUP Procedure

The procedure STARTUP is a null procedure called at the beginning of each build job. It is a place to add commands to accomplish special needs. The following modset can be appended to COMMOD in order to add functions to STARTUP.

```
STARTUP
*IDENT STARTUP
*DECK STARTUP
*I,15
(Commands)
```

3.3.2 Disk Installation

Disk installation is selected by setting the value of DISKINS to YES. The NOS V2.2 IHB discusses each build job in terms of its input and output release files. This production of output release files is necessary only when permanent code is added to the program library (PC=YES) or when code is included for the build of the Common Code Generator (CCG). When this mode is selected, the amount of disk space needed for permanent files is doubled.

Since most installations will not be adding permanent code to release program libraries, it is not necessary to produce OUTPUT release files. Accordingly, the following parameter values prevent the installation procedures from writing output release files and allow the input release files to be used as AUXPL's. This saves considerable disk space and time needed to write the files.

```
OUTREL = NO
PSRIN = 587
PSROUT = 587
```

If DISKINS=YES, the VCROSS procedure attaches the permanent file NEW13A with PACKNAM and TYPE parameters defined in common deck COMD3B. If DISKINS=NO, then VCROSS requests tape REL13A.

3.3.3 File Maintenance

MOVEPF

The MOVEPF procedure has changed, consult the NOS V2.2 IHB for details.

CREUN22

This DECKOPL procedure is to be used from DIS to quickly establish new user names as needed during the installation process. Use only under NOS V2.2.

CREUN21

Like CREUN22, but creates new user names only under NOS V2.1.

3.3.4 Coding Standards

In order to provide a more readable and useful coding standard at NOS V2.2 the decks CODING and SYMPCOD are removed from the system program library. Instead, these two files are on REL0 and made permanent by the TAPE procedure.

The format of the data is such that if a site has upper/lower case ASCII printers the file can be routed directly.

If a site wishes to convert the released file to either 6/12 display code (for use with interactive editors, for example, or for an online manual) or to all upper case (for sites with no upper/lower case trains), the following procedures can be used.

To convert to 6/12 bit display code:

```
(obtain desired coding standard on FILE1)
FCOPY,P=FILE1,PC=ASCII8,N=FILE2,NC=ASCII.
(save FILE2, list it, etc.)
```

To convert to uppercase 6 bit display code:

```
(obtain desired coding standard on FILE1)
FCOPY,P=FILE1,PC=ASCII8,N=FILE2,NC=DIS.
(save FILE2, print it, etc.)
```

3.3.5 Resequenced and Deleted Decks for NOS V2.2

The following decks were resequenced at NOS V2.2.

COPYRT	SET
COMCPFS	OVJ
COMPFLR	OVU
COMSRSX	CPUMTR
COMS176	MODVAL
COMUCPD	CMRINST
COMUEST	IPRINST
CALLCPU	CPD
CALLDIS	ACPD
CALLSYS	ITP
DSP	

The following decks were deleted at NOS V2.2.

NOS	IAF	TOOLS
USEPROC	COMITES	UREPORT
RPTPROC		USAGE
COMMMSE		
OBP		
HELP		
SYMPCOD		
CODING		

3.3.6 HELPLIB Installation

HELPLIB is a user library containing a set of CCL procedures that provide the user with interactive syntax correcting and detailed help for the system commands. HELPLIB resides on user name LIBRARY. HELPLIB replaces the file CMDFILE/UN=LIBRARY and the HELP file from past releases. GENHELP is no longer available.

To install HELPLIB, use the procedure BLDHLIB from the unconfigured deadstart tape by entering the following DIS command:

```
BLDHLIB.
```

3.4 Miscellaneous Installation Notes

* The permanent file COMC999 is created by the COMPASS build job. It contains the common common decks. This file is used as an AUXPL instead of the COMPASS program library. The COMPASS corrective code, on file CODEPL, adds a common deck to COMC999. Therefore, you must build COMPASS since a binary installation of COMPASS will not create file COMC999. The COMC999 file must be saved for future rebuilds or products dependent on COMC999.

* The NOS V2.2 system cannot be installed without at least one serial disk drive. Configurations with only High Speed I/O (HSIO) disks cannot be used to install the NOS V2.2 system, thus one disk drive other than a 885-42 (HSIO) is required.

* MISCPL contains a modset, CPMPAGE, which is required only when installing NOS V2.2 on a NOS V2.0 or NOS V2.1 production system. The Print Density (Page Size) feature introduced product set incompatibility with earlier NOS systems. The Product Set code introducing this incompatibility is on the corrective code file and is automatically installed. This modset must not be used when building from the NOS V2.2 UDST.

* MISCPL also contains three other modsets, QLOAD51, QLOAD52 and QLOAD6, which are queue utility compatibility modsets. If in your environment you will be moving queue files from NOS V1 to NOS V2.2 or NOS V2.1 to NOS V2.2 (or vice versa) you will need to install these modsets. QLOAD52 is required for queue compatibility between NOS V2.1 to NOS V2.2 and QLOAD51 and QLOAD6 are required for queue compatibility between NOS V1 and NOS V2.2.

* Build jobs initiated under DIS or with origin type TXOT cause the actual build job to be submitted to the batch queue. These jobs cannot have preassigned files. For tape installations, files may be preassigned in batch jobs or when the IA parameter is present on the build command and the job is TXOT or SYOT origin type.

There are now several ways to apply your site code.

a) Call the installation job from a BATCH origin job. In this case, the installation will be done in that job itself, and USER site code may thus be on local file USER.

b) Set parameter IA=YES on the installation job call. This works the same as calling the installation job from a BATCH origin job, that is, the installation job is done from that job (no job is SUBMITted). Thus, site code may be on local file USER.

c) Place your site code in a permanent file, and reference the permanent filename with the USERF parameter on the installation job call. For example, if site code for FTN5 is on the permanent file FTN5U:

```
BEGIN,FTN5,INSTALL,USERF=FTN5U.
```

d) Change the GETUSER procedure on DECKOPL to obtain your site code. All the installation jobs, except for CCP, call the GETUSER procedure to obtain file USER. Modify this procedure to place your site code on local file USER.

* When installing from tape considerable time can be saved by copying REL3A to a permanent file and including a command similar to the following in batch jobs which use tapes.

```
ATTACH,REL3A=pfn.
```

where pfn is the file name of the permanent file containing REL3A.

* The FTN5 and FTN4 compilers are required by some of the build jobs at installation time. Customers not purchasing these products must order the compilers under a "maintenance only" agreement.

* The third and fourth files of the TOOLS release tape, REL2A, includes the sequential UPDATE program library for the KEY program, the binary Network Definition Language Conversion tool (NDLC) and instructions for converting an old NDL to the format required by NOS V2.2.

* The APL2 jobs, APLUSR0 and APLUSR1 may be executed at any time, if user code is not applied, to store APL2 permanent files from REL8B under user names APL0 and APL1. If user code is applied the output REL8B file must first be written and then used as input to the APLUSR0 and APLUSR1 build jobs. Additionally this release also includes commands in the build jobs APLUSR0 and APLUSR1 that store execution data in the file DAYFILS and JOBSTAT under the installation user name. If DAYFILS and JOBSTAT are not available they are created in APL0 and APL1 user catalogs.

* When subsystems and jobs initiated from the DSD command "X.ccc." are started, they no longer run under user SYSTEMX (they do run under UI=377777B). This will cause problems for subsystems (NAM and RHF in particular) that do permanent file accesses with UN= specified. This can be circumvented either by 1) making the files in question public or 2) adding a "USER,SYSTEMX,password." command to the subsystem procedure.

* The FORTRAN 4 Extended Compiler may be installed in a configuration that permits FORTRAN source programs to be compiled on a CYBER 76 (or 7600) using the SCOPE 2 Operating System for later loading and execution on a CYBER 6000 series machine. Check the OPTIONS common deck listing for the proper procedure.

* The CMRDECKs, LIBDECKs and IPRDECKs on the system program library have not been updated and should not be used.

* The second record of the first file on REL1K is a one line record stating that the FSTEACH file will be available in a future NOS V2 release.

* Several installation jobs exhibit non-fatal errors or "COPYL DID NOT FIND" messages. These are not conditions which affect the generated binaries. The following table lists these errors for the associated products. The frequency of occurrence of these conditions as documented below is relative to the products as released. Any local code may change these frequencies.

PRODUCT	NON-FATAL UPDATE ERRORS	PARTITIONS NOT REPLACED IN COPYL	NON-FATAL LOADER ERROR
ALGOL5		5	
BAM	1		
BASIC3		2	
CCL			1
PL1		1	
TEXT	1		
SORT5		1	
QU3		1	

* Four warning messages are issued when the RHF build job compiles deck N$EESET.

* The error ILLEGAL VALUE OF HF.P MICRO will occur when building FTN 4 if a value 740, 750 or 760 is used as the model micro. To build FTN 4 the 175 value documented on page 5-85 of the IHB must be used until the problem is resolved.

* As with the NOS V2.1 network, any 2550 used to run the NOS V2.2 network must have been upgraded to include the 8K RAM board - 255X-8K. (PN10449-1)

* The trusted path login character is defined at CCP build time. Instructions on how to define this parameter are described in the NOS V2.2 IHB. A trusted path default character is not included in the release material binary files.

* We recommend that users install a DEBUG network (using the NAM5D installation deck and the procedures for NAM5 as described in the Installation Handbook). Although this will degrade performance slightly, the DEBUG network will make it possible to gather the correct support materials to assist in problem resolution. A non-DEBUG network should be installed, using the NAM5 installation deck, after several weeks of trouble free operation.

* The parameter records (MINIT, MULTI, and MRECOV) have been added to the start-up Master File (NAMSTRT) for operating network products in a multi-host environment. Sites which run a multihost network should use RN=MULTI instead of RN=RESTRT in the NAM procedure.

  Coupler node numbers may now be in the range 0-63 instead of 0-31.

* The fourth file of REL2A contains an NDL Conversion Program (NDLC) along with sample input, output, and documentation on how to use it. The program has been verified for converting NDL's used on NOS V2.0 to the format now used on NOS V2.1 and NOS V2.2. NDLC should work on any system after and including NOS V1.3 through NOS V2.0. No conversion is necessary when upgrading from NOS V2.1 to NOS V2.2. The program converts binaries but will also convert source if NDLP from the pre-NOS V2.1 system is available to process the source. The program will do the following:

  1) Generate GROUP statements.
  2) Move login information for passive devices to the owning console's USER statement.
  3) Perform the majority of the conversions needed to get to the new NDL format.

  Programming System Reports may not be written against NDLC but feedback should be sent to Field Support.

* Two of the verification jobs run to verify that the build jobs have executed properly, VRHF and VLCS3, are both known to fail at NOS V2.2.

3.5 NOS Evaluation Changes to Installation Parameters

The following code was installed in the NOS system used for system evaluation. It is provided for reference only. These changes are not included in release materials.

TEXT INSTALLATION

The following code in installation job TEXT allows use of extended memory by the CYBER Loader.

```
*IDENT ALLOWECS
*I,IPARAMS.15
 IP.MECS  EQU     1B
*/ END OF MODSET.
```

LOADER INSTALLATION

The following code in installation job LOADER is used to turn off the LOAD map and define the LOADER preset value to zero.

```
*IDENT NOS01
*I LDRCOM.13
 IP.MAP    CEQU    0
 IP.PSET   CEQU    1
*/ END OF MODSET.
```

NAM2 INSTALLATION

The following code is a local modset to update the build level.

```
*IDENT BUILDLEV
*B,HISTORY.2
 BUILDLEV LOCAL MOD TO UPDATE BUILD LEVEL
*C HISTORY
*D,PSRLEVEL.3
      NAMLV C(1,18,5) = {"  596"}
*C,NAMLEV
*/ END OF MODSET
```

Caution - Two spaces must precede the NAM level 596.

4.0 NOS V2.2 OPERATIONS CHANGES

A number of features in NOS V2.2 have required changes in the deadstart text records and validation files. Full details of these enhancements are discussed elsewhere in the SRB or in the Feature Notes. This section identifies deadstart and operation changes related to the NOS V2.2 feature enhancements.

4.1 PROFILE File Changes

PROFILB files from pre-NOS V2.2 systems cannot be used on NOS V2.2 and must be converted to the NOS 2.2 PROFILC format. The name change allows both file formats to be maintained simultaneously. A restructure of the PROFILE file requires all families have their PROFILE converted to the new format. CHARGE processing will not work unless this conversion is done. The following is an example of a conversion of a NOS V2.1 PROFILE file to a NOS V2.2 PROFILE file.

```
(Deadstart the NOS V2.1 System)
(idle all jobs)
  X.DIS.
  USER(SYSTEMX,password,family)
  ISF,R=PROFILB.
  ATTACH,PROFILB.
  PURGE,SOURCE/NA.
  DEFINE,SOURCE.
  PROFILE,OP=S,S=SOURCE,P=PROFILB.

(Deadstart the NOS V2.2 System)
  X.DIS.
  USER(SYSTEMX,password,family)
  PURGE,PROFILC/NA.
  ATTACH,SOURCE.
  PROFILE,OP=C,I=SOURCE.
  ISF,E=PROFILC.
```

where family is the family on which the PROFILE conversion is being done.

4.2 VALIDATION Changes

The NOS V2.2 validation file is not compatible with previous validation files. When installing a NOS V2.2 system, the source used to create the new validation file must be created under the previous NOS system.

CAUTION - A NOS V2.2 validation file cannot be converted to a NOS V2.1 validation file.

The validation file names have been changed from VALIDUZ/VALINDZ to VALIDUS/VALINDS, so both sets of files can be defined for use when running NOS V2.2 and previous systems on the same permanent file base.

The following is an example of how to create the validation files for a NOS V2.2 system from a NOS V2.1 system.

```
(Deadstart with a NOS V2.1 system)
   X.DIS.
   USER(SYSTEMX,password,family)
   PURGE,SOURCEV/NA.
   DEFINE,SOURCE=SOURCEV.
   MODVAL(OP=S,FA)

(Edit SOURCEV to add new validation parameters as needed.
See description of new MODVAL input directives in the NOS
V2.2 System Maintenance Reference Manual.)

(Deadstart a NOS V2.2 system)
   X.DIS.
   USER(SYSTEMX,password,family)
   ATTACH,SOURCEV.
   PURGE,VALIDUS,VALINDS/NA.
   DEFINE,VALIDUS,VALINDS.
   MODVAL(OP=C,I=SOURCEV,RP,LO=E,N=VALIDUS,CV=F)
```

In order to allow family switching for all users the VALIDUS file must be rebuilt using the new MODVAL CV=F conversion option. If the conversion option is not used, the VALIDUS file will have disallow family switching by default. A new MODVAL access word directive AW=CSAF will toggle the family switching option. Sites running multiple families should read the Family Switching Restrictions feature notes for details.

Note that the MODVAL SI parameter should not be used for this initial create run, since additional security parameters need to be set on the special user name created by MODVAL. "DUPLICATE USER NUMBER" directive errors for these special user names will be listed on the output file (just ignore them). Also note that, as always, the MODVAL create option does not allow more than one user name with the same user index.

The GENVAL procedure has been removed from the deadstart tape and is now an entry point in MODVAL. After GENVAL has been run an ISF must be done manually whereas before this was done in the procedure.

4.3 MODVAL Changes

A MODVAL update run is necessary to change passwords on special user names. By default, MODVAL sets the passwords on special user names SUBFAM0 through SUBFAM7, NETOPS, PLATOMF, APPLLIB, FLAWPF, and LIBRARY to expire immediately, since they are unsecure. New passwords for these user names can be set via the PW and PB directives where PW and PB are the following:

PW=password.	Sets the same password for both batch and interactive modes.
PB=password.	Sets the batch password only.

The expiration date is automatically reset to non-expiring when a password change is made. The password for special user name SYSTEMX should also be changed at this time, even though it is non-expiring.

For MODVAL permission directives AP, AW, SAC, SAL, SAV, SO and VM, which toggle permission bits for a user in the user validation file, the default permission bit setting for a new user has been changed. Previously, by default a new user had certain permission bits set and entry of a permission directive toggled bits based on this default selection. For example, access word bits CCNR, CPWC, CLPF, and CSPF were selected by default, and an entry of an AW=CCNR directive toggled the default CCNR permission to off. For NOS V2.2 on MODVAL create runs only, the default permission bits will be selected for a new user only if no directive for that type of validation is entered. If a permission bit directive is specified, the default for that directive is not used (all bits initially cleared) and only the specified bit is toggled to on.

For example, access word default of CCNR, CPWC, CLPF, and CSPF is selected for a new user if no AW directive is entered. If an AW directive is specified for that user, all access word bits are initially cleared, then the bit specified is toggled to on (entry of an AW=CCNR directive toggles the CCNR permission to on and clears the status of CPWC, CLPF and CSPF).

Note that this does not affect user validations when recreating the validation file from a previous source, since the source file built by MODVAL contains a null setting for each permission directive before specifying which bits are to be set (AW=NUL, AW=CCNR, AW=CPWC, etc.).

On MODVAL create runs new users must be validated for DI user service class.

The MODVAL OP=I option has been deleted. The LIMITS command will return the same information in a more usable format.

4.4 Deadstart Changes

The deadstart process has several changes. The names of the various deadstart text records are now CMRDnn, IPRDnn, LIBDnn, and APRDnn, and a new type, EQPDnn (EQPDECK generically) has been added. The old CMRDECK information has been divided into two parts, with the non equipment related items remaining in CMRDECKs and equipment related items moving to EQPDECK. The "EQxxx=parameters." entry in EQPDECK now uses a "keyword=value" syntax, rather than a positional syntax. There are several new displays available during deadstart, which resemble DSD "E" displays. They should greatly aid reconfiguration at deadstart.

The restriction on the size of deadstart text decks has been removed.

Deadstart text decks are now found by name rather than by position.

Retyping an EST definition no longer erases the effects of REMOVE, ASR, FAMILY, etc., since it is now possible to type only the changes rather than the entire statement. To reverse the effects of REMOVE and the like, a new entry, "RESET=xxx.", has been added to EQPDECK. For detailed information consult the NOS V2.2 Operator Analyst Handbook and NOS V2.2 IHB.

The pseudo-equipments are now EST ordinals 0 through 4, and EST ordinal 5 is reserved for extended memory (DE/DP). The display console is now treated as a pseudo-equipment. In particular, note that the console is now EST ordinal 1, rather than (typically) 10, and null equipment is now EST ordinal 2, rather than 77B. Since most EQPDECKs have EST ordinal changes, caution when using INITIALIZE is urged, until you become familiar with the "new" EST ordinals.

The NAMIAF entry has moved from the CMRDECK to the IPRDECK.

The DSD,3 IPRDECK entry is ignored.

The following IPRDECK entries are ignored on a secured system:

```
ENABLE,SECONDARY USER CARDS.
DISABLE,SECONDARY USER CARDS.
ENABLE,ENGR.
DISABLE,ENGR.
DEBUG.
```

NOS now supports ESM in ESM mode as well as ECS mode. If the relocation memory hardware option is present, it may be necessary to use Maintenance Software to reload relocation memory before deadstarting the system. Use the Extended Semiconductor Memory Utility (ESMU) to reload memory. This should be done whenever the contents of relocation memory are not known.

To ensure that the proper microcode and EI have been loaded in a CYBER 170-8xx mainframe, the MICRO and EI IPRDECK entries should be used. Consult the IHB for further information.

An IPRDECK entry and DSD command have been added to select the use of the DDP for job rollout/rollin to extended memory. By default the CPU path is always used even if a DDP exists. The format of the command is ENABLE,DDP ROLLOUT PATH. Use of the DDP for rollout can be disabled by the command DISABLE,DDP ROLLOUT PATH.

4.5 Operator Changes

Multilevel Security restricts the access capabilities of the console operator and prevents the operator from altering data belonging to user programs, or changing the running system. To accomplish this, the concept of 'security unlock' status has been defined. In a secured system, the console must be in security unlock status to do any of the following:

* display memory outside of CMR
* change central or extended memory
* change the system access limits with the SECURES command
* change the equipment access limits of a unit record equipment with the SECUREQ command
* use the QDSPLAY utility (now requires an UNLOCK on an unsecured system)
* bring up DIS on a running job (now requires an UNLOCK on an unsecured system)
* set ENGR or DEBUG status at the console

4.6 Queue Utility Changes

The origin type-disposition type selection criteria for the queue utilites have been changed to file destination-disposition type. The options available for file destination are BC and RB. BC selects files routed to a local batch device. RB selects files routed to a remote batch terminal. SY is no longer available. Input files will be selected on the basis of the default disposition of output from the job.

When changing the destination of a file with QALTER to/from a local batch device to/from a remote batch terminal, the origin type and service class of the file will no longer be changed.

The origin type previously displayed by QFTLIST/QALTER has been changed to service class. For all other queue utilities, origin type has been replaced by the file destination, BC or RB. The Service Class has been added to the output listing as a one character symbol appended to the JSN.

The left screen K-display for the queue utilities has been expanded to two pages.

4.7 Permanent File Utility Changes

The default name for the release data file created by PFDUMP was changed from RDF to ZZZZRDF. The default name is used when the RD parameter on the PFDUMP command is specified, but with no file name. ZZZZRDF is already the default file name used by ASMOVE.

PFDUMP will now ignore the backup requirement when the purge option is set (OP=P). All files meeting the specified selection criteria will be dumped and purged, regardless of backup requirement setting. Files that reside on MSF will be copied to disk and fully dumped before being purged.

4.8 User Impact Notes

Each user name will have two passwords defined, one used for batch jobs, the other for interactive login. These passwords may be identical. All passwords will be encrypted in the validation file. This means it will not be possible to check on a user's password even from the console. The display code value will not be retained anywhere by the system. The batch and interactive passwords must be changed separately from a job of the appropriate origin type, using the PASSWOR command. An interactive job can only change the interactive password. In order to change the batch password, a non-interactive job must be run that includes a PASSWOR command.

Users who enter an invalid secondary USER command will no longer be aborted without EXIT processing or logged off IAFEX. Normal EXIT processing will occur. If secondary USER commands are disabled, no security count decrement will occur.

The default for the DROP command DC parameter has been changed from EX to ALL. A new parameter has been added to the DROP command. OP=R indicates that the specified executing jobs will be dropped without exit processing and for jobs with reprieve (RPV) processing, only a single reprieve will be processed. This parameter is useful for terminating jobs which loop in a reprieve processing sequence when dropped. The parameter is order-independent if specified in the keyword=value form. To drop the executing job ABFA with a single reprieve:

```
DROP,JSN=ABFA,OP=R.
        or
DROP,ABFA,,,R.
```

The RESEX tape assignment message has been changed. The EST ordinal is now three digits, and trailing spaces on the filename and VSN have been deleted. This may require changes if programs read their dayfile to obtain VSN information.

4.9 Miscellaneous Changes

In a secured system, the FAMILY and SUI commands will be invalid.

All subsystems should be enabled at a high number or low number control point.

5.0 NOS V2.2 OPERATING SYSTEM DIFFERENCES

This section describes the enhancements to the NOS V2.2 system that are not documented in the feature notes. Information on gathering statistics on the Full Screen Editor is included here. Several miscellaneous differences are also highlighted.

5.1 Function Timeout Enhancements

Processing of function timeout errors on model 7155 controllers now includes dynamic reloading of controlware into the failing controller without operator intervention. On models B and C 7155 controllers (serial numbers 1000 and up), the current I/O request will always be continued following the reload so that no interruption in system operation or availability will be perceived. On the model A controller (serial numbers below 1000), a small percentage of function timeout errors will necessitate termination of the current I/O request. Even in these cases, however, the dynamic controller reload will take place to prevent other jobs from encountering the error.

In the event that it is not possible to reload the controller, NOS will attempt to remove it from system usage.

It is important to understand that the success of this dynamic reload capability is configuration dependent. This also holds true for removing channels from system use. The configuration that will benefit most from these enhancements would have multiple system devices and dual access to most, if not all, drives. This feature does not apply to HSIO at this time.

5.2 Channel Parity Error Enhancements

Channel parity errors are detected after channel input via a PP instruction available on CYBER 170 models 815-855. On other models, the status summary of the status/control register is used. When a channel parity error is detected, the input instruction is retried until either the input is successful or it is determined the error represents a solid failure condition. If the failure appears solid, NOS will attempt to remove the channel from system use and continue the I/O operation through an alternate access. If no alternate access exists, the system will be placed in emergency step to protect file integrity. In any case, the operator will be notified of the condition and the action taken by the system. This feature does not apply to HSIO at this time.

5.3 Full Screen Editor Statistics

FSE installation creates an indirect access permanent file on the Installation user name which contains a procedure called SMFSTAT, which provides some statistics for the Multi-User Full Screen Editor (SMF).

The SMF subsystem must be executing for SMFSTAT to run successfully. To use the SMFSTAT procedure do the following:

1. Login to IAF under the user name where SMFSTAT is stored.

2. BEGIN,,SMFSTAT

   FSE will come up and you can then enter the GET DATA (GD) directive. If the editor is not executing, or if the SMFSTAT procedure is executed in a non-interactive job, this directive will have no effect. Otherwise, the GD directive will obtain some statistic words from the editors field length. Then enter the QUIT (Q) directive to terminate this edit session. This will start up a FORTRAN program to analyze the results of the statistics obtained from the GD directive. The program will display a preliminary report on the screen, and provide a more detailed report on a local file called STATOUT.

3. You can either route the STATOUT report to the printer or view it using FSE.

5.4 Miscellaneous System Differences

The new version of ACPD cannot process CPD data from pre-NOS V2.2 systems.

A CIO CLOSER/RETURN function has been implemented. It allows a magnetic tape reel to be returned when end-of-reel is encountered, without requesting the next reel. It is then the user's responsibility to request the next reel.

The system will now detect jobs hung in auto recall and issue the error flag RCET if this condition occurs. An auto recall hang is defined as issuing an RCLP system request when there is no activity which might set the request complete.

The limit checking on permits has been changed to allow only explicit permits (permission given via PERMIT control statement). The value of PMLM (defined in COMSPFM) is now set to 62 decimal permits.

CPM functions that previously required the caller to be SSJ= will now also accept callers with a subsystem ID (above LSSI).

The OBP overlay has been removed from REL1A and is replaced by QAP overlay 3BG.

Messages containing the system title and version are issued to the system dayfile, account file, ERRLOG, and Binary Maintenance Log every time a deadstart or DFTERM occurs.

The accounting increment to the SRU accumulator for MAP III is now scaled by the M1 multiplier before it is applied. The multiplier stored in control point area word MPMW is now M1*MAP III multiplier and occupies the top 18 bits of the word. Previously, it was the unscaled MAP III multiplier occupying the top 20 bits.

The length of the GETJA macro reply block is now five words. The new AUC accumulator (word AUCW of the control point area) is returned in the fifth word of the reply block.

The format of the output of several NOS utilities has been changed. Examples include CATLIST, ENQUIRE, Permanent file utilities, ACPD, etc.

Several changes in account file messages have occurred. Most of these fall into three categories -

* New messages - Refer to the System Maintenance Reference Manual for details.

* Messages no longer issued - The ACSR message has been replaced by ASCS - see below.

* Format changes - All messages containing EST ordinals (including those logged in the ERRLOG) have been changed to support 3-digit EST ordinals. Several messages now contain access levels. The ASCS message (which also replaces the ACSR message) now includes the accumulated SRU value which is no longer cleared when changing service classes. Refer to the SMRM for detailed formats.

The SMF subsystem is used to run the Multi-User Full Screen Editor, it has no relationship to the Screen Formatting feature.

Several changes in the system tables, monitor functions and function requests have been made, consult NOSTEXT and the appropriate decks to assess the impact.

6.0 NOS V2.2 PRODUCT SET DIFFERENCES

6.1 PASCAL

PASCAL 170 V1.1 replaced V1.0 and changes the following features:

* Command - the PASCAL 170 V1.1 command format adapts to the NOS standard control statement form.

* Character set - PASCAL 170 V1.1 restricts the recognition of certain alternative lexical symbols under the CDC scientific character set.

* Comments - Nested comments are now allowed, in agreement with the ISO standard.

* Conformant array parameters - PASCAL 170 V1.1 implements conformant array parameters according to level 1 of the ISO standard.

* Errors not detected by PASCAL 170 V1.1 will be documented, per the ISO standard.

* The use of for-statement control variables is restricted, per the ISO PASCAL standard, in order to ensure the security of the control variable throughout the lifetime of the for-statement.

* PASCAL 170 V1.1 follows the ISO PASCAL standard regarding assignments to functions.

* PASCAL 170 V1.1 more strictly enforces the rules specified by the ISO PASCAL standard governing the use of labels and GOTO statements.

* PASCAL 170 V1.1 implements the standard procedures NEW and DISPOSE according to the ISO PASCAL standard.

* PASCAL 170 V1.1 strictly enforces the rules governing the use of packed types. Procedures PACK and UNPACK now conform to the ISO PASCAL standard.

* The procedure PAGE conforms to the ISO PASCAL standard.

* The procedure READ conforms to the ISO PASCAL standard.

* PASCAL 170 V1.1 more strictly enforces the rules specified in the ISO PASCAL standard governing the scope of identifiers.

* Record-types are processed according to the ISO PASCAL standard.

* Textfile output conforms to ISO PASCAL standard.

* Compilation time options allow diagnosis of non-standard extension to the language and switching on or off all compiler options specified within the source text of a program.

* ORD (sets) is not allowed.

* WRITE (pointer), WRITELN (pointer) are not allowed.

* Use of OCT and HEX for integer output to text files is not allowed.

* SEGMENTED TEXT replaces PASCAL 170 V1.0 SEGTEXT.

* A command parameter replaces PASCAL 170 V1.0 LINELIMIT.

* Use of compiler options A, E, I, O, U can change the meaning of a program. A warning message will accompany selection of these options.

6.2 DDL3

Caution: The DDL3 default file organization for QU/CRM subschema has been changed from OLD to NEW by a PSR contained in this release. This change has been made to avoid problems during Query Update execution in AAM initial file support. If initial file support is available and usage of it via QU is desired, then in the QU/CRM subschema compiler input, organization OLD must be explicitly specified.

7.0 NOS V2.2 MULTI-HOST NETWORK DIFFERENCES

Network Products have been modified to support multiple CYBER and non-CYBER mainframes interconnected by 2550s, trunks, and X.25 PDNs.

A multi-host network is defined in NDL by simply adding COUPLER statements for each CYBER connected to an NPU. (Remote foreign hosts or CYBER accessed via X.25 trunks or Public Data Networks are not considered to be part of the site's network and therefore are not defined in the site's NDL.) The new HNAME parameter on the COUPLER statement allows the installation to assign a name to each host which can be referenced by terminal user to select a host. The SUPLINK statement and NOLOAD parameters on the TRUNK statement can be used to define the supervisory responsibility of each host relative to each NPU in the network. The LOGLINK statements define what hosts the terminals connected to an NPU can access. Logical links defined between 2 couplers allow applications in two hosts to establish connections with one another. For a more detailed discussion of the network differences, refer to the network features notes.

Guidelines and Cautions

* Each NPU that has access to more than one host via couplers or trunks should be equipped with a System Autostart Module/Cassette (SAM-C) in order for the NPU to be able to be loaded by any available host. Refer to Appendix A for a detailed discussion on SAM configurations. All remote NPUs (those with no channel connected host) must have a SAM-C. If a front-end NPU is not equipped with a SAM-C, the host connected to the primary coupler must be the host that loads the NPU, and its EST entry must not have the SAM flag set. If the NPU is connected to a second host via a secondary coupler, its EST entry in the 2nd host must have the SAM flag set.

* There is no way to dynamically override the EST SAM flag or the NOLOAD parameters in the NCF. NAM and/or NS must be dropped to recognize changes in the SAM flag or the NCF.

* If AUTOLOG is specified in NDL to auto-login a terminal to one host, the network software will try to auto-login the user to any host he/she selects. Therefore, the LCF for every host an auto-login terminal can select must have some auto-login parameter specified or the system will not let the user login.

* NAM will not accept incoming X.25 A-A connection requests where the Incoming Call Request Packet contains facility codes other than the CCITT internationally coded facilities for window size, reverse charging and packet size. PDN unique facility codes will not be recognized at this time, therefore, PDN connections must be configured as "pure" X.25 connections. (Note: TELENET facility code are not recognized)

* All hosts and NPUs in a network must run the same level of software.

* All hosts in a network must use the same display code character set.

* Connections between terminals and hosts may not span an X.25 link or more than 1 trunk.

* Connections between applications may not span more than 1 trunk.

* An NPU may be loaded over a channel coupler or a CDCCP trunk, but not over an X.25 link.

* There may not be more than 1 trunk between 2 NPUs.

* Trunks must be assigned to consecutively numbered ports, starting with 1.

7.1 Block Protocol Modifications

New User Break Protocol

The FC/BRK, FC/RST supervisory messages and the Break Occurred flag no longer exist in the AIP interface for terminal-application connections. Instead, User Breaks 1 and 2 are conveyed to the application using the INTR/USR and BI/MARK messages. The application responds with the INTR/RSP and RO/MARK messages. The QTRM interface is not affected.

X.25 Protocol Support

The FC/BRK, FC/RST supervisory messages and the Break Occurred flag no longer exist in the AIP interface for terminal-applications connections. FC/BRK and FC/RST supervisory message application connections cause or indicate an X.25 RESET condition on an X.25 connection.

The QBLK and QMSG message types have been added to permit an application to send or receive Q-bit packets to/from an X.25 A-A connection.

Cautions:

* All input data on an X.25 A-A connection is delivered as transparent data. Applications therefore must not use the NXP (no transparent input) option on A-A connections that may cross X.25 links.

* Applications may receive new supervisory mesages from the host operator (HOP/DB, HOP/DU, etc.) which they must be prepared to accept, if not process.

7.2 Network Operator Modifications

New capabilities are available to operators to allow them to control multi-host networks. To provide this enhanced capability, new operator commands and enhancements have been added.

* A new type of operator has been defined called a Diagnostic Operator (DOP). This operator can only status network elements and run NPU diagnostics.

* To be a controlling NPU operator (NOP) the user must not only be validated to connect to CS, but also be validated to be a NOP. Merely being validated to connect to CS only gives the operator DOP privileges.

* A NOP does not automatically receive control of all NPUs when invoking the CONTROL command. The NOP must specify which NPU to control.

* Reporting of unsolicited status (except for a few cases like the gaining of NPU supervision) is now screened by default. There are two ways a NOP or DOP can receive unsolicited status: 1) use the new REPORT command, or 2) be in control of the NPU. For Host Operators HOPs all reporting is turned on by default.

* CS now issues alert messages based on NPU statistics reported for CPU and buffer utilization. The reporting threshold can be changed by using the new ALERT command.

* The capability of enabling all trunks and logical links on an NPU has been added.

* Like the SEND command, the STATUS, ENABLE, DUMP, LOAD, GO, CONTROL, REPORT, and ALERT commands all have the NPUS option.

* Any NOP or DOP can now send messages to other operators connected to the same CS.

* The host operator (HOP) can send messages to the HOPs of other hosts.

* The HOP can enter debug commands to NAM and any other network applications.

* CS will now let the operator queue multiple STATUS or SEND requests rather than rejecting them while a SEND or STATUS request is already outstanding.

* NAMI has been enhanced with an RS parameter. This allows you to restart a network application without taking NAM down.

7.3 New NDL Options

New parameters were added to NDL.

* The XAUTO parameter has been added to select auto-recognition of speeds in the range 600bps - 9600bps. AUTO selects auto-recognition of speeds in the range 110bps - 2400bps.

* The ARSPEED parameter has been added to allow the installation to select whether or not the user is allowed to change terminal speed with the TIP command, AR.

* Terminal classes for the Viking-721 and X3.64 terminals have been defined. The value for the Viking-721 is three and for the X3.64 is seven.

* Parameters PFAM and PUSER to define a primary family name and user name have been added. These parameters allow the user to be automatically logged in without being prompted for family or user names, but the user can change them if he so desires.

* The EOF parameter allows the installation to cause the Mode 4 TIP to send an end-of-file sequence for every eof encountered in a print file.

* User values for the SDT parameter have been defined.

* The HNAME parameter has been added to define the name of a host. This name may be used by the terminal user to select a host.

* The Line Access limit has been added to allow the installation to constrain the security level of data the user can access via a terminal.

* The HD parameter has been added. It specifies whether the NPU will automatically display the available hosts to connect to.

* The HN parameter has been added. It selects the default host node ID to which a user will be connected.

* The AUTOCON parameter has been added. It specifies that a user will automatically be connected to the selected host when the terminal initially comes up.

7.4 CCP Enhancements

Users are now notified when CCP discards input for reasons other than flow control by issuing the INPUT DISCARDED.. message.

The default page length for terminal classes 2, 3, and 5-8 has been changed from zero to a non-zero value. This allows users to turn on page-wait at these display terminals by simply setting PG=Y.

8.0 HIVS (CTI) MODIFICATIONS

The 596 release of NOS contains level 149C CTI/HIVS. Level 149C CTI/HIVS has been updated with the following features.

- Support for control store memory checking on CYBER 170 - 815,825,835 and 855 mainframes.
- A utility to allow users to clear all of ECS/ESM memory.
- Display of the levels of microcode and EI residing in the CTI/MSL Disk Area by the CTI/MSL disk utility.
- Transfer of microcode and EI levels with assembly dates to the operating system.
- Support of CYBER 170-865/875 mainframes.

9.0 MASS STORAGE SUBSYSTEM MODIFICATIONS

When MSS is unable to stage a file because of a temporary error (e.g. MSF hardware problems, missing cartridge), the MSS executive will set a temporary error flag in the PFC and abandon the stage request. When PFM detects the temporary error, the ATTACH request will be aborted and the message (FILENAME) TEMPORARY ERROR, TRY LATER. issued. PFM will clear the temporary error flag so that when the user attempts to attach the file again, the stage will be retried. In the past, no error flag was set and PFM would retry until the stage was successful or the user terminated the request.

PFDUMP will also check for temporary errors and if found, only the PFC and permission information will be dumped for the file. PFDUMP will clear the temporary error flag and issue the dayfile message PFDUMP - MSS TEMPORARY ERROR, FN=filename, UI=userindex. The message which was issued for permanent errors, PFDUMP - ALTERNATE STORAGE ERROR, FN=filename, UI=userindex, has been changed to PFDUMP - MSS PERMANENT ERROR, FN=filename, UI=userindex.

10.0 IAF MODIFICATIONS

The default size of the input message to IAF has been increased to 2500 decimal characters. User program input buffers must be large enough to handle the entire message or excess data will be discarded without notification.

Typeahead processing has been changed so that no input prompts (? or null) will be generated by IAF when input is available for processing in IAFs FL. This means that, when typeahead is used, fewer question marks will appear at your terminal, perhaps none. If you do not use typeahead, input prompts will appear as usual.

11.0 TAF MODIFICATONS

A USER command has been added to the TAF Configuration file (TCF) to allow the site to remove the password from the TAF binary. Only one USER command may be included in the TCF and it must be the first command specified.

The meaning of some values of the parameter on the TAF CEASE request has changed. Values 0, 1, and values greater than 1 remain unchanged.

The meanings of the values for the CEASE parameter are now the same for COBOL, FORTRAN, and COMPASS. The following chart describes the new values:

Parameter Value	Type of CEASE
0	Normal CEASE.
1	Abnormal CEASE without memory dump.
-1	Normal CEASE and terminal is not to be unlocked.
-377777B to -2	Reserved for CDC
2 to 377777B	Abnormal CEASE with memory dump.

Extreme caution should be taken in using this request for the following reasons:

a. NAM delivers data obtained from the terminal to TAF only when it has received the last message block (i.e. Application Block Type is 2).

b. TAF sends a logical last message block to the terminal only when the last task in the transaction ceases or during processing of the WAITINP request. (All task messages sent as block type messages, such as ABT=1).

c. Issuing CEASE with a parameter of -1 means TAF will not send the logical last message block downline for this transaction. This means TAF will not receive any data from the terminal upon completion of this transaction. Unless there is a transaction still executing for the same terminal, logically the terminal is locked. The only way out is to power off and login again.

If the application can ensure the order of the transactions for a terminal, all except the "last complete" transaction should issue CEASE with -1 to ensure the sequence of input/output.

12.0 REMOTE HOST FACILITY (RHF)

12.1 Banner Pages

NOS V2 banner pages for output files that have been transmitted across the network are produced using the same philosophy that NOS V2 uses for output files from local jobs. That is, the banner page is produced from a hash of the user index of the user that submitted the job or routed the file.

Thus if a user submits a job to another mainframe via LCN, the output returning will be given a banner page of the hash of that user. In some cases a user cannot be identified for that hash generation, and in that case the job name (or UJN or FID) will be used for the banner page.

* Typical Cases

- Network contains only NOS V2 mainframes having equivalent validation files. Thus all LIDs in the CMR LID table will have the "validate" bit set.

  For this case banner pages should be identical to what would be expected on the local mainframe case and will be the same on all mainframes.

  If a user submits a job from one mainframe to another for execution, the output from the job will, by default, return to the first mainframe for printing and will have a banner page of the hash of the user submitting the job. If a user transmits a print file from one mainframe to another, the banner page will be the hash of the user that routed the file.

- Network contains only NOS V2 mainframes having equivalent validation files and NOS/BE mainframes. Thus all LIDs for NOS V2 mainframes will have the "validate" bit set.

  All files transmitted only between NOS V2 mainframes will follow the same rules as above.

  Output from a job submitted on NOS for execution on NOS/BE will return, by default, to NOS for printing.

If the file has an identifiable user name (job submitted on NOS from an IAF terminal or from a batch job) then the banner page will be generated from that user.

If there is no identifiable user name (job submitted through BIO or RBF) then the banner page will be the UJN/FID. The UJN/FID will be the NOS/BE job name (from the job statement) or the UJN or FID if one is specified on a ROUTE statement or directive.

If an output file is transmitted from NOS/BE to NOS for printing then the banner page will again be the UJN/FID. The UJN/FID will be the name of the NOS/BE job that routes the file (job name or the terminal hash=IOxxOxx) or the UJN/FID specified by the user on the ROUTE statement or directive.

- Network contains only NOS V2 or NOS V1 mainframes that have equivalent validation files. On NOS V2 mainframes all LIDs will have the validation bit set.

  All files transmitted only between NOS V2 mainframes will follow the same rules as in the first typical case. Files transmitted to NOS V2 mainframes or returning to NOS V2 mainframes will also follow those rules.

* Other Cases

It is recommended that sites use equivalent validation files if possible. The use of different validation files may cause some confusion about banner pages and job validation.

<u>The remainder of this section on banner pages should be skipped except by those with a real need to understand the intricacies of this topic.</u>

Terminology: Owner User Name - Owner User Name is the user name of the user that routed the job or output file to the I/O queue. If a file is routed from IAF, then the owner user is the user name of the person logged in at the terminal. If a job is read in from BIO/RBF, the owner user comes from the job's USER command. If a job or file is routed from a running job, then the owner user of that file or job is copied from the owner user of the job doing the route.

Example: (NOS V2 configuration with different validation files and thus the "validate" bits not set in the CMR LID table).

- user routes an output file from one mainframe (A) to another (B).

  There are three cases:

  1) Owner user on mainframe A is also valid on B and has the same user index on both mainframes. In this case the banner page on mainframe B will be the same as if the file had printed on A.

  2) Owner user on mainframe A is also valid on B but the user indexes on both mainframes are different. In this case the banner page on mainframe B will be generated from the user index on mainframe B of the owner user.

  3) Owner user on mainframe A is not valid on B. In this case the UJN is used. There are three cases:

     - Route is done from IAF - Default UJN will be the hash of the user logged into IAF.

     - Route is done from batch job - default UJN will be the job card job name.

     - Route statement or directive specifies UJN or FID. This value will override either of the other two cases.

The following chart gives specific information about the banner page generated for an output file received on NOS V2 from the network. The following terms are used in the chart:

* OUN - Owner User Name

* Hash of sending MF OUN - This is the hash on the receiving mainframe of the sending mainframes owner user name for this file.

* RJN - Remote job name - This is the name assigned to the file by the sending mainframe. This name is overridden by a ROUTE directive UJN or FID parameter.
  If the sending mainframe is NOS/BE:
  The RJN is the name of the NOS/BE job that routes the job or file (job name or terminal hash IOXXOxx) or the FID parameter specified on the ROUTE Statement.
  If the sending mainframe is NOS V2:
  The RJN is the UJN of the job that routes the job or file (job name or terminal hash) or the UJN parameter specified on the ROUTE statement.
  If the sending mainframe is NOS V1:
  The RJN is the NOS V1 job name (user name hash plus sequence number or terminal number).

* Originating Mainframe

  Mainframe where the job that resulted in this output file transfer first entered the input queue. If that job was submitted from another batch job, then the mainframe where the first of the series of jobs entered the input queue.

  If a ROUTE DO parameter was entered anywhere along the series of job/file transfers, then the originating mainframe is changed to the last mainframe on which the ROUTE with DO parameter was entered.

  Note: This term is not to be confused with the term "Source Mainframe" documented in the reference manual.

NOS V2 BANNER PAGE

Use of Chart:

The conditions listed in each condition column will cause the banner page value listed at the bottom of the column.

	CONDITIONS				
	1	2	3	4	5
Output returning to originating mainframe	YES	YES	YES	NO	NO
Job has valid owner name*	YES	NO	NO	**	**
Sending mainframe is NOS V2 and owner user on that mainframe is also valid on this mainframe.	**	YES	NO	YES	NO
BANNER PAGE VALUES	OUN HASH	HASH OF Sending MF OUN	RJN	HASH OF Sending MF OUN	RJN

* The job on the originating mainframe was submitted from IAF or another batch job, or the job on the originating mainframe was submitted through BIO/RBF and the job statement lid has the "validate" bit set in the CMR LID table.

** Conditions do not apply in this column.

12.2 Remote Host Verifications

Since the various system releases occur asynchronously, the standard release software used on a link system may be dependent on additional code to support a new system release. A definition of any dependent code is communicated to the Field Support organization. Please contact Field Support for information about any dependent code or if a problem occurs at your site.

The following systems were functionally verified for proper operation with this release of the Remote Host Facility.

NOS V2.2 Level 596/587 to NOS V2.2 Level 596/587
NOS V2.2 Level 596/587 to NOS V2.1 Level 580/577
NOS V2.2 Level 596/587 to NOS V1.4 Level 573/564
NOS V2.2 Level 596/587 to NOS/BE 1.5 Level 587/587
NOS V2.2 Level 596/587 to VSOS V2.1 Level 592

12.3 Interactive Transfer Facility (ITF)

12.3.1 ITF Field Length Considerations

The PI, TE, and CO parameters on the ITF command in the JOBITF NAMSTRT record determine at ITF initiation, respectively, the maximum number of remote host PIDs (RHF connections), the maximum number of interactive terminals (NAM connections), and the maximum number of terminals per remote host. These parameters are constrained by the definitions of symbols MAXACN (released value = 2) and MAXTCN (released value = 64) in ITF common deck COMITBLS. The following relations exist:

$0 < PI \leq MAXACN$

$0 < CO \leq MAXTCN$

$0 < TE \leq MIN(PI,MAXACN)*MIN(CO,MAXTCN)$

If any parameter is not specified or is not in range, it is set to the maximum allowed. As released, the command

ITF.

is equivalent to

ITF,PI=2,CO=64,TE=128.

The following space is allocated in common block COMITBLS at compile time:

(2*MAXACN) + (MAXACN*MAXTCN) words

The space is allocated along with a variable number of buffers as needed to transfer data between the terminal and the remote host servicer. These tables and buffers are dynamically allocated and released under control of the Common Memory Manager.

12.3.2 ITF Shutdown and Idledown

If, while ITF is connected to RHF, the IDLE,RHF operator command is entered or the RHF subsystem terminates abnormally, ITF will abort and will not restart automatically. To restart the application use the RS parameter on the NAMI command.

Under normal conditions, the IDLE,RHF command should not be used. To initiate an orderly shutdown of RHF, the RHF K-display command K.IDLE should be entered. If this fails to terminate RHF within a reasonable time, check the RHF application display (K.APPL). If the active column shows that ITF is still connected, enter the K.DISABLE,n command to disable the ITF application ordinal. If ITF remains connected, determine the jsn of the ITF job and use the DROP,jsn command to restart ITF. (The ITF jsn can be determined from the NAM status K-display - K,NAM.,K.*,K.ST). Once ITF is no longer connected to RHF, the IDLE or STOP commands may be used to abort the subsystem. In general, the DROP command may be used to restart ITF. The default NAMI JOBITF record allows for a maximum of ten restarts and saves ITF dump and trace files on permanent files for retrieval by COLLECT when NAM is next reinitiated. If you wish to disable ITF connections temporarily, use the RHF APPL K.DISABLE,n and K.ENABLE,n or the NAM NVF DISABLE,AP=ITF and IDLE,AP=ITF commands to control ITF access to RHF or use the RHF PATH or ID K.DISABLE,n and K.ENABLE,n commands to control access to particular LIDs and/or PIDs.

12.3.3 ITFS Connections

When a terminal user first establishes a connection to the CYBER 200, ITFS ignores any input sent until a line beginning with the characters LOGON is entered. Any other input is ignored without comment causing the terminal to appear hung.

CYBER 200 corrective code for this problem is not yet available.

A related problem occurs if the terminal user enters a user-break (CTRL/T) sequence after the CYBER 200 connection has been established but before LOGON is entered. In this case, the terminal user will be returned the ITF LID prompt but the CYBER 200 connection will not be cleaned up properly. This will prevent ITF from terminating the connection to this CYBER 200 PID and, if repeated often enough, could tie-up all available terminal connections to that PID. (After the LOGON command has been entered, the user-break sequence terminates the connection properly.)

CYBER 200 corrective code is available for this problem. Please contact Field Support for a copy of the code.

12.4 NOS V2.2 to CYBER 200 VSOS 2.1 RHF Capability Notes

1. No User Notification for Rejected Files.

   The user is not notified when an input or output file being sent from CYBER QTF is rejected by the remote host. This problem is being addressed by a CYBER 200 RSE that will provide for error messages to the user and possible operator intervention to divert the file to another remote host (front-end).

2. Sending output files not requiring carriage control.

   CYBER 200 output file processing adds carriage control characters to all files unless DC=IX is specified. The processing of the CYBER 200 QTF assumes carriage control must be added to all output files. For transfers of output files not requiring carriage control the user must run the SWITCH utility on the file to change the director entry Internal Characteristics Field (IC). This is done by the SWITCH,lfn, IC=AS statement.

3. Sending CYBER 200 binary files to NOS

   To MFQUEUE a CYBER 200 binary file to NOS using DD=US (for punching or plotting, for example), the SWITCH command must be used first:

   SWITCH, filename, RT=W

4. Recovery directives

   Recovery text is not supported by CYBER 200. When a NOS 2 user enters an MFLINK command connecting to another NOS mainframe the first directives entered are USER and CHARGE, if appropriate. For subsequent MFLINKS to the same mainframe, however, the USER and CHARGE may be omitted. This is because of the recovery text sent in the protocol. This capability is not supported on the CYBER 200 and has two aspects:

   a) CYBER 200 PTFS does not send recovery text in the protocol. As a result, for example, a NOS 2 user entering an MFLINK to CYBER 200 must enter the CYBER 200 USER command even on the second and subsequent MFLINK commands.

      CYBER 200 corrective code for this problem is not yet available.

   b) CYBER 200 MFLINK does not save recovery text. As a result, each CYBER 200 MFLINK command to NOS 2 will require an ST parameter and USER and CHARGE (if appropriate) commands.

      There is a CYBER 200 RSM open on this problem.

5. Error on switch to user

   After performing several MFLINKS from NOS 2 to CYBER 200 an error message, "ERROR ON SWITCH TO USER" may be received even if there is not an error on the USER command. This happens when all four suffixes are in use for a given user.

      There is a CYBER 200 RSM open that will correct the problem.

6. Sometimes CYBER 200 error conditions are not designed.

   Specific cases are the following:

   1. When there is insufficient CYBER 200 disk space to accommodate a file being transferred to CYBER 200, the transfer is aborted with no diagnostic.

2. If a NOS V2 MFLINK directive's record contains a valid CYBER 200 USER command and additional, invalid directives, the MFLINK is aborted but no error diagnostic is displayed.

3. When a CYBER 200 R type file is transferred to NOS using a CYBER 200 MFLINK command with DD=US, an incorrect error message is displayed.

13.0 KNOWN SYSTEM PROBLEMS

Problems that could possibly affect the reliability or stability of the system are documented below by product area. This is not an all encompassing problem list but a list of those problems to be aware of at installation time. Several problems and solutions refer the reader to SOLVER. If your site does not have access to SOLVER, contact your local Professional Services office. It is not recommended that all this code be installed automatically but that it be chosen selectively after experiencing problem symptoms similar to those documented in these sections.

13.1 Operating System

1. A problem exists between NOS and CML L150 such that HPA reports microcode is loaded at the last deadstart even though the operator specified not to load microcode at deadstart time.

   Code is available for this problem from Field Support.

2. The full screen editor (FSE) does not enforce access levels on a secured system properly.

   This problem can be tracked under PSR ident NS2C427 on SOLVER.

3. The IAF startup procedures can loop when idled if a level three recovery deadstart had previously been done to IDLE,IAF and sense switch 6 was not on.

   Add the following two lines of code to the IAF startup procedures before the ENDIF(ROUTE) statement:

   ```
   ELSE(ROUTE)
   RETURN(OUTPUT)
   ```

4. The TAFPRC startup procedure may loop following a level zero deadstart with the message - RECOVERY FILE INITIALIZATION ERROR.

   This problem can be tracked under PSR ident NS2C425 on SOLVER.

HIVS (CTI)

A problem exists in CTI/HIVS level 149C when the following sequence is executed:

- Begin a NOS Deadstart to some device.
- Select operator intervention and enter parameters or enter CR for automatic deadstart.
- If CTI cannot find the OSB binary on the deadstart device, it displays - OSB NOT FOUND - and requests you to enter channel, unit, and equipment numbers of the device containing the Operating System file. After the device information is entered, CTI erroneously clears the microcode and EI levels which CTI now passes to the operating system. The consequence of this is a deadstart abort at the point where NOS checks whether the correct EI and microcode modules were loaded.

  To avoid this problem, at the point where CTI cannot find OSB, initiate deadstart to the device containing the OS file either by selecting the alternate deadstart option or by resetting the deadstart panel parameters.

RHF

1. LOADBC fails during load of remote NAD controlware with message "NLD ERROR 4", when NLD executes at 4X PP speed (835/855).

   Install code ident RHFA829 from SOLVER.

2. An MFLINK to some other systems can abort. This can happen when the MFLINK is the second MFLINK of a series as follows:

```
MFLINK,A,ST=XYZ.
*USER,....
*DEFINE....
MFLINK,B.
*DEFINE...
```

MFLINK will abort if the requested function fails, even though the "NA" parameter is specified:

```
MFLINK,A,ST=XYZ.
*PURGE,NOFILE/NA.
```

Install Code ident RHFA819 from SOLVER.

3. Extra non-zero bits can be added to the end of a small binary file (DD=US or UU) received from a remote Cyber 200 system.

   Install code ident RHFA818 from SOLVER.

4. When an input file is transferred from NOS V2 to CYBER 200 (VSOS 2.1) for execution, the output file returned to NOS 2 may have a UJN with extra trailing zeros. This can make the output file difficult to identify.

   Install code ident RHFA817 from SOLVER.

5. RHF's flashing B-display message may not appear to respond to the operator's "GO,RHF." entry.

   Operators should repeat the "GO,RHF." entry until the message disappears. This problem will be corrected in a future release.

6. QTFI sends the RFT command with an attribute 32 (system routing text) of 260 characters, which exeeds the maximum legal length of 256 characters. This can prevent file transfers to remote systems which require valid attribute lengths.

   Install code ident RHF0049 from SOLVER.

13.2 Common Product Set

FCL5

1. PSR code contained in this release may cause a performance degradation when using FORTRAN (FTN or FTN5) unformatted (binary) reads with a buffer size of 1027. This is only a problem when using the High Speed I/O. Furthermore the problem has only been observed in a single program streaming test environment.

A correction will be made available for FORTRAN 5 from SOLVER under PSR number FL5A645. In the interim the buffer size can be increased on the FILE statement or PROGRAM statement or OPEN statement (FORTRAN 5 only) to 4099 to avoid this problem.

Code on the corrective code file is automatically installed. This code is not on the program libraries. The following modsets are on the corrective code file:

BASA285	CD2A521	CD20126
CD20132	CD20135	CD20159
CD20163	CD20169	CL5B262
CL5B263	CL5B268	CPSA265
DL3A149	DL30039	FCCA592
FCCA593	FCLA634	FCLA637
FC5A421	FC5A426	FC5A431
FDBA098	FL5A622	FL5A624
FL5A625	FL5A638	LDRA505
QU3A662	SMPA286	ST40462
SW1A634	SW10431	SW10452
SW10469	UPDA404	UTLA087

13.3 Network Products

NAM

1. CS may not rollin just after initialization. This happens on a busy system when the system swaps CS out while it is attempting to NETON.

   Install code ident NA5A427 from SOLVER.

CCP

1. An extra CR/LF is sent to an async terminal after a zero length MSG block.

   Install code ident CC50002 from SOLVER.

2. The X.25 TIP does not purge all queued data upon receipt of a terminate and it loses the buffer containing an ICMD block.

   Install code ident CC5A203 from SOLVER.

3. Asynchronous TIP transparent input that is terminated by a delimiter does not work properly due to a problem introduced by CC50014.

   Install code ident CC5A211 from SOLVER.

14.0 FUTURE CHANGES

Installation Improvements

The following installation improvements will be available with future NOS releases.

NOS

A deadstart tape will be custom-built and shipped with the software materials on NOS orders. You will also receive a permanent file dump tape(s) containing the source program libraries. The deadstart tape will be tailored according to order information based on your mainframe type and information supplied by you. You will be allowed to specify certain options from a fixed subset of options.

The current installation process will also be supported. More detailed information will be distributed when the installation improvements are announced.

CYBER Initializaiton Package (CIP)

Installation of the deadstart components CTI, EI, microcode, HIVS/MSL, will soon be accomplished with the selection of a single CTI option. The modules will be packaged together as the CYBER Initialization Package (CIP).

Auto-Input

In a future release, the auto-input flag in AIP and the control byte 0003 in IAF will no longer be supported. At the same time, a new terminal definition command will be added to allow programs to turn off type-ahead from the terminal.

Programs that currently use the auto-input features to suppress prompts should use the PROMPT macro. Those that use auto-input to save a prompt, should be modified to save the prompt internally.

Those programs that use auto-input to synchronize input and output will have to use the new terminal definition command when it becomes available.

The AUTO command in IAF will remain available.

Change in Noise Size Specification for PE and GCR Tapes

The ability to specify noise block size on ASSIGN, REQUEST and LABEL control commands with the NS parameter will be removed from a future NOS 2 system for all PE and GCR tape equipment. This change affects F, S and L formats. The NS parameter is currently illegal for I and SI formats, so they are not affected. Support for the NS parameter will be retained unchanged for seven track formats and for nine-track NRZI formats.

The noise block size will be set to one for PE and GCR formats. If the NS parameter is set to anything other than one, it will be ignored and an informative message issued.

The impetus for the change is to simplify support code for the new hardware which will be supported in a future release. However, there are several factors which make this a desirable change for all tape equipment.

1. Several sites must process non-standard tapes which contain legitimate data blocks smaller than the F, S and L format default (18 frames) for noise size. Reading such tapes without explicitly reducing the NS parameter causes data to disappear. Diagnosing this situation and taking corrective action is difficult and time-consuming for non-expert NOS users.

2. Real noise (tape flux changes which were not intentionally recorded as data) is not a problem on PE and GCR format equipment. For these recording schemes, data is always preceded by a preamble and followed by a postamble pattern on tape. Spurious flux changes will be ignored regardless of length because they are not accompanied by the required preamble.

3. The change will affect all PE and GCR equipment rather than just the new hardware in order to provide consistent tape operation on sites where the new equipment will coexist with existing 66X and 67X hardware.

15.0 CONFIGURATION MANAGEMENT

NOS V2.2 level 596/587 was tested in an environment containing the following controlware, microcode, environment interface, CML and HIVS/CTI software components:

Hardware Component	Release Level	Part Number
7054/844 (BCS-HALF TRACK)	MA710-A13	(PN52706607)
7021/67X (FIRM67X)	MB434-A14	(PN52653361)
7155/885/844-4X (FMD-HT/FT)	MA721-A08	(PN53479843)
7154/844 (BCF-FULL TRACK)	MA401-A07	(PN22724600)
7155-501/885-42/885-1X /844-4X (PHD-HT/FT)	MA722-A01	(PN52706629)
380-170 (NAD)	MG101-A05	(PN53367354)
CYBER 18 Mode 4 emulator	MD426-A05	(PN88952276)
Model 815 Microcode	U1BL08	(PN19268287-7TK/ 19268288-9TK)
Model 825 Microcode	U1CL08	(PN19268290-7TK/ 19268291-9TK)
Model 835 Microcode	U2AL11	(PN19268130-7TK/ 19268131-9TK)
Model 855 Microcode	U3XL43	(PN53487977-9TK only)
800 Series Environment Interface	Level 8	(PN77987535A)

The following components have been verified at the indicated levels:

Hardware Model	Hardware FCA Index	Microcode Level	NOS 2.x Level	HIVS Level	MSL Level	CML Level
CY170-815	2	U1BL08	V2.2 L596	149C	149C	150
CY170-825	3	U1CL08	V2.2 L596	149C	149C	150
CY170-835	4	U2AL11	V2.2 L596	149C	149C	150
CY170-855	4	U3XL43	V2.2 L596	149C	149C	150
CY170-865	1	None	V2.2 L596	149C	149C	150
CY170-875	1	None	V2.2 L596	149C	149C	150

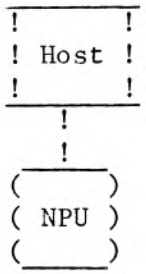
APPENDIX A

System Autostart Module (SAM) Configuration

The System Autostart Module (2580-5) requires the tape cassette (2580-7) for proper operation.

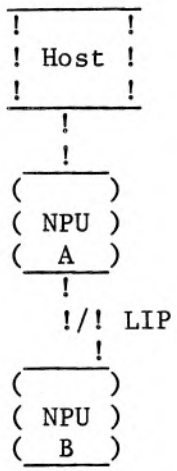
The following rules apply in determining if the SAM/cassette must be included in a 255X Network Processing Unit (NPU) configuration:

Local - Single Host NPU - Configuration A



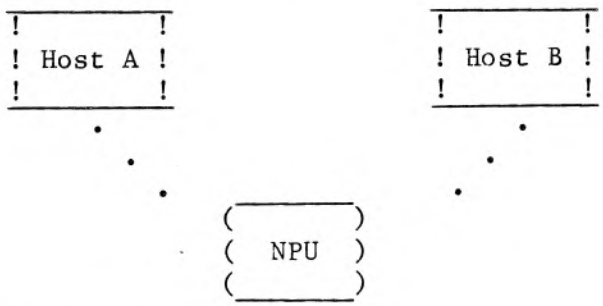
No SAM/cassette required.

Remote NPU - Configuration B



NPU B requires SAM/cassette, NPU A does not.

Shared NPU - Configuration C



SAM/cassette recommended (optional)

An NPU that is channel connected to two Hosts should have a SAM/cassette.

A shared NPU that is equipped with a SAM/cassette can set the EST entries in both Hosts to reflect the availability of a SAM/cassette (SAM flag set SA=ON in EQPDECK). The Network Supervisor (NS) can be run in one or both Hosts. This allows the NPU to be loaded via an available NS in either Host, regardless of the status of the other Host.

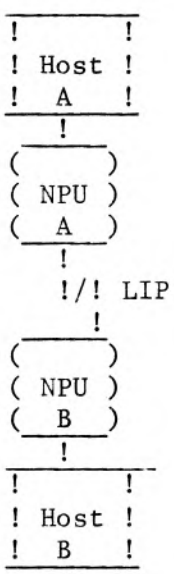
A shared NPU that is not equipped with SAM/cassette forces the site to designate one Host for loading of that NPU. That Host must be connected to the primary coupler of the NPU and must run NS. Assume Host A in Configuration C is the primary -- the EST entry in Host A must reflect that the NPU has no SAM/cassette (SA=OFF). Also NS must run in Host A. The EST entry in Host B must be set as though the NPU host has SAM/cassette (SA=ON) to prevent Host B from trying to load the NPU.

If Host A is not available and the NPU needs to be loaded, it will have to wait for Host A to become available. (Note: If the NPU does not need to be loaded while Host A is unavailable, the NPU can continue to operate with Host B.)

If Host A will be unavailable for a prolonged period of time, the site can idle NAM in Host B, change the EST entry in Host B to reflect SA=OFF and bring NAM up again. (Note: All connections to a Host are lost when NAM is dropped.) Subsequently, before Host A becomes available, the same procedure must be followed to set the EST entry back to SA=ON.

Caution: At no point in time should the EST entries in Host A and Host B both reflect SA=OFF at the same time for a shared NPU while NAM is active in both.

Local NPUs connected by a LIP Trunk - Configuration D



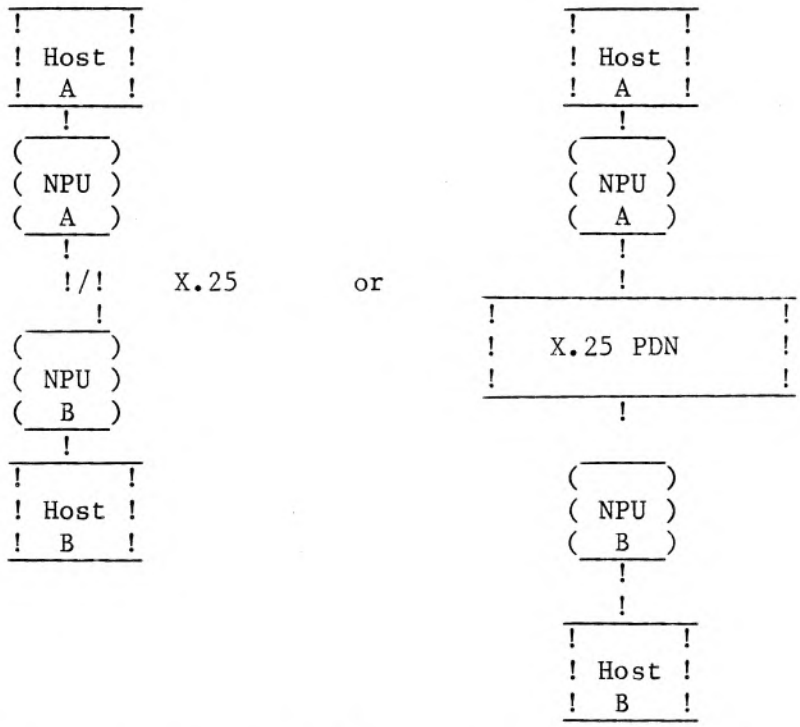
SAM/cassette recommended (optional) in both NPU A and NPU B.

Local NPUs connected by a LIP trunk in a Multi-Host environment should have SAM/cassettes. Configuring the NPUs with SAM/cassettes allows them to be loaded by NS in either Host A or Host B.

If neither NPU has SAM/cassette, the EST entries in both Hosts must reflect that SA=OFF and NS must be run in both Hosts, and loading from the remote host via the trunk cannot occur.

If one NPU has SAM/cassette (say NPU A) and the other (NPU B) does not, then only the EST entry in Host B must be set to SA=OFF. NS must run in Host B but is optional in Host A, i.e. NPU A can be loaded across the LIP trunk from Host B, if necessary, but NPU B cannot be loaded from Host A.

Local NPUs connected by an X.25 PDN or Trunk - Configuration E



NPUs A and B do not require SAM/cassettes since no loading over X.25 PDNs or trunks is allowed.

APPENDIX B

R UTILITY

The R utility allows a previously entered command to be modified and reexecuted without retyping the entire command. R is released in binary format only. It is contained only on the UDST. Programming System Reports (PSR) may not be written against R but any feedback should be sent to Field Support. Typing R with no parameters will cause the utility to display the previous command and provide a modification line where changes to the command can be made. When a carriage return is entered the modified command is executed.

For example, if the last command was MODIFY,Z./*EDIT,CIO and you wanted to edit LFM instead -

```
R
OLD:  MODIFY,Z./*EDIT,CIO
MOD:                  LFM
NEW:  MODIFY,Z./*EDIT,LFM
```

The OLD line is output by R and you are prompted with the MOD line. Modifications are entered much as in the modify command of XEDIT. The NEW line echos the command that is about to be executed.

Modifications are done by visual alignment of the OLD and the MOD lines. The modification command characters are:

space - retains the character from OLD.
\# - deletes the character from OLD.
& - changes the OLD character to a space.

^ - inserts following characters before the OLD character above the ^. The inserted text is terminated by a # or by carriage return. If a caret is entered followed by end of line the line will again be displayed as modified and further modfications will be allowed.
! - deletes the rest of the text of OLD.
other - replaces the character from OLD.

If R is called with a parameter, a previous command that begins with the same characters as the parameter is found and becomes the command to be reentered. The first 10 characters of the parameter or up to a blank or end of command input are used for the parameter. Thus commands such as the following will work -

```
R,FTN,I=A
R,GTR,SYSTEM.EQPD00
```

If the R command is suffixed with /GO, the OLD, MOD, and NEW messages will be suppressed. This is useful for slow baud rate terminals.

APPENDIX C

KEY PROGRAM

The new system KEY command, which allows you to program the function keys on a Viking 721 terminal, also demonstrates the new Screen Formatting Facility feature. The source for this command is on file 3 on REL2A. This command is already installed for you on the UDST. If you are interested in programming the 721 and/or learning more about Screen Formatting, please consult the source of this command.

KEY COMMAND

The KEY command defines the Viking 721 terminal programmable function keys.

Formats:

```
KEY,OP=operation, FN=lfn.

or

KEY,op,lfn.
```

Parameter	Description
OP=op	Specifies what KEY operation is to be performed. The default value for op is DEFAULT.

op	Description
DEFAULT	Load the default definitions.
EDIT	Edit or create a function key definition file.
LOAD	Load keys from a function key definition file. LOAD will automatically GET your key definition file if it is not already a local file.
DISPLAY	Display the current function key labels.

FN=lfn — Specifies what function key definition file is to be edited or loaded. The default lfn is KEYDEFS.

lfn should not be specified for the DEFAULT or DISPLAY operations.

KEY is an interactive procedure. The command:

```
KEY?
```

will supply help for the KEY command. The EDIT operation has additional help built in which you can obtain by pressing the HELP key.

The definitions of the function keys loaded by the KEY program do not interfere with running the NOS Full Screen Editor or NOS Screen Formatting products. These programs temporarily suspend your key definitions on entry and restore them on exit.

KEY should be run only in an interactive job when you are using a Viking 721 terminal.

APPENDIX D

NOS CONTEXT

NOS CONTEXT is a new interactive NOS product that allows documentation to be stored online and flexibly accessed. A new utility called BINDER allows a sequential text file with embedded directives to be converted to an online manual. A new utility called EXPLAIN allows reading the resulting online manuals. Two other utilities, REVIEW and OMREF, are tools to assist in the preparation of online manuals. REVIEW allows a document reviewer to review a document and make comments to the author. OMREF is a cross reference utility to assist the writer in producing a complete and logically correct manual.

The reader of an online manual can locate information in one of two ways. The simplest way is to make a menu selection from a list of choices provided by the writer. The selection will usually lead to another menu with more detailed choices. After a few simple menu choices the reader should have arrived at the desired information. For the reader who is looking for a specific topic a second method of looking up information is provided; the ability to enter a topic to be displayed. The topic search provides a quick way to go directly to material on a subject without passing through a number of menu screens.

Topic searches will take a reader directly to the material if the writer has indexed it. The topic search mechanism can deal with many typing/spelling errors that the reader may make. It will automatically correct these and if the correction is unique, take the reader to the selected screen. If the correction identifies several alternatives, the reader will be presented with a menu of choices.

As you read through a manual, the system automatically leaves place markers on those pages that you were reading when you decided to "Jump" to another page. A "Jump" is whenever you make a choice from a menu selection or do a topic search. These caused you to "Jump" to some other page instead of just moving forwards, backwards, or up a page at a time. At any time you can go back to the previous marker by typing in the "less than" key followed by a carrage return. This is convenient when looking up a term and then returning to the material you were reading and when you want to go back and make a different menu choice.

NOS CONTEXT (Continued)

Included in the NOS V2.2 release for NOS CONTEXT is the following:

- Binaries of BINDER, EXPLAIN, REVIEW and OMREF. They are contained only on the unconfigured deadstart tape.

- The source file for the manual for NOS CONTEXT. This file is released on the NOS 2.2 REL0 tape and is loaded by the procedure TAPE to a direct access file named MANUAL.

- NOS CONTEXT source is available by ordering the product NOS CONTEXT.

Installation Procedure to install online manuals.

- Create user MANUALS.

- Login under UN=MANUALS and

```
ATTACH,MANUAL/UN=iun.          iun = installation user name
DEFINE,XXX=MANUAL.
COPYEI,MANUAL,XXX.
RETURN,MANUAL,XXX.
ATTACH,MANUAL.
DEFINE,CONTEXT/CT=PU,M=R.
BINDER,I=MANUAL,O=CONTEXT.
```

  This creates file CONTEXT which explains how to use and write online manuals.

The binder is invoked with a command statement of the form.

```
BINDER,I=lfn1,O=lfn2,OUTPUT=lfn3
```

lfn1 is the local filename of the source file of the manual to be bound.

lfn2 is the local filename on which the bound manual is to appear.

lfn3 is the local filename on which diagnostics and statistics are to be output. This parameter may be omitted, in which case the filename assumes the default value of OUTPUT and is displayed at the terminal in an interactive environment. If either of the first two parameters is omitted, the default values of I and O are used as the filenames, respectively.

If the desired manual is available as a local file, it may be read at the terminal by invoking the EXPLAIN utility with a command statement of the form.

```
EXPLAIN,M=lfn
```

where lfn is the local filename of the file containing the bound manual. If lfn does not exist as a local file already, an attempt will be made to attach it as a direct access file with UN=MANUALS. You must supply a value for M, otherwise EXPLAIN will abort without finding a manual.

Such an invocation causes the first page of the manual (that is, the screen named MAIN) to be displayed at the terminal. If you want to start at some point other than this screen, you can call EXPLAIN with an extra parameter in the form

```
EXPLAIN,M=lfn.topic?
```

In this case, the page first displayed will be the one that is indexed by topic. (Note the period between the lfn and topic.) The ? is optional.

The OMREF utility provides the ability for the writer to see a complete listing of index topics in the manual as well as cross-reference map of which screen refers to which other screens and which screens in turn refer to it. It also diagnoses errors in the manual such as missing screens. OMREF is called by

```
OMREF,I=lfn1,L=lfn2
```

where lfn1 is the name of a local file containing a bound manual, and lfn2 is the name of the file on which the listing will be placed. Default filenames are I and L, respectively.

Output Produced by OMREF

The output produced by OMREF is a listing composed of two parts.

The first part of the listing shows each indexed topic in alphabetical order together with the screen-name with which it is associated.

The second part of the listing shows each screen-name in alphabetical order and then, indented under each, a complete list of the screen names that it references as well as the screen-names and index topics that refer to it. Each of these indented lines also contains an indication of the type of reference involved, i.e., whether it is a next, prior, up, or menu selection or whether it is an index topic.

The installation process will leave an online manual for online manuals in the catalog as CONTEXT/UN=MANUALS. If you want to read this manual, enter

```
EXPLAIN,M=CONTEXT
```

from an interactive terminal. Note that online manuals uses the NAM terminal class information to clear the screen of your terminal. If you have a Viking 721 terminal, you should use the new terminal class TC=3 for the Viking 721.

SUMMARY OF TERMINAL COMMANDS TO READ A MANUAL

Carriage Return or Plus Sign (+)	Takes you to the next page.
Minus Sign (-)	Takes you to the previous page.
UP	Takes you to the menu page one level up.
Index Topic?	Takes you to the first indexed page concerning "index topic".
?	Takes you to the next indexed page concerning "Index topic".
DISI	Displays a portion of the index starting at the beginning of the Index.
DISI topic	Displays a portion of the index starting at "topic".
(less than sign)	Takes you back in one jump to where the previous place marker was left.
TOP	Takes you to the first page in the manual.
HELP	Takes you to the "help" pages in the manual.
QUIT	Exits the EXPLAIN utility.

NOS Manuals

The manuals will be released separately from NOS and require the installation of NOS CONTEXT. The first manuals to be released will be the four following:

System Information Manual
NOS 2 Commands Reference Manual
Cyber Interactive Debug Version 1 Reference Manual
Fortran Version 5 Reference Manual

APPENDIX E

PUBLICATIONS ADDENDUM

The following changes and additions to the NOS V2.2 IHB should be noted before attempting to install the system:

Page

2-18 Change '*FILElfn' to '*FILE,lfn'.

2-22 Under COMPASS Program Library, change 'deck COMPCPL' to 'deck COM1X1B'.

2-22 Under RELOPL program Library, change 'should occur only' to 'could occur'.

2-22 Under COMPASS Program Library, change 'only the common decks' to 'certain common decks'.

2-22 Change 'figure 2-5' to 'Build Parameters later in this section'.

2-23 Under step 8, change 'figure 2-5' to "Build Parameters later in this section'.

2-23 Under step 8, change 'VSN=SYSOPL' to 'VSN=RELOPL'.

2-23 Under step 8, SYSOPL has been replaced by RELOPL.

2-23 Under step 8, change 'OS keywords' to 'COMBINE keywords'.

2-26 Change 'COMCPL' to 'COMC_psrout'.

2-26 Change 'only common decks' to 'only certain common decks'

2-26 Change 'composite OPL' to 'OPL_psrout' (or a name that signifies it as the RELOPL Program Library, as on page 2-22). This name should then be used consistently.

2-26 Under PN99, change 'system pack' to 'family pack'.

2-31 Under step 3, change 'RELOPL' to 'OPL_psrout'.

2-39 Under RELOPL, change the last sentence to the magnetic tape may be pre-assigned with the local file name RELTAPE.

2-45 Under Input Tape VSN, change 'PSRIN' to 'psrin'. Tables 2-3 and 2-5 should reflect this also.

2-47 Tables 2-3, 2-4, and 2-5, change 'REL3A' to dagger, with the explanation of - COMPASS program library (see Auxiliary Program Libraries). Note that this is only for REL3A in the column labelled 'Other Tapes Required'. This does not apply to the BAM build job.

2-47 Tables 2-3, 2-4, and 2-5, remove CC and PC from the common keywords column.

2-47 Remove comments under BINEDIT and CCL.

2-47 Change 'COMBINE' to 'C'.

2-48 Change 'HCD' to 'LOADER'.

2-50 The CDC2 build job references COMC_PSROUT as well as REL3A for auxiliary tapes.

2-53 Move double dagger from DCAT2 to CROSS.

2-53 Change 'Install after CROSS' to 'Install after CROSS and NAM5'.

2-54 Under comments, add 'TOOLS has to wait for FTN5 to complete.'

2-54 For ITF, under the comments column, add Install after NAM 5.

2-62 Under RHF INSTALLATION VERIFICATION, change 'on the unconfigured deadstart tape' to 'on the file INSTALL'.

2-63 Under STEP 13, add files created by the TAPE (REL0) procedure. These files (CODING, SYMPCOD, and MANUAL) should be moved to LIBRARY and username MANUALS.

2-64 Change the parameter defaults for UN1, PW1 and FAM1 to null string.

2-65 Change '-' (by SRVLIB) to 'OSTEXT'.

2-65 Change 'NOS' (by SRVLIB) to 'System Macro Interface Routines'.

2-65 Change 'COMBINE' (by SYSLIB) to 'OSTEXT and others'.

3-1 Remove first sentence.

4-1 Change 'Table 2-2' to 'Table 2-5'.

5-4 Remove 'The APL2 procedure may precede the APLUSR0 and APLUSR1 procedures.'.

5-5 Change 'file named MESSAGE local' to 'fine named MESSAGE local and execute as a batch job or the IA parameter set to YES'.

5-6 Change 'USERCHG' to 'DECKLIS Procedure'.

5-47 Under FILE PLACEMENT, change 'permitted to user name SYSTEMX' to 'either a public file, or if you place a USER command in files NAM and NAMNOGO, permitted to the username specified on the USER command'.

5-69 For the PATH OF RN62, add ',RT=0010'.

5-86 Change 'P76,S10' (on 760 line) to 'P760,S10'.

5-88 Change 'X.MOVEPF...' to

```
X.MOVEPF(F1=XEDITH,UN1=iun,PW1=pw1,FAM1=fam1,
UN2=LIBRARY,PW2=pw2)
```

where 'iun' is the username XEDITH is cataloged on, 'pw1' is the batch password for username 'iun', 'fam1' is the family that XEDITH is cataloged on, and 'pw2' is the password for username LIBRARY.

6-12 Change '10B' (by UTIS in COMSREM) to '10D'.

6-12 Change '600D' (by VXLL in COMSREM) to '2500D'.

6-12 Change '600D' (by VXPH in COMSREM) to '2500D'.

8-36 Change '16 million' to '2 million' in maximum value in words of ESM.

C-5 Under REL0, change 'File 5' to

File 5, NOS COMPASS programming standards (7/12 ASCII); File 6, NOS SYMPL programming standards (7/12 ASCII); File 7, Online manuals user guide (6/12 ASCII).

C-18 Under REL12E, change 'File 3...' to 'File 3, Empty file.'

NOS Version 2.2 596/587 Software Release Bulletin
October 14, 1983

INSTALLATION RESPONSE FORM

SOFTWARE RELEASE BULLETIN
NOS V2.2 LEVEL 596

NOS Field Support maintains a list of the sites using NOS. In order that we can represent the customer base more effectively, we ask that you fill out the form below and return it to NOS Field Support. Thank you.

SITE NAME AND CODE _____

SITE ADDRESS _____

_____

_____

_____

CONTACT _____

DATE _____

This site has installed NOS V2.2 Level 596/587 and is currently using it in a production environment.

Please return to:

NOS FIELD SUPPORT - ARH213
CONTROL DATA CORPORATION
4201 North Lexington Avenue
St. Paul, Minnesota 55112

3775E